

Volume 35

Number 3

Washtenaw Community College Bulletin

Programs
and Services
2005 – 2006



Washtenaw
Community
College

Liberal
Arts and
Science
Building

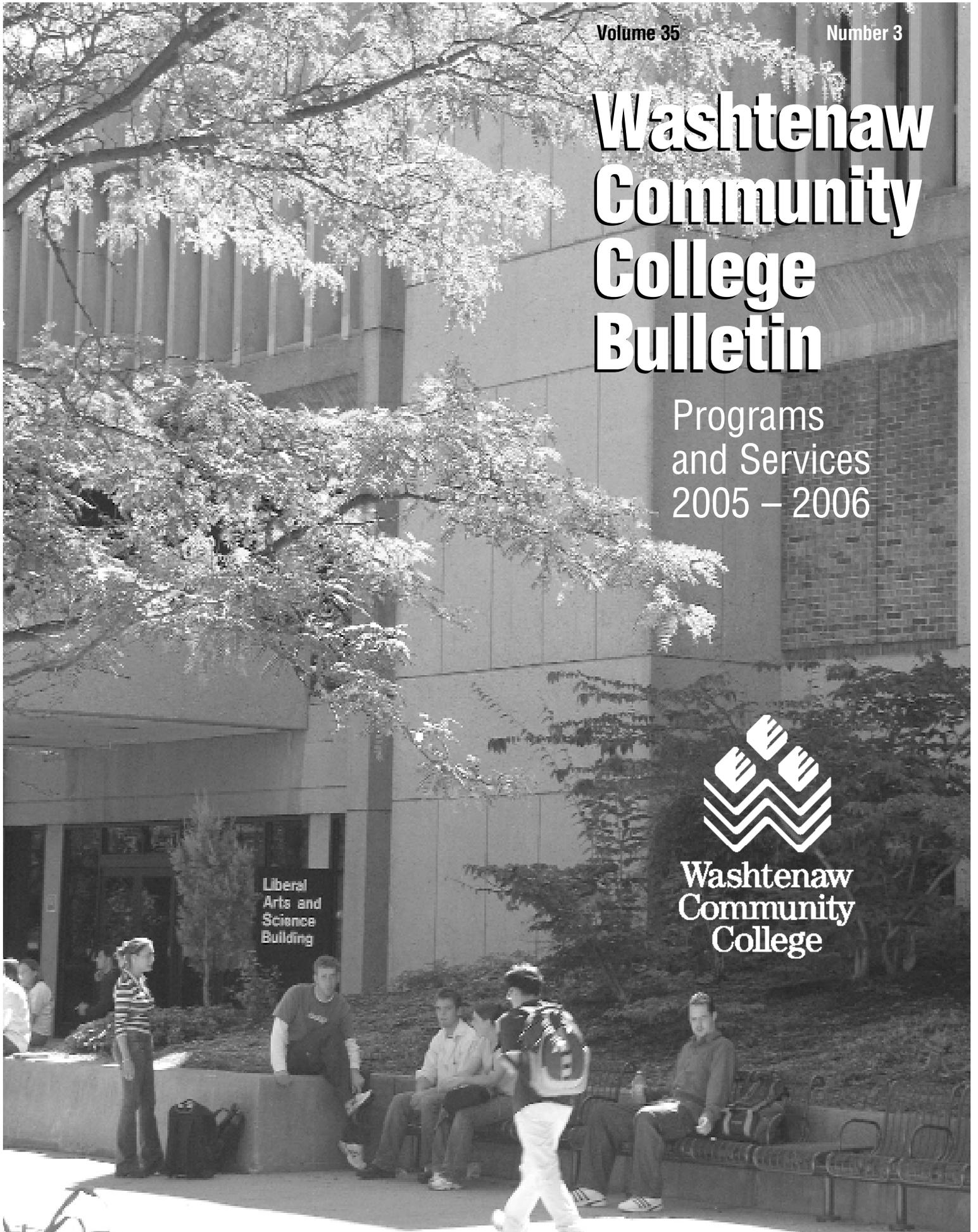


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This document is for informational purposes only and is not to be construed as a binding offer or contract between WCC and the student. This document was prepared in June, 2005 and is subject to change without notice.

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World Wide Web Site Address
See this location for the College Bulletin and the
Academic Class Schedule information:
<http://www.wccnet.edu>

2005-2006 Academic Calendar

Fall Semester, 2005

August 26Fall Semester begins
September 2-5.....No classes
September 5Labor Day Holiday, College closed
November 9.....Winter Registration begins for current students
November 16Winter Registration begins
for new & readmitted students
November 22, 23.....No classes, College open
November 24, 25Thanksgiving Recess, College closed
November 26.....Classes resume
December 16Fall Semester ends
December 23 - January 2.....Semester Break, College closed

Winter Semester, 2006

January 9Winter Semester begins
January 16.....Martin Luther King Jr. Holiday, College closed
February 27 - March 5Winter Recess, no classes
March 6Classes resume
March 15Spring/Summer Registration begins for current students
March 22Spring/Summer Registration begins
for new & readmitted students
May 1.....Winter Semester ends

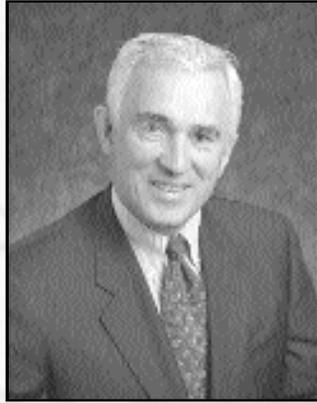
Spring/Summer Semester, 2006

May 8.....Spring/Summer Semester begins
May 18Honors Convocation
May 20Commencement
May 29.....Memorial Day Observed, College closed
May 30.....2nd 10-week session begins
June 152nd 7-1/2 week session begins
June 281st 7-1/2-week session ends
July 4Independence Day Holiday, College closed
July 181st 10-week session ends
August 112 week session ends
August 82nd 7-1/2 & 2nd 10-week sessions end*

** Most classes end on this date or before unless specified otherwise in the class listings of the Spring/Summer 2006 Academic Class schedule.*



Greetings From President Larry L. Whitworth



On behalf of Washtenaw Community faculty and staff, welcome to the College. The College offers its students an educational experience of the highest quality. If you are a current student, congratulations on your decision to invest in your future by accessing the appropriate education to advance your career opportunities. If you are not currently enrolled, let me encourage you to consider WCC and its excellent associate degree and certificate programs.

Washtenaw Community College offers each student an educational experience designed to meet his/her future plans. Its comprehensive mission includes broad-based occupational programs, non-credit courses and classes that prepare students for academic transfer. Nearly 100 programs of study are available at WCC. I

encourage you to take the time to review this catalog; in these listings, you will discover the courses and programs that will give you the means for expanding your future opportunities.

In addition to providing academic preparation, the College offers its students an array of services such as financial aid, personal and professional counseling, academic skills improvement and tutorial services. Whatever your specific needs are, I encourage you to seek out and use the comprehensive services available to all WCC students.

All our current thinking suggests that the future is wide open for “knowledge” workers. Continuous education is the key to becoming and remaining a “knowledge” worker. But it is not only your economic viability that is enhanced by continuing your education. The quality of other important aspects of your life also will be enriched by your experience as a WCC student. Classes in the arts and humanities can expand your understanding of the beauty of our world; exposure to the social sciences can help build the intellectual foundations required to develop an appreciation of the richness of human diversity; and courses in the natural sciences will enhance your analytic and problem-solving skills.

Your future and the future of those depending on you will be greatly affected by your decision to continue your education. Let me encourage you to decide today to become a dedicated life-long learner.

Sincerely,

A handwritten signature in cursive script that reads "Larry Whitworth". The signature is written in dark ink on a light background.

Larry Whitworth

President

■ Statement of Mission and Values

Mission of the College

Our college strives to make a positive difference in people's lives through accessible and excellent educational programs and services.

- We provide a caring, open-door teaching and learning environment.
- We provide excellent teaching, counseling, and support services.
- We reach out to people who have limited income or other barriers to success.
- We enable people to progress in their academic and career pursuits.
- We work in partnership with the communities we serve.

We fulfill our mission by offering the following programs and services:

Occupational and Career Education: We offer certificate and associate degree programs, seminars, workshops, and courses which enable people to pursue employment or advance in a career. We develop and deliver job skills and occupational education programs in partnership with business, industry, government and labor groups.

General and Transfer Education: We offer individual courses and associate degree programs in academic disciplines which transfer to four-year colleges and universities, complement career programs, and enhance personal growth.

Continuing Education and Community Services: We offer credit and non-credit courses and programs at regional centers, at local business and community sites, and via television and the Internet. We develop and offer programs which respond to the educational needs of specific groups in the community.

Developmental Education: We offer basic courses, which strengthen reading, writing, mathematical, computer and study skills. We also offer instruction and services to people who wish to learn English as a second language.

Student Services: We offer orientation, academic skills assessment, assistance with program and course selection, financial aid, university transfer assistance, personal and career counseling, job placement, tutoring, child care, special needs services, computer and self-paced instructional laboratories, and library services.

Community Leadership: We cooperate with other community organizations in seeking solutions to local economic and social problems. As a primary educational resource in the community, we work to improve the quality of life in the communities we serve.

Values of the College

Teaching and Learning: We embrace teaching and learning as our central purpose.

Support: We make every effort to help learners achieve success.

Diversity: We respect differences in people and in ideas.

Partnerships: We plan and work together with respect, trust, and honesty within the college and with the communities we serve.

Innovation: We seek the best possible ways to conduct our work.

Vision Statement

WCC is a learner-centered, open-door college dedicated to student, community, and staff success. We offer a wide spectrum of community college services with an emphasis on premier technical and career education programs. The College staff continuously learns to improve learning.

Student Success: Our students come first. We are committed to their learning, success, and satisfaction. We strive to serve every student in an effective, caring, and supportive way. In order to enhance student learning outcomes, we engage in continuous improvement of teaching, programs, processes, and structures. We increase our accessibility by reaching learners where, when, and how they need instruction through the use of learning technologies, workplace learning experiences, and flexible scheduling of classes.

Community Success: We are committed to community learning, success, and satisfaction. WCC's primary contribution to community success is the development of a highly skilled workforce. A strong partnership with area employers emphasizes customized employee training and rapid adaptation of WCC programs to changing job training needs. Through strategic alliances with business, government, labor, and other educational institutions, WCC increases its emphasis on applied technology education, joint technical education programs with the public schools, and basic job-training services to underserved and at-risk groups.

Staff Success: We are committed to staff learning, success, and satisfaction. As a staff, we emphasize teamwork within college units and between the units. We support our colleagues and help them to be successful. We learn to improve learning; that is, we continuously increase our capacity to meet the educational requirements of the students, employers, and communities we serve. Through staff learning, we continuously improve services at each stage of the flow of students through WCC. All staff members align their work to contribute to improved teaching and increased student and community learning.

■ Board of Trustees



Diana McKnight-Morton
Chair
Term expires: Dec. 31, 2006



Jerry D. Jernigan
Vice Chair
Term expires: Dec. 31, 2008



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Secretary
Term expires: Dec. 31, 2006



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Treasurer
Term expires: Dec. 31, 2010



Richard W. Bailey
Trustee
Term expires: Dec. 31, 2008



David E. Rutledge
Trustee
Term expires: Dec. 31, 2008



Stephen J. Gill
Trustee
Term expires: Dec. 31, 2010

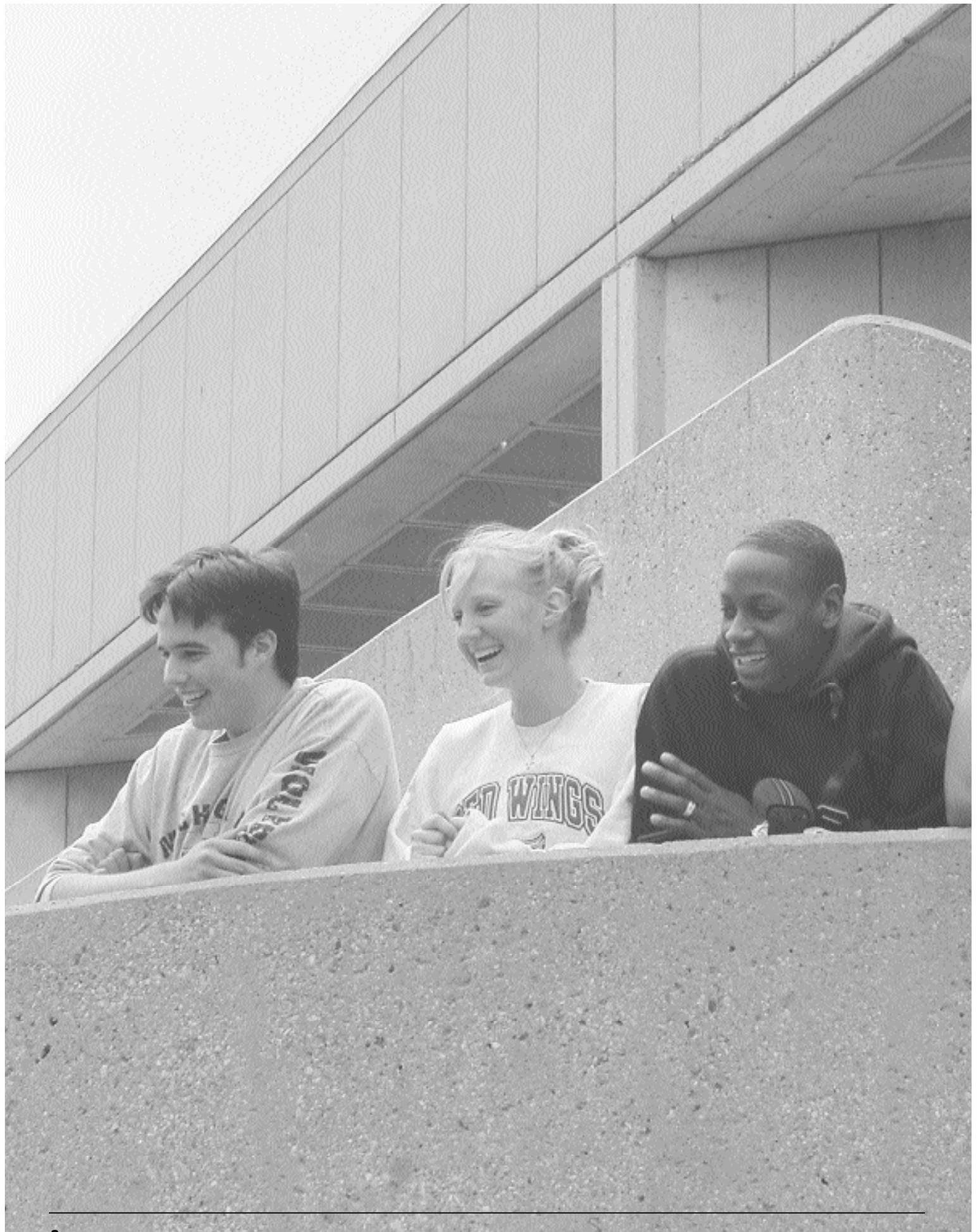
■ Campus Telephone/ Office Directory

all area codes are 734 unless otherwise noted

Academic Skills Center	GM 307	973-3301
Admissions	SC 2nd floor	973-3543
Adult Transitions	GM 300	677-5006
Alumni Association	SC 306	973-3360
Apprenticeship and Trade Related		
Programs	ML 104	973-3533
Bookstore	SC 1st floor	973-3594
Business and Industry Services	ML 104	677-5008
Campus Safety/Security	PO 124	973-3411/3502
Cashier	SC 2nd floor	973-3485
Children's Center	FE	973-3538
Computer Commons	GM 2nd Floor	973-3420
Computer Lab	TI 108	973-3632
Continuing Education Services	ML 104	677-5027
Counseling, Career Planning and		
Employment Services	SC 2nd floor	677-5102/5124
Curriculum/Articulation Services	SC 247	973-3706
Customized Training	ML 104	677-5008
Dean of Academic Placement	SC 206	677-5003
Counseling and Support Services		
Dean of Business & Computer Technology	BE 100	973-3724
Dean of Continuing Ed. and Com. Serv.	ML 104	973-3630
Dean of Enrollment Services	SC 203	973-3540
Dean of Health and Applied Technology	OE 102	973-3474
Dean of Humanities/Social Science	LA 136	973-3356
Dean of WCC Library	GM 116	973-3379
Dean of Math, Natural and		
Behavioral Sciences	LA 148	973-3722
Dental Clinic	OE 110	973-3338
Distance Learning Information	GM 234	477-8713/8556
Employment Services	SC 2nd floor	677-5155
Evening /Weekend/Extension Services	LA 176	677-5030
Financial Aid	SC 205	973-3523
General Information (phone menu)		973-3300
Harriet Street Center	332 Harriet St., Ypsilanti	480-9950
Hartland Center	9525 Highland Rd., Hartland	810-746-2152
Library	GM 1st floor	973-3429
Lost and Found	PO	973-3502
Math Center	LA 255	973-3392
Northern Center	7878 Brighton Road, Brighton	810-299-4195
Public Service Training Program	ML 106	677-5024
Registration Questions	Student Connection	973-3543
Student Connection	SC 2nd floor	973-3543
Student Activities	SC 112	973-3500
Student Resources and Women's Center	SC 2nd floor	973-5105
Student Records	SC 203	973-3548
Testing Center	SC 300	973-3634
Veteran's Benefits	SC 203	973-3616
Vice President for Instruction	SC 243	973-3488
Western Center	7920 Jackson Rd. Ann Arbor	424-0182
Writing Center	LA 355	973-3647

Building Abbreviations

BE Business Education Building	ML Morris Lawrence Building
FE Family Education Building	OE Occupational Education Building
GL Great Lakes Regional Training Ctr.	PO Plant Operations Building
GM Gunder Myran Building	SC Student Center Building
LA Crane Liberal Arts and Science Bldg.	TI Technical and Industrial Building



■ Accreditations/Approvals

Institutional Accreditation:

Washtenaw Community College is Accredited by

The Higher Learning Commission of the North Central Association
30 North LaSalle Street, Suite 2400
Chicago, Illinois 60602-2504
(312) 263-0456; (800) 621-7440
www.ncacihe.org

Children's Center Accredited by the National Association for the Education of Young Children

1509 16th Street NW
Washington, D.C. 20036-1426
(800) 424-2460/(202) 232-8577
www.naeyc.org

Program Accreditations and Approvals:

Culinary and Hospitality Management AAS Degree, Culinary Arts Certificate, Baking and Pastry Certificate Accredited by

The Accrediting Commission of The American Culinary Federation
10 San Bartola Drive
St. Augustine, FL 32086
(800) 624-9458
www.acfchefs.org

Dental Assisting Certificate Certified by

The Commission on Dental Accreditation of The American Dental Association
211 E. Chicago Avenue
Chicago, Illinois 60611
(312) 440-2500
www.ada.org

Law Enforcement Basic Police Academy Approved by

The Michigan Commission on Law Enforcement Standards
7426 North Canal Road
Lansing, Michigan 48913
(517) 322-1417
www.mcoles.org

Registered Nursing AAS Degree Accredited by

The National League for Nursing Accrediting Commission
61 Broadway - 33rd Floor
New York City, NY 10006
(212) 363-5555,
(800) 669-1656 ext. 153
www.nlnac.org

Approved by

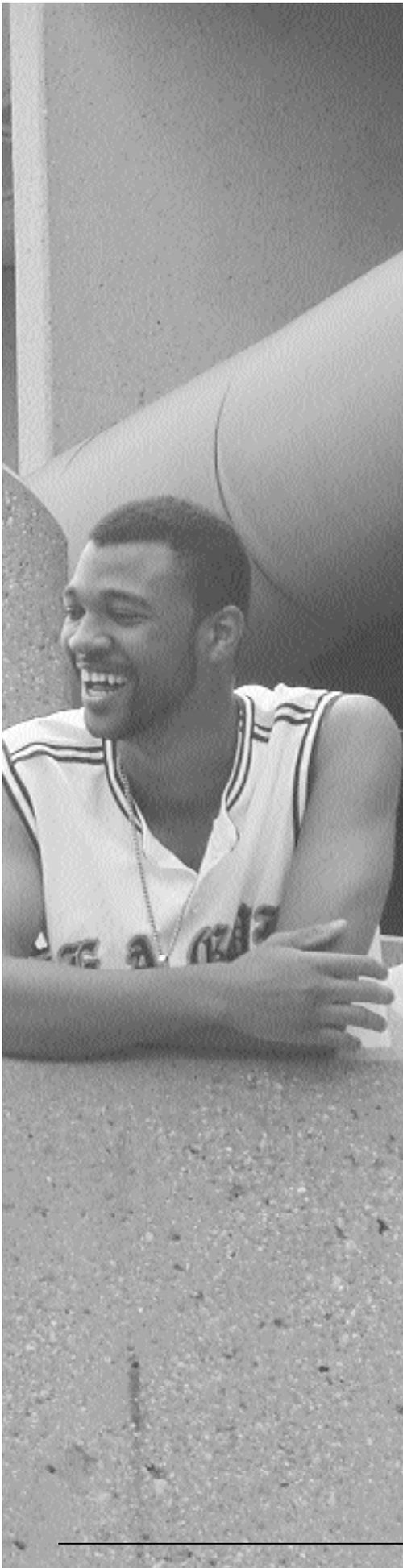
State of Michigan
Department of Community Health
Board of Nursing
P.O. 30670
Lansing, MI 48909-8170
(517) 335-0918
www.mi.gov/mdch

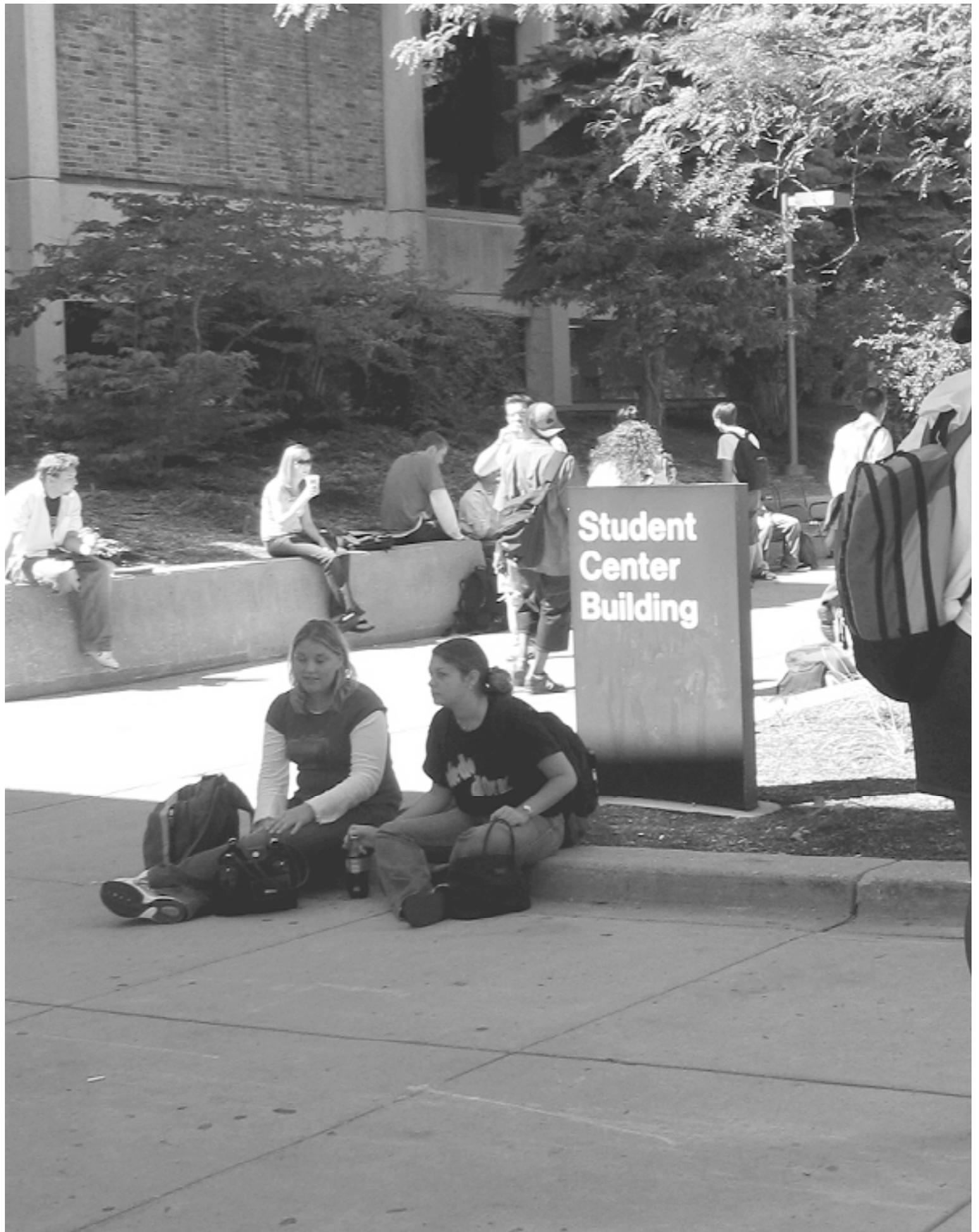
Pharmacy Technology Certificate Accredited by

The American Society of Health-System Pharmacists
7272 Wisconsin Avenue
Bethesda, Maryland 20814
(301) 657-3000
www.ashp.org

Radiography AAS Degree Accredited by

Joint Review Committee on Education in Radiologic Technology
20 North Wacker Drive, Suite 900
Chicago, Illinois 60606-2901
(312) 704-5300





**Student
Center
Building**

General Information



General Information

History of Washtenaw Community College

Washtenaw Community College (WCC) was created on January 15, 1965, when the citizens of Washtenaw County voted financial support for its establishment. A board of trustees was elected and a nationwide search for administrators and faculty was initiated while a study to look for a permanent campus location was begun. During construction of the main campus, which began in September 1966, the College held classes in temporary facilities in the Willow Run area of Ypsilanti Township. On September 12, 1966, 1,200 students were enrolled in 30 different programs. The first classes were held in Willow Run in an old elementary school, a fire station, and a bowling alley. Students in automotive programs took courses in a former dairy distribution plant, while those in health programs were taught in the basement of a church in downtown Ann Arbor. In 1969, the permanent 235-acre campus opened with completion of the Technical and Industrial Building and the Liberal Arts and Sciences Building. Today, nearly 21,000 students are enrolled annually in credit courses and an additional 8,000 are enrolled in non-credit offerings each year.

Profile of Washtenaw Community College

WCC schedules courses on a semester calendar, and enrolled 12,022 credit students for the Fall 2004 semester. The College employs approximately 200 full-time faculty and more than 600 part-time faculty throughout the academic year. The College offers about 100 credit programs of study in business, health, public services, humanities and social sciences, math and natural sciences, and technology. Over 75 percent of the students enrolled at WCC pursue a degree, while others take courses for personal interest or to obtain or upgrade job skills. Each year, college certificates and associate degrees are awarded to more than 1,600 students.

College Governance

Washtenaw Community College is governed by a seven-member Board of Trustees. Collectively, the Board of Trustees is responsible for hiring the College president, making policy decisions and assuring that the College is fiscally sound. Assisting the President in managing the institution are the Executive Vice President for Instruction; the Vice President for Finance and Administration; the Associate Vice President for Facilities, Development and Operations; the Associate Vice President for Student Services; Associate Vice President of Human Resource Management; and Associate Vice President of Development. Decisions are developed with input from a variety of constituents. The College maintains several standing committees, and as needed, the administration creates ad hoc committees to explore solutions to specific questions. The College functions within a mission that seeks to promote student, community, and staff success.

Current Facilities

Today, the WCC main campus includes four buildings exclusively dedicated to instructional activities: the Crane Liberal Arts and Science Building, the Occupational Education Building, the Technical and Industrial Building, and the Business Education Building. The Gunter Myran Building houses the Library, the computer commons, classrooms, and instructional space for Visual Arts programs. The Student Center Building houses student support services, a student cafeteria and dining room, college bookstore, administrative offices, and classrooms. The College also has a child care facility for children of WCC students and staff, which is called the Family Education Building.

The Morris Lawrence Building includes classrooms; an auditorium; exhibition space; conference and special event space, instructional space for art, drama, music, the police academy and public service training, business, industry, and contract training. The Great Lakes Regional Training Center houses the United Association and Journeyman Programs.

Types of Study

WCC offers credit as well as non-credit courses and programs. Some students choose to attend classes for personal interest or to obtain or upgrade job skills. Other students choose to complete college certificates to become credentialed for a job or to obtain associate's degrees for transfer to four-year institutions. WCC also offers a variety of special courses and programs to meet the diverse needs of area citizens, including employee training tailored for specific businesses and industries. The Adult Transitions Program offers GED completion classes as well as training for the unemployed - from counseling and skill assessment through actual training and job placement. The Technical Education Department offers coursework to fulfill apprenticeship requirements. In addition, the Department of Evening, Weekend, and Extension Services offers off-campus credit courses, and on-line instruction.

■ Programs of Study

Career Degree and Certificate Programs

Automotive Technologies

Automotive Mechanics Certificate (CFAM)
Collision Repair Certificate (CFCR)
Custom Cars and Concepts Certificate (CTCCC)
Power Equipment Technology Certificate (CTPEQ)

Business

Accounting Certificate (CTACC)
Accounting AAS Degree (APACCT)
Business Sales and Marketing Certificate (CTBSLM)
E-Business Fundamentals Certificate (CTEBF)
Entrepreneurship Certificate (CTENT)
Human Resource Management Certificate (CTHRSC)
Management Supervision Advanced Certificate (CVMGTA)
Management Supervision AAS Degree (APMGTM)
(see also *University Transfer Programs*)

Business Office Systems

Administrative Assistant I Certificate (CTAAS)
Administrative Assistant II Advanced Certificate (CVAAST)
Administrative Assistant Technology AAS Degree (APAATD)
 Administrative Assistant (ADMA)
 Medical Administrative Assistant (MEDA)
Computer Software Applications Certificate (CTCSSC)
Medical Office Assistant Certificate (CTMAS)

Child Care

Child Care and Education Advanced Certificate (CVCCE)
Child Care Professional AAS Degree (APCCP)
Child Development Certificate (CTCDA)
Paraprofessional Portfolio Preparation Certificate (CTPAPP)

Computer-Aided Drafting (CAD)

Computer-Aided Drafting Certificate (CTCADC)
Computer-Aided Drafting Advanced Certificate (CVCADA)
Computer-Aided Drafting and Design AAS Degree (APCADD)

Computer Internet

E-Business Advanced Certificate (CVEBUS)
Internet Professional AAS Degree (APINPD)
Interactive Web Design Advanced Certificate (CVIWBD)
Web Application Developer Advanced Certificate (CVWBAD)
Web Graphic Design Advanced Certificate (CVWBGD)
Web Professional Advanced Certificate (CVWBPR)
Web Technology Certificate (CTWBTC)

Computer Programming

Computer Programming AAS Degree (APCOMP)
Foundations of Computer Programming Certificate (CTFCP)
Object-Oriented Programming with C++ Advanced Certificate (CVOPC)
Oracle Database Administration Post Associate Certificate (CPODA)
Oracle Developer Post Associate Certificate (CPORAC)
Web Database Developer Post Associate Certificate (CPWDD)
Java Developer Advanced Certificate (CVJAVA)
.Net Programming with Visual Basic and C# Advanced Certificate (CVVBC)

Computer Systems

Computer Forensics Advanced Certificate (CVCFC)
Computer Forensics AAS Degree (APCF)
Computer Networking Academy I Advanced Certificate (CVCNA1)
Computer Networking Academy II Post Associate Certificate (CPCNA2)
Computer Networking Operating Systems I Advanced Certificate (CVCNO)
Computer Networking Operating Systems II Advanced Certificate (CVCNO2)
Computer Networking AAS Degree (APCNTM)
Computer Systems Security AAS Degree (APCSS)
Computer Systems Technology Certificate (CTCSTC)
Information Assurance Certificate (CTIA)
Linux Systems Advanced Certificate (CVLINS)
Microcomputer System Support AAS Degree (APMSS)
Network Security Advanced Certificate (CVNS)
Unix Systems Certificate (CTUNIX)
(see also *University Transfer Programs*)

Construction and Related Trades

Architectural Technology AAS Degree (APAT)
Cabinetry and Millwork Advanced Certificate (CVCNST)
Commercial Property Maintenance Advanced Certificate (CVCMPMT)
Construction Management AAS Degree (AACMG)
Facility Management Administration Advanced Certificate (CVFMAD)
Residential Construction Technology Certificate (CTRCON)
Residential Planning & Estimating Certificate (CTRPE)
Residential Design Advanced Certificate (CVRD)
Surveying Assistant Certificate (CTSA)
(see also *University Transfer Programs*)

Criminal Justice

Criminal Justice-Law Enforcement AAS Degree (APCJLE)
(see also *University Transfer Programs*)

Culinary Arts

Baking and Pastry Certificate (CTBAKP)
Culinary Arts Certificate (CFCULC)
Culinary and Hospitality Management AAS Degree (APCULD)
Hospitality Management Certificate (CFHMC)

Health

Dental Assisting Certificate (CFDAC)
Health Care Foundations Certificate (CTHCF)
Nursing Assistant Skills Training Certificate of Completion (CCNAST)
Nursing, Registered AAS Degree (APNURS)
Nursing Transfer AAS Degree (APNURT)
Pharmacy Technology Certificate (CTPHAR)
Radiography AAS Degree (APRAD)

Industrial, Manufacturing, and Automation Technology

Automation Technology Certificate (CTAMTC)
Automation Technology AAS Degree (APATEC)
Fluid Power Certificate (CTFLPW)
Industrial Electronics Technology Certificate (CFIET)
Machine Tool Technology Certificate (CTMTTC)
Manufacturing and Industrial Computing Certificate (CTMIC)
Numerical Control Programming Certificate (CTNCPC)
Welding Certificate (CTWLDC)

Music

Music Performance Certificate (CTMPER)
Music Production and Engineering Certificate (CTMPRO)

Occupational and Related Studies

Apprenticeship Completion Certificate (CTAC)
Journeyman Industrial AAS Degree (APJPIM)
Occupational Studies AAS Degree (APOST)

Technical Communication

Technical Writing Certificate (CTTWR)
(see also *University Transfer Programs*)

United Association

Construction Supervision Certificate (CTCNS)
Construction Supervision AAS Degree (APCNSP)
Construction Supervision AS Degree (ASCNSV)
Industrial Training AAS Degree (APITRN)
Industrial Training AS Degree (ASINDT)

Visual Arts Technology

3D Animation AAS Degree (APANIM)
Basic Photographic Imaging Certificate (CTBPHO)
Digital Video/Film Production (CFVID)
Graphic Design Certificate (CFGDTC)
Graphic Design AAS Degree (APGRD)
Photographic Technology AAS Degree (APPHOT)

Welding, Fabrication, and HVAC

Heating, Ventilation, Air Conditioning and Refrigeration AAS Degree (APHVCR)
Heating, Ventilation, Air Conditioning and Refrigeration-Residential Certificate (CTHVAC)
Heating, Ventilation, Air Conditioning and Refrigeration-Commercial Advanced Certificate (CVHVAM)
Heating, Ventilation, Air Conditioning and Refrigeration-Industrial Advanced Certificate (CVHVAI)
Welding Certificate (CTWLDC)
Welding Mechanics Advanced Certificate (CVWLDA)
Welding AAS Degree (APWLDT)

University Transfer Programs

Business AA Degree (AABAS) (*See also Business*)
Computer Information Systems Transfer AA Degree (AACIST)
Construction Management AA Degree (AACMG) (*see Construction and Related Trades*)
Criminal Justice AA Degree (AACJ) (*See also Criminal Justice*)
Education, Elementary AA Degree (AAELEM)
Education, Secondary AA Degree (AASECO)
Human Services AA Degree (AAHUST)
International Studies AA Degree (AAINS)
Journalism AA Degree (AAJOUR)
Liberal Arts Transfer AA Degree (AALAT)
Math and Science AS Degree (ASMSAS)
 Biology/Pre-medicine Concentration (BMED)
 Chemistry/Pre-medicine Concentration (CMED)
 Computer Science Concentration (COMS)
 Mathematics Concentration (MATH)
 Physics/Pre-Engineering Concentration (PENG)
Technical Writing (*See also Technical Communication*)
 AA Degree (AATW)
 AS Degree (ASTWRT)

Other Types of Programs

Adult Transitions

Adult Transitions is a community outreach program that assists students who need new skills for today's workforce. It includes counseling, skill building, and career education services. The program uses a step-by-step approach to help students move from their neighborhoods to WCC and on to the career paths of their choice. Scholarships and other forms of support, based on financial need, are available for students to enroll in WCC's short-term Certificate programs such as Accounting, Computer Software Applications, Residential Construction Technology, Business Sales and Marketing, Manufacturing and Industrial Computing, Nursing Assistant Skills, and Child Development. These programs are described in more detail in the Curriculum Section of the Bulletin.

Adult Transitions also offers the Skill Building Program, which prepares students for the General Education Development (GED) test and/or the COMPASS test. The program uses an open-entry/open-exit model, with instruction tailored to the needs of individual students. Students may prepare to pass the GED test (high school equivalency test) and obtain a certificate of General Education Development or enter short credit certificate programs that will give them job skills for entering the workforce. The Skill Building classes and GED testing are free of charge. Orientation for enrollment is available each week. Students should call (734) 677-5006 or refer to our web site at www.wccnet.edu and choose GED/Adult Transitions Program from the Resource drop-down choices for more information.

Washtenaw Community College's Residential Construction and Design Center

The Henry S. Landau Residential Construction and Design Training Center was established to meet the wide and varying needs of Southeastern Michigan employers in the broad areas of construction and design. The Center's mission is to provide broad-based construction education, training, and skill development in the areas of:

- Credit programs for degree-seeking students interested in entry-level careers in construction and design
- Construction and design skills development programs for students pursuing careers in construction industries, those seeking to improve their skills to compete more effectively for apprenticeships and others seeking to change careers.
- Credit programs for practicing professionals who have acquired technical training through labor and professional organizations and are seeking certificates or associate degrees to qualify for supervisory positions.
- Non-credit and continuing education programs designed to upgrade skills for practicing professionals involved in the broad area of construction.
- Credit programs for students who want to complete associate degrees and then transfer to four-year institutions to earn bachelor's degrees in construction.



Public Service Training and Police Academy

The WCC Public Service Training Program provides in-service training courses for employers of public service agencies such as law enforcement, corrections, security, and fire protection. Courses are developed to meet the specific needs of the agencies. They may range from one-day seminars to full-semester programs. Approval by the appropriate professional certification group is sought for all courses offered.

Students who complete Police Academy training receive Law Enforcement Certification. Students who complete the Criminal Justice program requirements in addition to the Academy are eligible for an Associate in Applied Science degree in Criminal Justice Law Enforcement.

Trade Related Instruction/Apprenticeships

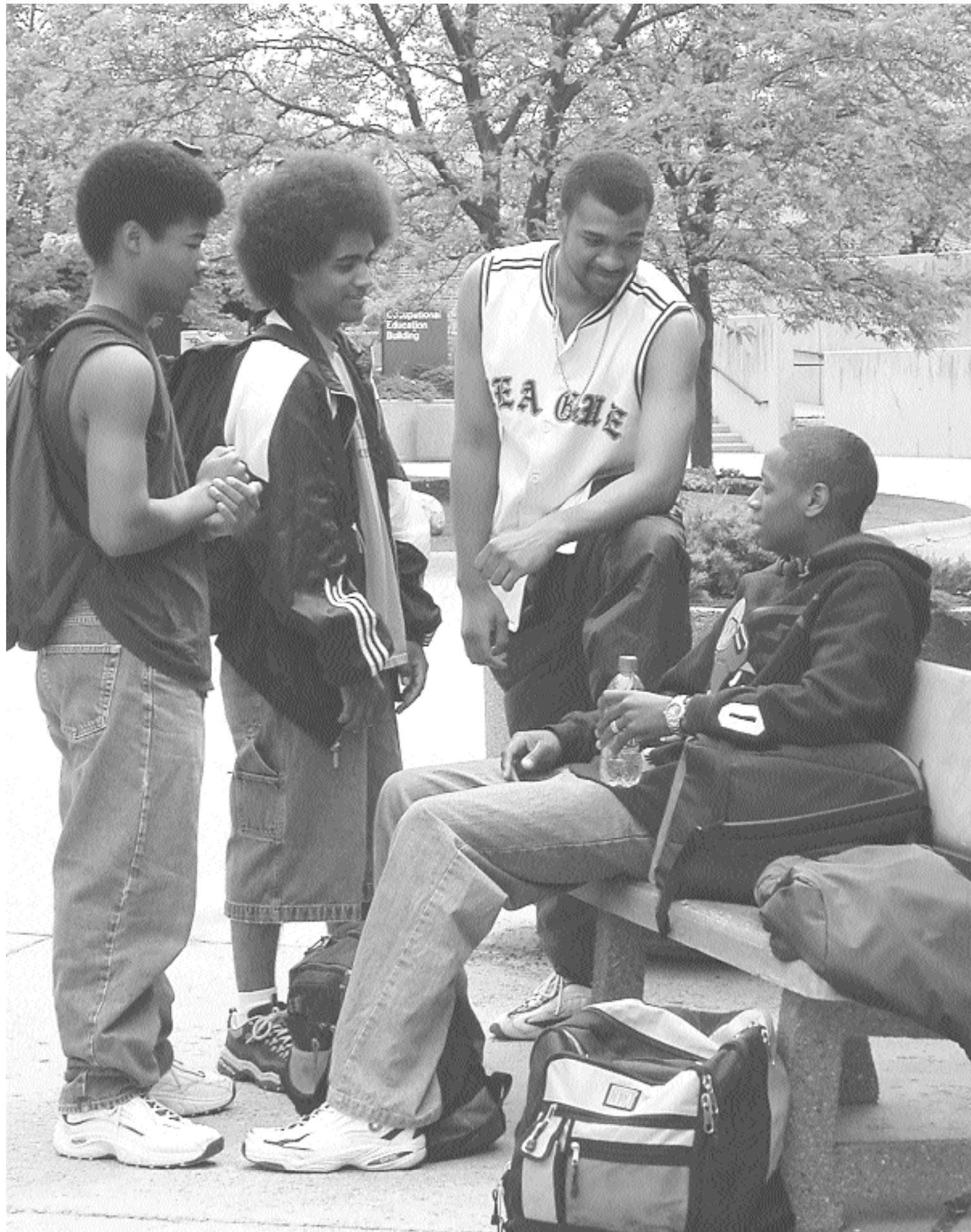
WCC representatives are available to assist in the development of apprenticeship and other employee training programs. Trade-related instruction can be provided for most apprenticeable trades with a college representative working directly with apprentices and sponsoring firms to meet the requirements. Apprenticeship training combines on-the-job training with related classroom instruction to ensure that apprentices master skills with confidence and precision. More than 850 occupational areas use apprenticeships to train workers. The Trade-Related Instruction program is approved by both the Bureau of Apprenticeship and Training and the Michigan State Department of Education.

An individual pre-apprenticeship curriculum can be arranged to help individuals prepare for most apprenticeship entrance examinations. Placement in an apprenticeship program is at the mutual discretion of employers, employees, and organizations representing the involved skill trades and cannot be guaranteed. A student may achieve an apprenticeship completion certificate.

Washtenaw Technical Middle College

Washtenaw Community College charters an award winning and nationally recognized public school academy for students entering the 10th or 11th grade of high school. Classes are housed on the campus of WCC and students are trained to make the transition from a high school to a college environment. WTMC graduates must complete high school requirements and earn a technical certificate or degree from Washtenaw Community College. Using the concepts of mastery learning, skill based evaluation, and a heavy emphasis on learning life management skills that support academic activity, WTMC challenges students to take control of their educations and become leaders. Initially, students are placed in high school classes whose content prepares them for entry-level college courses. Students with academic and life skills certification move from high school courses to entry-level college courses and eventually become full-time college students. Graduates of WTMC have many options including: entering the workforce directly; continuing at WCC toward an advanced certificate or degree; moving to a four-year college to work toward a bachelor's degree; or pursuing specific technical training at a technical institute.







Admissions



Admissions

WCC is open to all individuals who can benefit from its educational programs and service. These focus on the individual's growth and development toward academic, career, and personal goals. The College seeks to create an admission process which assists applicants in learning about WCC programs as they relate to the individual's goals, thereby facilitating the best match of student and program.

General Admission Policy

WCC serves a wide and diverse population through its "open-door" admission policy. Any person who has graduated from high school, passed the GED examination, or is 18 years of age or older, and can benefit from the College's programs may be admitted. All new students are required to complete an assessment and, depending on the results, may be required to take preparatory courses before they take courses in the regular college-level curriculum. Under certain conditions, students may qualify for an exemption from the assessment. These exemptions are described under "Orientation and Entry Assessment" below. This policy has been developed in accordance with Federal Ability-to-Benefit Regulations, which require that the College demonstrate that all students it admits have the ability to benefit from their chosen educational program. Students under 18 years of age who are still in high school may be admitted with the written recommendation of their high school principal or counselor and the approval of a parent or guardian, if their test scores meet WCC minimums for college-level classes. Minors who have emancipated legal status, giving them full adult legal rights and responsibilities, do not need parental or guardian permission before admittance is granted.

Admission to the College does not guarantee admission to programs which have specific program entry requirements.

Students should not regard enrollment out of reach because of financial need. It is the policy of the college to assist with meeting college expenses to the fullest possible extent consistent with federal, state, and college financial assistance regulations.

Programs with Admission Criteria

Some Washtenaw Community College programs have prerequisite course work that must be completed prior to program enrollment. Program prerequisites are determined by faculty and outside accrediting agencies based on program curriculum. In most instances, these programs require a second admission process. WCC's Office of Admissions is responsible for informing, monitoring, and processing students who are interested in enrolling in these programs.

Admission to High-Demand Programs

The Administration will establish, maintain, and use a waitlist for admission into any program that it has designated as a high demand program (one for which there are more qualified applicants than openings for an entering class). The order of the waitlist will facilitate a first-in, first-out treatment of applicants within stated priorities:*

- Priority 1:** Legal residents of the Washtenaw Community College district.
- Priority 2:** Legal residents of counties adjacent to the Washtenaw Community College district.
- Priority 3:** Legal residents of all other counties of the State of Michigan.
- Priority 4:** Persons whose legal residence is outside the State of Michigan but within the United States.
- Priority 5:** Persons whose official residence is a foreign country.

All potential students, regardless of residency, may apply to the College. Admission to WCC does not guarantee admission to high demand programs. These may include programs which lead to certification or licensure, as well as other WCC certificate or degree programs.

**In cases where there are not sufficient in-district clinical sites for a program and where out-district sites are available but require special consideration of out-district students, the Administration may establish and maintain parallel priority lists.*

Admission Procedures

New Students

All new students taking credit classes are required to complete an admission application. New students, regardless of experience or educational background, are urged to meet with a counselor or advisor to learn about opportunities the College offers. Individual assessment in English, Math and Reading is required for appropriate program planning and course selection. The admission application can be found on the College Web Site (www.wccnet.edu).

Orientation and Basic Skill Assessment

Orientation sessions, scheduled prior to each semester, are required for new students. During these sessions, students will be provided an overview to the College including information on entry assessment, which measures their writing, math, and reading skills. Counselors and faculty advisors then assist students in selecting and scheduling courses. Orientation sessions are scheduled at a variety of times to accommodate the busy schedules of prospective students. Basic Skill Assessment must be taken after completing Orientation.

Exemptions from Orientation and/or Basic Skill Assessment are granted under one of the following circumstances only.

Exemptions from both Orientation and Basic Skill Assessment are granted if the student meets one of the following:

1. Student documents completion of 15 or more academic credit hours from an accredited U.S. college with a cumulative grade point average of 2.0 (“C”) or above on a 4.0 scale.
2. Student provides official documentation of completion of a bachelor or graduate degree from an approved international English-speaking college or university.
3. Student is a Ford, General Motors, Chrysler, Visteon or other approved apprentice.
4. Student submits a valid guest student application from their home institution indicating that they are in good standing.

Exemption from Basic Skill Assessment only is granted if you meet the following:

Student provides ACT, SAT, COMPASS or ASSET scores. Submit scores directly from ACT, SAT, provide your original score report, or have the scores submitted on your official high school transcript.

Note: Some occupational programs have an additional screening process.

Note: Physically handicapped students who need readers or writers to help them take the COMPASS or ASSET assessment should contact Learning Support Services for assistance (734-973-3342).

Re-admission of Former Students

Former students who have not registered for classes at the College for two years must reactivate their files by completing an application form. The application form can be submitted online (www.wccnet.edu). Students reactivating their files are encouraged to see a counselor or advisor prior to registering for classes. Individual assessment may also be recommended.

Dual Enrollment of High School Students

High school students, who are at least 15 years old and in tenth grade or higher, may enroll in classes for college credit that may be counted toward their high school diploma. Application for admission must be supported by the signature of the high school principal or counselor as well as the signature of a parent or legal guardian. Students under 18 years of age who have emancipated legal status do not need the signature of a parent.

Guest Students From Other Colleges

Students enrolled at other colleges and universities may attend WCC as guest students. This status is secured through completion of a Michigan Uniform Undergraduate Guest Application. This application can be obtained from the home institution and should be sent to the WCC Office of Admissions or dropped off in person at the Student Connection. Guest students may continue at the College in subsequent semesters without submitting another guest application. However, to ensure course transferability, the College strongly encourages guest students to discuss their course selection with their home school.

Transfer Students

Students transferring from other colleges follow the same procedure as new students. Those wishing to transfer credit from an accredited college or university may do so by requesting that an official transcript be sent to the Office of Student Records for evaluation. The coursework may be evaluated, at the student’s request, after the student has successfully completed at least one credit at WCC. At the time coursework is evaluated, the student is notified of the transfer credit that will be accepted toward program requirements at WCC.

International Students (F-1 visa only)

Admission Requirements for International Students (F-1 visa only)

To be admitted to Washtenaw Community College, an F-1 visa applicant must complete the following requirements:

1. Submit an Application for Admission. The application can be submitted online via the College web site (www.wccnet.edu).
2. Students who currently hold an F1 visa, and will be transferring from another U.S. institution, must submit a completed Status Verification/Transfer Recommendation Form found on the College web site (www.wccnet.edu).
3. Submit **an original bank statement (in English)** from the student’s financial supporter, converted to U.S. dollars, showing that the account balance of the financial supporter will cover the student’s tuition, fees, and living expenses while attending WCC. Students who submit an official translation should also submit the original document from which the translation was done. To find out the required amount in U.S. dollars, contact the Admissions office by phone (734-973-3542) or check the WCC web site.
4. Submit a **notarized financial statement (in English)** from the student’s financial supporter stating that the funds in the bank will be used to support the student’s tuition, fees, and living expenses while attending. (Adobe Acrobat Reader is needed to view / print the form found on the College web site.) (NOTE: F-1 students are not eligible for financial aid.)
5. Submit original **certified** transcripts, in **English**, of all previous secondary and post-secondary schools the student has attended. If submitting an official translation, please also submit the original document from which the translation was done.
6. Proof of English language proficiency for admission to the **regular college-level curriculum**, a *minimum* score of:
 - 500 on the paper Test of English as a Foreign Language (TOEFL), OR
 - 173 on the computer Test of English as a Foreign Language (TOEFL), OR
 - 75% or better on the Michigan English Language Assessment Battery (MELAB)

Original test scores must be received by Washtenaw Community College directly from the testing authority. (Our TOEFL identification number is 1935.) The College will not accept scores submitted by the student, only those submitted by the testing authority.

When **all** of the above requirements have been completed satisfactorily by the F1 application deadline, Washtenaw Community College will be able to admit the student.

Deadlines

All documents must be received by the College by the designated deadline date. If the date falls on a weekend or holiday, the deadline is the first business day after the weekend or holiday.

Fall admission: July 15

Winter Admission: November 15

Spring/summer admission: March 15

Upon arrival in Ann Arbor, students must do the following in order to keep F-1 status:

1. Show proof of medical insurance with medical evacuation and repatriation clause. **F-1 students must submit proof of insurance to the Office of Admissions before they will be permitted to register for classes.** Coverage must be maintained while studying at WCC. The student will not be allowed to register for future semesters at WCC if their insurance policy is cancelled. WCC does not maintain coverage for students and is not responsible for any medical, hospital, evacuation or repatriation expenses which they may incur.
2. Provide verification of visa status. F-1 visa applicants currently in the United States must include copies of their I-94 card, visa and passport page with photograph and dates of issue and expiration of the passport. Students who currently hold an F1 visa must include a copy of their Form I-20.
3. Schedule an appointment for the Washtenaw Community College Orientation and Assessment. [Visit Orientation and Assessment on the College web site for more information](#) (look under the Student Services heading). Assessment and Orientation must be completed before the student will be allowed to register.

NOTE: Once submitted, all documents become the permanent property of Washtenaw Community College.

Students who are granted an F-1 visa must enroll full-time at Washtenaw Community College and successfully complete twelve credit hours each semester toward graduation in their approved program for the Fall and Winter semesters. F-1 visa holders are not permitted to work off-campus without proper authorization.

For More Information:

For specific questions regarding enrollment, please contact International Student Admissions at (734) 973-3542. If requested, the necessary forms found on the College web site can be mailed.

International Students (all visa classifications except F-1)

International students range from permanent resident aliens to a visitor on any visa from an A visa to a V visa, including refugees and people with asylum. Certain restrictions may apply depending on which status you may hold in the United States.

Permanent resident aliens (green-card holders) who wish to attend WCC are unrestricted in the number of credit hours for which they may register. Admission procedures for permanent resident aliens are as follows:

Submit a completed application with a copy of your Permanent Resident Alien Card (front and back), and also include a copy of your driver's license or State Identification showing where you currently reside.

International students who possess refugee status or political asylum in the United States who wish to attend WCC are unrestricted in the number of credit hours for which they may register. Admission procedures for refugees and political asylees are as follows:

Submit a completed application for admission with a copy of your passport, appropriate documentation showing your status, and a driver's license or state identification to show where you currently reside.

Admission requirements for other visa holders are as follows:

Submit a completed application for admission with a copy of your passport, I-94 card, and a copy of the visa that you currently hold.

There are two Orientation programs offered for new international students:

1. International students who have taken the TOEFL and scored a minimum of 500, or have taken the MELAB and scored 75 percent or more, must be scheduled for an Orientation which includes COMPASS assessment before registering for classes.
2. International students other than F-1 visa holders (or anyone interested in English as a second language (ESL) classes) who have not taken the TOEFL or MELAB test, or who have taken the test and scored below the minimum, must schedule an appointment for the International Student Orientation that includes the English as a Second Language (ESL) Placement Test before registering for classes.

Emeritus Students

Individuals who are 65 years of age or older prior to the semester of enrollment and who reside within Washtenaw County may participate in the College's educational and cultural programs without tuition costs. However, these students must follow the general admission criteria of the College and pay the class-related mandatory course fees, if applicable, each semester.

Emeritus students not paying tuition are registered for classes on a space available basis. If the class chosen by an emeritus student fills to capacity, the student will be notified by telephone and be given the option of staying in the class by paying the tuition. Or if the student prefers to have the emeritus scholarship applied to the full class, s/he will be placed on a waitlist for the class and an attempt will be made to move him/her into the class (based on seat availability).

Health Occupation Students - Special Admission Requirements

Applicants to the health occupations (e.g. Nursing, Dental Assisting, Pharmacy Technology, and Radiography) must meet specific admission requirements for their program. Generally these are:

1. Compliance with the published application deadline for each program.
2. Graduation from high school or completion of the GED.
3. Completion of specific high school and/or college-level courses required for acceptance. Courses must be completed with a specific grade as noted for each program.
4. Qualification on certain diagnostic reading, comprehensive and/or computational tests as required for each program.
5. Completion of the program-specific application materials.
6. Submission of a high school transcript and college transcripts with the program application.
7. Any other program-specific admission requirements.

Residency

Students enrolling at Washtenaw Community College shall be classified in-district, out-district, out-state, or out-country at the time of enrollment.

Aspects of Residency

- A. The residency of a student will be based on the address where the student resides.
- B. The legal residency of a student will be established using the address and other pertinent information submitted on the application and registration materials but will be verified by the College.
- C. The residency of minors (under 18) shall follow that of their parents or legal guardian. However, students under 18 who provide sufficient evidence that they are independently supporting themselves and reside in the Washtenaw Community College District may qualify as in-district residents regardless of their parent's residency status.

- D. The residency of any person who may furnish funds for payment of College fees (other than a parent or legal guardian with whom the minor student resides) shall in no way affect the residency of the student.
- E. Those students who are transferred to Michigan by the military or who have been discharged by the military within the last six months must present appropriate documentation to waive the six month Michigan residency requirement.
- F. The student may petition to officially change residency status by supplying proof of residence to the Student Records Office. Any residency status change after the start of the semester will be effective the next semester in attendance.

Classification of Residence

Applicants who are U.S. citizens or who have permanent resident alien, asylum, or refugee status through the U.S. government will be classified as In-District, Out-District, or Out-State students.

In-District Students are:

- Applicants who have resided in
- Applicants who live with and whose spouse has resided in
- Applicants who live with and are dependent on parents or a legal guardian who has resided in
- the Washtenaw Community College District immediately prior to the first day of the semester if previous residency was within Michigan

OR

- the Washtenaw Community College District 6 months immediately prior to the first day of the semester if previous residency was outside of Michigan

Out-District Students are:

- Applicants who do not meet the requirements of an In-District student, but who are and have been legal residents of the State of Michigan for at least six months.

Out-State Students are:

- Applicants who reside outside the state of Michigan or who have not been legal residents of the State of Michigan for at least six months.

Out-Country Students are:

- Applicants who are not U.S. citizens nor do they have permanent resident alien, asylum, or refugee status through the U.S. government.



Student Records



Student Records

Enrollment Services

Registration

Each semester the College publishes an Academic Class Schedule and puts it on the College web site (www.wccnet.edu). The schedule includes detailed information on the courses available, registration procedures and dates, add/drop periods, and the refund schedule. Students are expected to pay all tuition and fees by the specified deadlines and before attending class.

No person is allowed to attend a class unless he/she has registered and paid for that class.

Students are withheld from registering if they have failed to meet their financial responsibilities to the college or in certain situations as a result of disciplinary action. Any student registration restriction (“hold”) must be cleared with the office issuing it before registration may be completed.

All students are encouraged to see a counselor or faculty advisor before registering for classes. Students registering for 18 or more credits must have the authorization of a counselor. Students on Academic Intervention hold, or foreign student (ESL) hold must meet with a counselor or advisor before registering for courses.

Students registering for courses must satisfy the course prerequisites as specified in the course description.

By registering for classes at Washtenaw Community College, the student accepts responsibility for reading and conforming to all policies, procedures, deadlines, fees, and other requirements published by the College. The student must report billing errors to the College within 30 days.

Adding and Dropping Courses

A student may add or drop a class or change a section without an instructor’s approval on a space-available basis prior to the start of the semester. After the semester begins, students must have the instructor’s authorization in order to add a class or change sections and this process must be completed by the add deadline in the academic schedule of classes (available online).

Students are encouraged to discuss changes, drops, and adds with instructors or counselors and should retain copies of any transactions until final grades or refunds are received. Students are responsible for the timely payment of all appropriate tuition and fees for added courses. Students who process their drops by the 100% refund deadline will receive a 100% refund of their tuition, technology/enrollment and contact hour fees. All other fees are non-refundable.

Withdrawing from class (after refund deadline)

Students are responsible for officially dropping courses they are no longer attending. If students withdraw from a course after the refund deadline, the student is responsible for paying full tuition and fees for the course. Courses from which the student withdraws after the refund deadline will be listed on the student’s transcript with a grade of “W”. Students may withdraw from courses without instructor approval during the first forty percent of the course - approximately six weeks for a fifteen-week course.

After the deadline for the last day to withdraw without an instructor signature as described in the Academic Schedule, students must receive the instructor’s authorization to withdraw.

Changing Sections

Students changing from one section to another of the same course must complete the process before the last day to add, as listed in the online schedule deadlines. Students are added on a space available basis, and instructor or department chair authorization is required after the start of the semester.

Repeating a Course

Whenever a course is repeated on a credit basis, the best grade and credits earned are used in computing the grade-point average. All entries remain a part of the permanent academic record.

Auditing a Course

Students who wish to audit a course must register and pay for that course following the established registration procedures. Students do not receive credit for the course; however, the course is included on the transcript with an “AU.” Students may change from credit to audit status or vice versa early in the semester without the instructor’s permission. Students may make the same changes later in the semester if the instructor’s authorization is obtained. Refer to the published deadlines in the Academic Class Schedule for the semester in question.

Transcripts/Final Grades

A permanent record of all courses, credits and grades earned by each student is kept in the Office of Student Records. Official copies of transcripts are available to students upon written request to the Student Connection. Unofficial copies are available on the WCC web site. Associate degrees and/or college certificates earned at WCC are posted on transcripts. At the end of each semester final grades are issued to all students enrolled for that semester. Transcripts and final grade reports are available unless the student has a financial obligation to the college. Students may access their grades and transcript via College web site by using their personal password and student ID number.

Veteran Students

New Students

Veterans and other eligible dependents receiving educational benefits under Chapter 30, 32, 34, 35, 1606, or Title 38 U.S.C., who have never used their VA educational benefits and would like to make application to use their benefits here at Washtenaw Community College should report to the Veteran Services Technician in the Office of Student Records prior to registering for classes to receive a packet of information. Students should bring certified copies of their DD-214 member 4 copy (military discharge papers) to WCC. Students in the selected reserve should bring their NOBE (notice of eligibility) form. Students who have prior educational training or military training must provide official transcripts with their application for benefits.

Transfer Students

Students who have previously received VA educational benefits at another school must complete VA form 1995 (Change of Place of Training) and submit it to the Veteran Services Technician in the Student Records Office. The DD-214 member 4 copy (military discharge papers), transcripts from colleges or universities where the student has completed previous training, and all military transcripts must accompany the application.

WCC Previously Enrolled Veterans

Veterans who are continuing students must sign a request for certification at the time of registration each semester in order to be certified for benefits. At that time they must also supply the Veteran Services Technician with a copy of their completed registration to ensure the continuance of their benefits.

Veteran Certification

All veterans receiving educational benefits must sign a request for certification each semester once they register for classes. Any drops or changes made during the semester must be reported to the Veteran Services Technician immediately. Failure to do so may result in the delay of educational benefits.

Credit for Formal Service School Experience

Credit is granted for formal service school training as recommended by the American Council on Education (ACE) if it applies to the student's program of study at WCC. To have your formal training evaluated, submit an official military transcript to the Veteran Service Technician.

Standards for Receiving Educational Benefits

In compliance with the Department of Veteran Benefits, Circular 22-80-38, the College has developed standards of progress. Each veteran student must conform to these standards to be eligible for VA Educational Benefit Certification. Each veteran student must read, sign and return the original copy of these standards to the Veteran Services Technician at the time of benefit application.





Financial Information



Financial Information

Tuition*

Residents of the College District	\$62 per credit hour
Non-Resident/In-State	\$105 per credit hour
Non-Resident/Out-State	\$140 per credit hour
Non-Resident/Out-Country	\$140 per credit hour
Distance Learning (<i>One rate applies to residents and non-residents</i>)	\$68 per credit hour

Fees*

Late Registration Fee	\$25
Delinquent Payment Fee	\$25
Student Photo ID (replacement only)	\$10
Technology/Enrollment Fee (per credit hour)	\$7
Contact hour fee (per additional contact hour)**	\$2
Credit by Exam Fee (per credit hour)	\$10
Books and Supplies	**
Payment Plan (processing fee)	\$25

* The college reserves the right to change tuition and fees without advance notice.

** Students may be required to purchase certain supplies and materials. These are available at the bookstore on the 1st floor of the college's Student Center Building. Books and supplies average \$200 per semester for full-time students, but may be as high as \$500 or more depending on course selections.

*** When the course includes contact with the instructor for more than the ratio of 15 hours per semester for each credit hour, students will be charged a contact hour fee of \$2 for each additional contact hour, in addition to tuition and any other applicable fees. The contact hours are specified in the course descriptions and the fee will be limited to no more than \$200 per course.

Refunds

Refunds are only processed after a student has officially dropped a course(s) or a course is cancelled by the College. If a course is officially dropped, a student is eligible for a refund of tuition as follows:

1. The refund deadline for courses scheduled for parts-of-term of two or more weeks will be one calendar day for each week the course is scheduled to meet, e.g., fifteen days for fifteen week courses, ten days for ten week courses, etc.
2. The refund deadline for courses scheduled to meet in parts-of-term of less than two weeks in length will be before the first class meeting.
3. If the refund deadline falls on a non-business day of the college, the refund deadline will be set as the next official business day.
4. The refund deadline does not apply to course section changes or to instructor approved course level changes processed within a part-of-term.
5. Students dropping and adding courses after the official refund deadline are not eligible for a refund and must pay the tuition for the added classes.

6. A full refund of tuition may be administratively granted upon official withdrawal of the student for the following extenuating circumstances during the first two thirds part-of-term/semester:

- a. Induction of the student into the U.S. or foreign Armed Services
- b. Death of a spouse, child, parent, or legal guardian of the student
- c. Death of the student
- d. Verifiable error on the part of the College
- e. Verifiable incapacity, illness, or injury which prevents the student from returning to school for at least four (4) weeks of the semester

Note: Not every medical situation will qualify for a refund, especially if the student received a refund for the same medical condition in a prior semester. Pregnant students should not expect a refund if their expected date of delivery is before their classes end.

7. All fees except technology/enrollment fee are non-refundable.

No refund is made if withdrawal occurs after two-thirds of the part-of-term has transpired, regardless of circumstances.

ePayPlan (Student Payment Plan)

Students registered in credit classes can make their payments electronically throughout the semester using the College's Student Payment Plan. Students and their authorized users may schedule electronic withdrawals from a checking or statement savings account or from their Visa, MasterCard, or Discover card. WCC charges a \$25 non-refundable fee each semester to participate. There are no interest charges, but a \$25 missed payment fee will be added to the student account if payment withdrawal is unsuccessful. Find out more on the College web site under Pay Tuition.

Financial Aid

WCC provides financial assistance to students in the form of scholarships, work-study employment, grants and loans. Several programs also have been developed to provide financial support to honors students and are awarded on the basis of student achievement or merit. For additional information about specific program requirements, contact the Office of Financial Aid on the second floor of the Student Center Building or call (734) 973-3523.

For information concerning grants for educational expenses, childcare and federal grants for single parents, displaced homemakers, and academically and economically disadvantaged students, contact the Student Resource & Women's Center on the second floor of the Student Center Building or call (734) 677-5105.

Types of Aid

There are four major types of aid available:

- Scholarships awarded on the basis of achievement and do not need to be repaid.
- Grants awarded on the basis of need and do not need to be repaid.
- Employment that requires work-for-paid wages, such as the need-based College Work-Study Program. Student employment opportunities exist in many offices and areas on campus.
- Loans awarded on the basis of need and must be repaid once students leave college or do not continue in college on at least a half-time basis.

Sources of financial aid include Washtenaw Community College, the WCC Foundation, the State of Michigan, and the United States federal government.

By federal regulation (ability to benefit), new and re-admit students who have not graduated from high school or earned a GED must achieve minimal passing scores on the ASSET/COMPASS assessment (administered during entry assessment) in order to be awarded federal (Title IV) financial aid.

Assessment of Need

Once students' financial aid files are complete, the Financial Aid Office reviews the information in light of individual circumstances. After determining the expected family contribution, the staff then subtracts that amount from the cost to attend Washtenaw Community College. The difference is the student's financial aid need.

Application

Because the financial aid process can take several weeks to complete, the earlier you begin, the more likely it is that your application will be approved in time for registration. Applications can be processed in one of two ways:

1. Process online at www.fafsa.ed.gov
2. Complete a paper FAFSA (Free Application for Federal Financial Aid) available at the WCC Financial Aid office. This form can be completed and mailed.

Additional documentation of student and/or family resources may be required for evaluation of your application. Such documentation may include federal income tax returns.

After the federal processing center evaluates your financial status and sends the information electronically to the College, the Office of Financial Aid will review the information and notify you in writing of your eligibility for aid. Awards are made in June and July prior to the beginning of the fall semester. Students who wish maximum consideration for financial aid should have all applications in the Office of Financial Aid by the following dates:

Fall Semester	June 1
Winter Semester	November 1
Spring-Summer Semester	February 1

Applications received after the above deadline dates are processed only as funding allows.

Academic Progress Criteria for Financial Aid

The academic progress policy of the Office of Financial Aid requires that all students receiving aid maintain a cumulative and semester grade point average of 2.0 or greater and complete 75 percent of their semester credits. Students failing to meet these minimum requirements are placed on probation and are allowed one additional semester to meet these requirements. While on probation, students who do not complete 75 percent of their courses with a cumulative grade point average of 2.0 or higher will be terminated from financial aid. Students who have financial aid terminated may still continue to attend classes using their own funds for payment. Students who meet the satisfactory academic policy regulations will have their financial aid restored.

Students who have attended Washtenaw Community College in the past and have not completed 75 percent or more of their course work and do not have a semester and cumulative grade point average of 2.0 or higher will be awarded financial aid on a probationary status. If they do not maintain the above-mentioned satisfactory academic regulations they will be terminated from aid.

Students who have attended Washtenaw Community College and have attempted 90 or more credit hours cannot receive Title IV funds.

Students who have transfer credits from another college will have these credits applied to their record and will be subject to the above 90 credit hour regulations.

Students who have been terminated from financial aid for any of the above listed reasons, and feel that they have mitigating circumstances should write a letter of appeal to the Financial Aid Committee. The Committee will decide if students should be granted an additional semester. If students are granted an additional semester they must complete 75 percent or more of their course work with a semester and cumulative grade point average of 2.0 or higher or they will be terminated from financial aid.

Financial Aid Refund Policy

Students who receive any Title IV funding owe a pro-rata refund if they withdraw prior to completing 60 percent of the semester. By federal regulations, pro-rata refunds must be returned in the following order:

1. Unsubsidized Federal Stafford Loan
2. Subsidized Federal Stafford Loan
3. Federal Plus Loan
4. Federal Pell Grant
5. Federal SEOG
6. Other Title IV funds
7. Other federal sources
8. State, private, or College aid
9. Student

Distribution

Most students who have been awarded and approved for financial aid prior to the start of a semester have their tuition paid at the time they register. Students will be allowed to purchase books through the College bookstore. They will receive the balance of their financial aid by about the 3rd week of the semester.

Student Employment on Campus

In addition to the various student financial aid programs previously mentioned, there are a variety of campus employment opportunities for students who would like to gain meaningful work experience while receiving a competitive wage rate. These opportunities can be realized through the College Work-Study Program and other employment available to students on campus. Contact the Employment Services Office for further details.

WCC Foundation

Thanks to contributions from individuals and corporations, the WCC Foundation provides a "safety net" of scholarship funding for students. Annually, over 500 scholarships are awarded.

To apply for a scholarship, log on to www.wccnet.edu, and click on The WCC Foundation link at the left. Fill out only one application and submit it to the Financial Aid office. A Scholarship Committee reviews all applications and assigns specific and appropriate scholarships to those who become recipients.

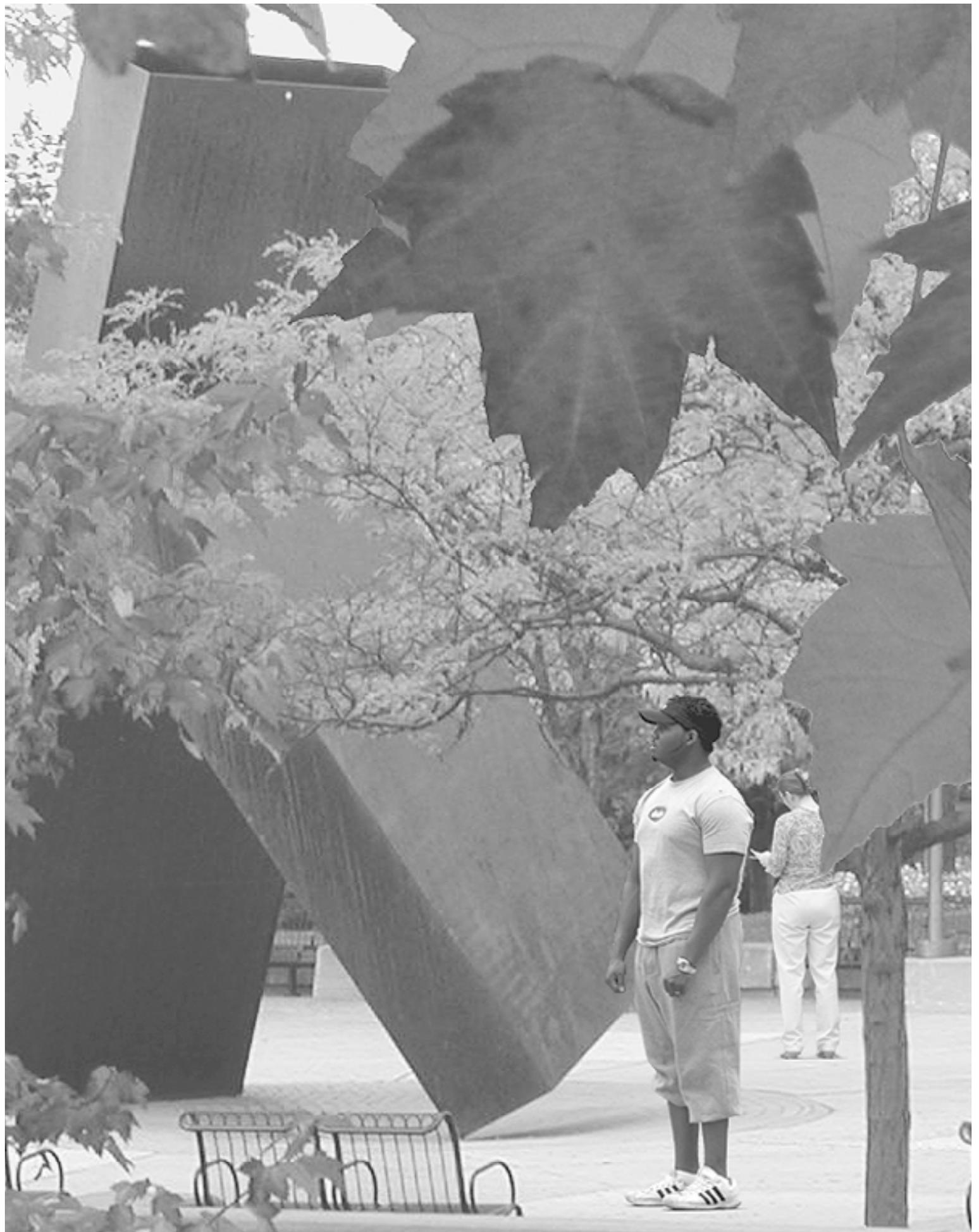
WCC Foundation scholarship criteria include:

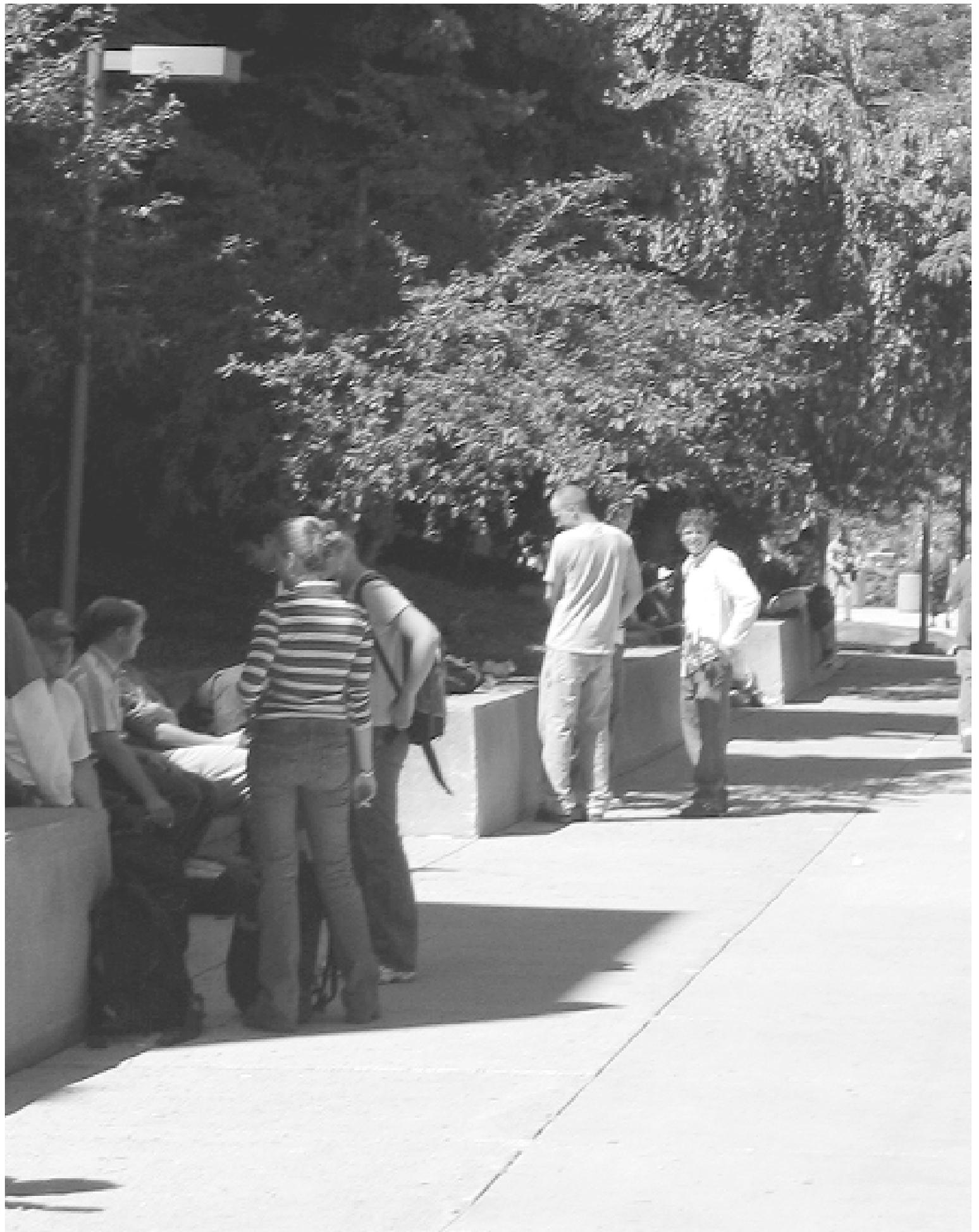
- a minimum 2.0 grade point average
- a statement of U.S. citizenship or of eligible non-citizenship
- a record of having attended WCC for at least one semester

Application forms are also available in the WCC Foundation Office (SC 306), the Financial Aid Office (SC 205), or at the Student Resource and Women's Center (SC 2nd floor), all located on the second floor of the Student Center Building or call (734) 973-3665 for more information.

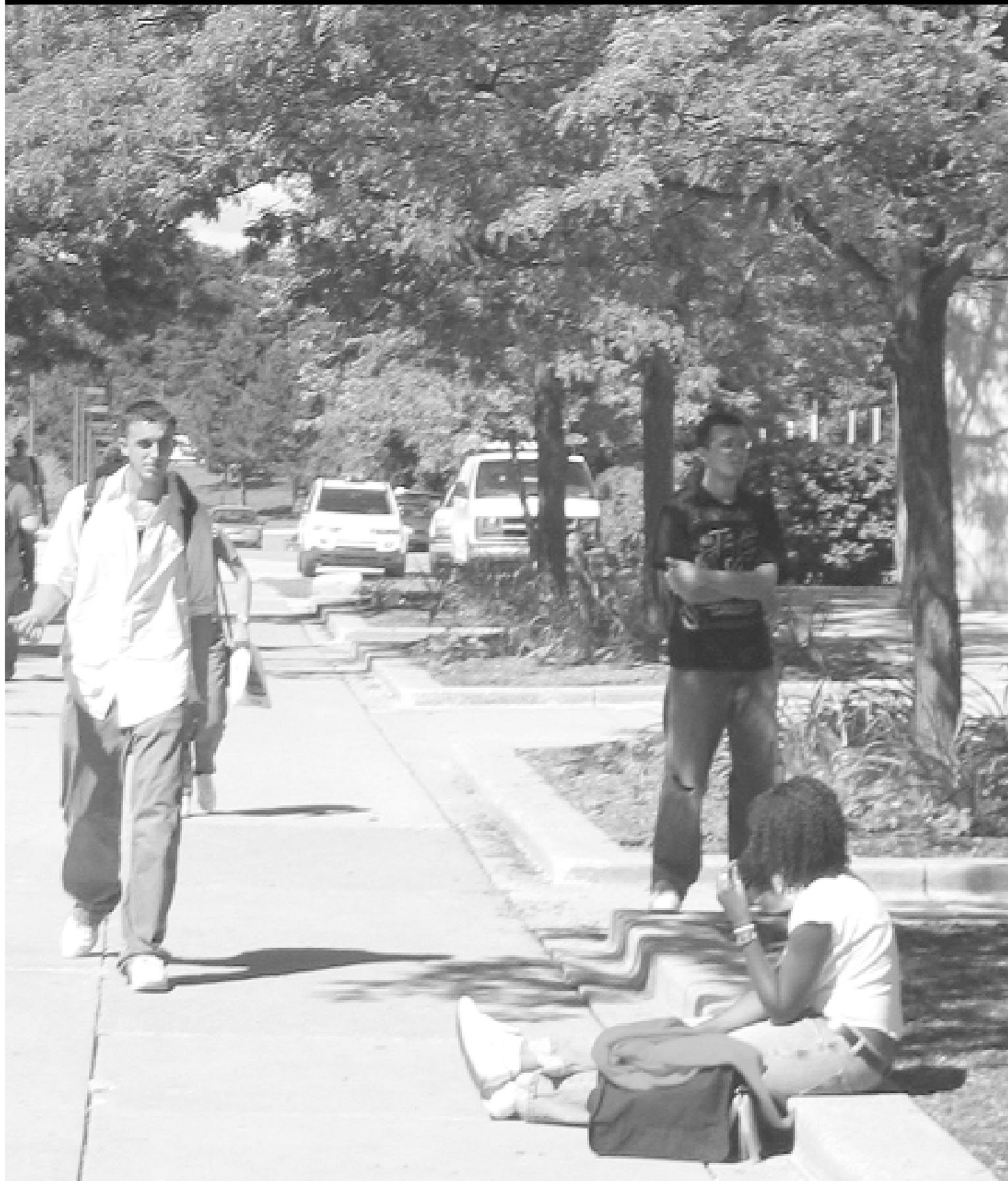
Application deadlines:

- June 9 deadline for the 2005 Fall/Winter Semester
- October 14 deadline for 2006 Winter Semester
- February 15 for 2006 Spring/Summer Semester





Student Support Services



Student Support Services

Alumni Association

The College stays in contact with former students through the Alumni Association. All former students are eligible to join. The office is located in The Foundation, SC 306; the phone number is (734) 973-3360.

Bookstore

The WCC bookstore is located on the lower level of the Student Center Building and is open during the following hours:

Fall and Winter semesters:

Monday-Thursday 8:30 a.m. to 6:30 p.m.,
Friday 8:30 a.m. to 3:00 p.m., and
Saturday 9:30 a.m. to 1:00 p.m.

Spring/Summer semester:

Monday-Thursday 8:30 a.m. to 5:00 p.m.,
Friday 9:00 a.m. to 1:00 p.m.

During rush periods, hours are extended. Call the bookstore or visit the WCC web site for details.

Book Buyback

Students can sell back their used books every day at the bookstore. Best prices are usually during the last week of the session and are based on current demand.

Reserving Textbooks

Once students have registered for a class, they may reserve their textbooks at <http://washtenaw.bkstore.com> or by going to the bookstore. Reserved texts may usually be picked up a few days before classes start. Reserving books is the best way to get used copies.

Shopping at the Bookstore

Books, instructional aids, equipment, materials, and supplies are readily accessible for students and staff. Also available are WCC insignia clothing and gifts and postage stamps. Special orders are welcome. The WCC Bookstore accepts Visa, MasterCard, Discover, American Express, Barnes and Noble gift cards, and personal checks with proper identification.

Campusstore.com gives students reduced educational prices on software.

Receipts must accompany returned merchandise; policies regarding returns are posted in the Bookstore.

Children's Center/Child Care Facility

WCC provides a state-licensed and nationally-accredited child care facility in the Family Education Building for children of WCC students, staff, and faculty. The Center offers a comprehensive program to enrich and enhance the social, emotional, cognitive, physical, and creative development of children with an emphasis on independence and self-esteem.

The staff is trained in early childhood education and development. Practicum students in the Child Care Professional program work-study students and foster grandparents also offer additional care. Call or stop by the Children's Center for details on age limits, enrollment, attendance requirements, fees, hours of operation, meals and other information. Visitors are always welcome; no appointment is needed.

Counseling/Advising

Counseling services are located on the second floor of the Student Center Building. Hours of operation for each semester are posted on the Counseling Center bulletin board, but are typically 8 a.m.-6:30 p.m. Monday through Thursday, 8 a.m. to 5 p.m. Friday, and 9 a.m. to noon on select Saturdays. During peak registration periods, the center is open until 7:00 p.m. on Mondays through Thursdays.

Academic Advising

Counselors and instructors are available to facilitate the development of academic plans. They assist students with planning schedules, meeting program requirements, placement in the appropriate level of courses, and transferring to four-year colleges and universities, as well as referrals to other support services.

Faculty members who are your classroom instructors are especially helpful in providing advice and assistance regarding courses within their field of expertise. They can also assume the role of academic advisor for certain certificate and degree programs.

Students intending to transfer to a four-year college or university should contact the Counseling Office located on the second floor of the Student Center Building for information regarding current transfer agreements between WCC and other area institutions (e.g., Eastern Michigan University, Cleary University). Most transfer guides also are available on the WCC web site. Students transferring to four-year institutions within Michigan should contact a WCC counselor regarding WCC's participation in the Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) Agreement. For more information see the MACRAO transfer agreement in the Curriculum section.

Career Counseling/College Transfer Services/Employment Services

The College offers comprehensive services to assist students in career advising, career preparation, job placement and transfer. Counselors are available to help students make career change and career decisions and may suggest career testing or use of information in the Career Resource Library, located on the 2nd floor of the Student Center Building.

The Career Resource Library (SC 283) has numerous publications, videotapes, and handouts on career-related topics. Discover, an interactive computerized career guidance program, is also available.

Current transfer agreements with other area colleges and universities are maintained in the Counseling Center, including program transfer guides and course transfer information. Current catalogs from two- and four-year colleges are available as well as computer stations with Internet access to other college web sites.

The Employment Services Office maintains listings of job openings, including full and part-time jobs, on-campus opportunities, off-campus postings and placement for graduates. A web-based placement service is available at www.collegecentral.com/wcc for student use. Staff will work with students and academic departments to identify appropriate job opportunities. Workshops on resume preparation, interviewing, job search techniques, and other related topics are offered throughout each semester.

Personal Counseling

The counseling and social work staff also work with students experiencing personal or emotional problems. The staff provides referrals to the appropriate agency or service in the community for specialized assistance as necessary.

Learning Support Services

The College provides tutoring for all students in credit classes. Students with disabilities can take their entry assessment test (COMPASS) in the LSS office. Academic advising and help with arranging accommodations is provided for students with documented disabilities. Other services include individualized sessions with tutors, interpreters for the deaf, readers for the blind, specialized technology and other assistance to help students successfully complete their programs. Services are also available for students who are economically disadvantaged or who have limited English-speaking proficiency. In order to provide timely services, requests should be made in advance. For additional information please contact Learning Support Services, located on the 1st floor of the Liberal Arts Building, Room 104. Hours of service are 9 a.m. - 8 p.m. Monday - Thursday and 9 a.m. - noon on Friday. For more information call (734) 973-3342, TDD (734) 973-3635.

Learning Disability Assessment is provided by a Learning Disability Specialist who provides diagnostic testing for WCC students who suspect they may have a learning disability (LD) and who have not been tested previously, or whose testing is outdated. In addition to providing cognitive and achievement testing to diagnose and document a learning disability, the LD specialist also provides consultation for students with other learning difficulties and makes recommendations for learning/study strategies, recommends educational accommodations appropriate to specific learning disabilities, and provides information, recommendations, or appropriate referrals for other conditions—for example, ADHD/ADD (attention deficit/hyperactivity disorder), which may interfere with learning. These services are offered free of charge to currently registered WCC students. The goals of LD assessment and services are to identify learning problems and educational needs; assist in arranging appropriate remediation programs and accommodations; and help all students develop the confidence and means to reach their potential. Testing is arranged by appointment. For more information, please call Learning Support Services at (734) 973-3342.

The International Student Center

The International Student Center, as part of the Counseling, Career Planning and Employment Services Department, provides services to the following:

- Prospective students visiting the College who want information about the academic programs as well as information about services for the international population, such as English as a Second Language (ESL)
- Students looking for information and support services that will help ease the adjustment to the American culture and college life
- Current students seeking academic advice regarding Washtenaw Community College programs, as well as information about transfer programs to other institutions

The Center is located on the 2nd floor of the Student Center Building in room 206A. Students should call 734-677-5158 or 734-677-5128 for more information.

M-TIES

The Michigan Transfer Initiative for Emerging Scholars (M-TIES) program is located in the Counseling, and Career Planning and Placement Center (SC 206D). This program was developed jointly by WCC and the University of Michigan with the goal of helping students to attain their educational goals of transferring to U of M. Please contact the M-TIES office at (477-8519) for additional information.

Office of Student Development and Activities

The Office of Student Development and Activities provides a variety of opportunities designed to enhance a student's educational experience outside of the classroom. The Office oversees campus events, club sports, clubs and organizations, The Student Voice newspaper, and Orchard Radio. The Office is located on the 1st floor of the Student Center Building in Room 112 and services are available during regular campus hours. For more information, go to www.wccnet.edu/studentactivities or call (734) 973-3500 or e-mail stuact@wccnet.edu.

Club Sports

Club Sports are open to both men and women who wish to participate on recreational teams. Club sports currently include baseball, basketball, hockey, golf, running, soccer, softball and volleyball. Some activity starts almost every month. The College's practice field (North Athletic Field) with softball diamond, soccer field, and sand volleyball court is located across Huron River Drive from the main campus. Contact the Club Sports office located in the Student Center Building, Room 118, or call (734) 973-3720 for information and sign-up.

Student Clubs and Organizations

Student clubs and organizations are established by students to offer opportunities in which students may learn leadership skills, meet other students with similar interests, and have fun. The Student Activities office is the clearinghouse for student clubs and organizations. Interested students should come to the Student Activities office in SC 112 for information on how to start a club. Students can participate in college clubs

and organizations if they:

1. Are currently enrolled in a credit class.
2. Maintain a 2.0 GPA
3. Pay the required fees and sign a liability waiver.
4. Are not on academic suspension or being disciplined.
5. Follow the rules in the "WCC Student Rights and Responsibilities" handbook.

For a list of current clubs and organizations click on the Student Activities icon on the College home page.

Huron River Review

Students may contribute poetry, prose, photographs, and art to this award-winning annual campus literary journal. Aspiring contributors can call 973-3647 or stop by the Writing Center (LA 355) for more information.

The Student Voice Newspaper

The Student Voice is a bi-monthly newspaper published by and for the students of WCC. The Voice provides opportunities for students to write, take photographs, design, sell, and manage advertising. The Student Voice is located in the Student Center Building in Room 116. For more information call (734) 677-5125.

Orchard Radio

Orchard Radio is WCC's student-run Internet radio station. Students are invited to create and host their own radio show or provide off-air assistance doing marketing, special projects, and general administration. Students dedicate themselves to learning the fundamentals of running a radio station, how to conduct interviews and do research, and the importance of being a responsible person in media. All students are welcome to join at any time. E-mail Orchard Radio at radio@wccnet.edu or call (734) 973-3500.

GalleryOne

GalleryOne is located on the first floor of the Student Center Building, Room 108. The gallery shows work by student, faculty, local and international artists from the first day of classes in September through July. Periodically, the gallery will schedule lectures, gallery talks, demonstrations, and workshops that are relevant to current exhibitions. The gallery is open during the day and some evenings. Call (734) 477-8512 for information.

Student Resource and Women's Center

The Center provides advising, counseling, and mentoring to students. It also offers workshops, inspirational speakers, and networking opportunities specifically for women. The Center advocates on behalf of students to help them overcome barriers that impede their success and to promote an educational environment that values diversity, inclusiveness and equality.

Although everyone is welcome to use the Center, the staff is especially sensitive to the needs of the adult student who most likely has the responsibility of a home, family and full time employment to factor into their educational objectives.

The Center utilizes a case management and holistic approach to providing services to students. This means that within established guidelines, staff consider each student's circumstances individually and provide solutions that are prescriptive to his/her particular needs.

The Student Resource and Women's Center has a resource library which contains books, periodicals, and computers. All students are invited to use this resource.

The SRWC offers the following support services:

- Academic, career and professional advising
- Assessment of individual learning styles
- Development of an educational plan
- Financial assistance with educational expenses to students in occupational programs who qualify as single parents, displaced homemakers, men and women entering nontraditional careers, and economically and/or academically disadvantaged students
- Inspirational speakers, mentoring programs, library resources and workshops that relate specifically to women

The Center is located on the second floor of the Student Center Building in SC 289.

Student Rights and Responsibilities

The College maintains a policy on student rights and responsibilities. It addresses student rights and responsibilities as well as student complaint and disciplinary procedures. Copies of the policy may be found on the WCC web site under Board Policy 4095 or secured from the Associate Vice President for Student Services office.

Substance Abuse

Alcohol and Drug Policy

The College has adopted the following position, consistent with requirements of the new federal drug-free campus regulation and with federal, state and local law, with respect to drug use on campus. All students, employees, and visitors are specifically forbidden to use, possess, or distribute alcoholic beverages or illegal drugs, or to be under the influence of the same while on College property. An exception will be made at those functions for which permission to serve alcohol has been obtained through the proper channels and then only for those who are of legal drinking age. Offenders will be subject to legal and/or disciplinary action by the College. Sanctions will be consistent with local, state, and federal law and will range from a disciplinary reprimand or a requirement to complete a rehabilitation program up to suspension, expulsion, or referral for prosecution.

Tutoring Program

The College offers an extensive free tutoring program. Students in need of a tutor may complete the required form in the Learning Support Services Office (LA 104). Tutoring hours are 9 a.m. to 8 p.m. Monday-Thursday and 9 a.m. to noon on Friday.





Learning Resources



Learning Resources

Library

The College library is an integral part of the total WCC learning environment and offers library, media and computing services to students and staff. The Library is an active participant in the instructional and research programs of the College. Library staff seek to instruct students in the effective and efficient use of print, media and electronic resources. The staff encourages students to develop the habit of independent learning so that books and other knowledge sources will contribute to their intellectual development in future years.

The Library provides the use of more than 60,000 books and 530 hard copy periodicals. Thousands of electronic periodicals, both magazines and newspapers, and electronic books are available online both at the Library site and off-site through the Library's web catalog. Micro-publications and career materials also are available. A collection of media software such as audio and videotapes, digital videodiscs, and music CDs can be borrowed for use on equipment in the facility or in College classrooms.

Librarians and faculty members work in partnership to select the best of retrospective and current materials to respond to students' curricular needs and to provide accurate, up-to-date information and varying viewpoints on subjects and issues. To help students use the extensive library resources, the librarians provide research instruction for classes and assist in independent study activities. Students may request to join a research instruction class if their instructor has not scheduled a session.

Librarians provide users a full range of reference services, including electronic delivery of information from many off-site informational databases. The Library actively participates in inter-library loan programs to provide other libraries' resources to faculty and students. Access to other libraries' online catalogs, such as Eastern Michigan University and the Ann Arbor District Library, is available.

The Library is located on the first and second floors in the Gunder Myran Building. The facility includes group study rooms that can be used on a first-come, first-serve basis. Network access and whiteboards in these rooms facilitate research and group projects. Traditional study tables and informal lounge seating offer students choices in study environments.

Currently enrolled students need an ID card to borrow materials and to gain off-site access to the Library's online resources. An automated circulation system and online catalog provide efficient, accurate information on all library materials. Limited photocopy services are available.

The Library is open during weekday, evening and weekend hours as posted each semester. Consult the library web site for more information and electronic access to many resources and services. (<http://www.wccnet.edu/resources/library>)

Media Services

The Media Service Department (MSD) is broadly responsible for two aspects of campus operations: 1) maintaining instructional equipment and associated software at locations on campus and at regional centers, and 2) supporting campus events and conference operations.

As part of its instructional mission, the MSD offers a wide range of audio/visual services, including classroom presentation assistance, online video conferencing, visual media preparation, audio and video production and editing, and tape duplication services. In addition, MSD is responsible for maintaining campus satellite operations, and the campus video bulletin board system. MSD prepares non-broadcast educational videotapes that support classroom instruction and also provides off-air taping and teleconferencing services to faculty and staff. The department also operates a loan program that provides digital cameras as well as PC and Mac laptops to faculty.

MSD also provides complete technical support for campus events and conferences across the campus, in the College Theater and in Towsley Auditorium. These services range from assistance with presentation and display setups to complete sound reinforcement and stage lighting for assemblies and theatrical events.

Distance Learning (College on Demand)

The College offers college credit courses to students at a distance using either the Internet or interactive television (ITV) as the mode of delivery. Students considering distance learning classes should have experience using word processing software, e-mail and the World Wide Web. The College provides free student e-mail accounts, and offers an introduction for students who want a preview of the skills needed for these classes.

Distance learning students will need to own or have access to specific hardware and software that meet technical requirements in order to participate in class instruction and discussion. The Distance Learning Office staff provides telephone (734 477-8556) and email (vls@wccnet.edu) support for distance learning students. See the WCC home page for more information.

Open Computer Labs

Two open computer labs housing many microcomputers for use by students and staff are located in the Library on the second floor of the Gunder Myran Building and in TI 108. Staff provide basic assistance to users in the operation of hardware and software in both computer commons. The two commons are open for operation during daytime and evening hours all year and on weekends during fall and winter semesters. Check postings for exact hours. Productivity software such as word processing, spreadsheets and databases, as well as access to the Internet and the college network are offered in both locations. Specialized software supporting specific instructional programs is also available in the Library commons. Find hours under the Resources heading on the College home page.

English as a Second Language (ESL)

The College offers courses (from beginning through advanced) for students who want to learn English as a second language (ESL). These courses prepare students to enter College academic and vocational programs and to participate in the broader English speaking community. For specific information, contact the English Department at (734) 973-3425.

Math Center

The Math Center provides services to improve students' mathematical skills. Many mathematics classes meet in this location (MTH 039, 062, 090, 097A, 097B, 107, 151, 152, 163, 165, 169A, and 169B). Placement tests designed to guide students into the proper level course for their needs and abilities are administered and evaluated. Information regarding courses, procedures, schedules, and program requirements is readily available. For specific information call (734) 973-3392.

Academic Skills Center

The Academic Skills Center provides help for students who desire to improve their reading and study skills and realize academic success. Diagnostic tests designed to guide students into the proper level courses for their needs are administered and evaluated. Students enrolled in Academic and Study Skills (ACS) classes are encouraged to use the facility regularly during the semester. Questions related to reading skills may be directed to the Academic Skills Center, 7(34) 973-3301, GM 307.

Unified Testing Center

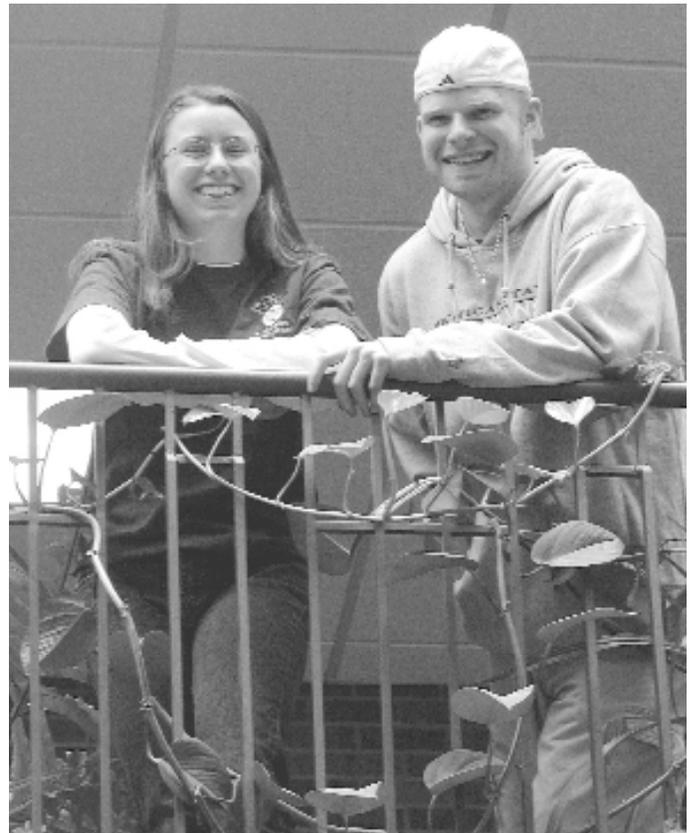
The Testing Center (SC300) is designed to provide a quiet and comfortable environment where students and guests have an opportunity to demonstrate their best academic work. The Center provides academic tests, placement tests, GED tests, CLEP and DANTEs exams, employment screening tests, and distance learning assessments and is open Monday through Saturday during the academic year.

Writing Center

The Writing Center, located in LA 355, is a resource available to all WCC enrolled students as a walk-in support for writing assignments across the curriculum. The primary goal of the Writing Center is to help students become stronger writers. English instructors are on duty along with a staff of trained and skilled peer tutors to provide help with any aspect of writing, from coming up with ideas, basic sentence structure, proofreading, to research documentation.

In addition, several writing courses (English 050/051, 067, 091, 100, and 111) have Writing Center assignments as the "fourth" credit hour. In each course, students complete exercises to complement their course work, and to further develop their writing skills. The Writing Center also offers placement testing for students who need assistance in selecting a writing course that matches their skill level.

The Writing Center computers are equipped with Microsoft Office and Internet browsers for student use. The Center is usually open 6 days a week but it's a good idea to call 973-3647 for specific hours for each semester. The web site also has the latest hours plus more specific information to help students. Just go to www.wccnet.edu and access the dropdown menu from the Resources heading at the top of the page. Choose Writing Center.





Continuing Education and Community Services



Continuing Education and Community Services

Non-Credit Short Courses, Seminars, and Workshops

Washtenaw Community College extends educational resources and facilities to the community by offering non-credit courses, emeritus classes for people 65 years of age or older, customized training for business and industry, community outreach through courses and services offered at off-campus sites, and facility rental for community groups and businesses. A broad spectrum of non-credit classes is offered to the public throughout the year. This includes the following program areas:

- Business and professional development
- Computer and other technologies
- Personal health
- Professional health care continuing education
- Personal enrichment and recreation

A wide range of classes are offered in an online format. For information about these classes, please call (734) 677-5027.

Continuing Education Units (CEU's)

Many non-credit courses offer Continuing Education Units (CEUs). The Continuing Education Unit (CEU) is a measure of the amount of organized study a person has completed, and provides an orderly format for the recognition and quantification of non-credit learning experiences. A CEU is officially defined as ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction. CEU's are a nationally recognized recording device for substantive non-credit learning experiences and are an appropriate measure of in-service education and training. Courses for which CEU's are awarded are not eligible for college credit.

Customized Training

WCC offers customized training to county business, labor, and government. These educational experiences are designed to help the county and its citizens to be globally competitive and economically viable. In this arena, WCC also provides seminars and workshops for businesses, labor, governmental organizations, community organizations, and professional groups.

Depending on the client's needs and objectives, programs can range from half-day workshops to semester-length courses or even associate degree programs spanning several years. Traditional college credit courses are also offered as part of the College's response to the specific educational requirements of business, labor and government. Courses are taught either on campus or at a client's site, whichever is most convenient and most appropriate for the subject and skills being taught.

Extension Sites

WCC offers a variety of credit and non-credit courses in various sites throughout its Washtenaw/Livingston county service area at convenient locations and times.

The four WCC extension and community center offices are:

Eastern Area:

Harriet Street Center
332 Harriet Street
Ypsilanti, MI 48197
(734) 480-9950

Western Area:

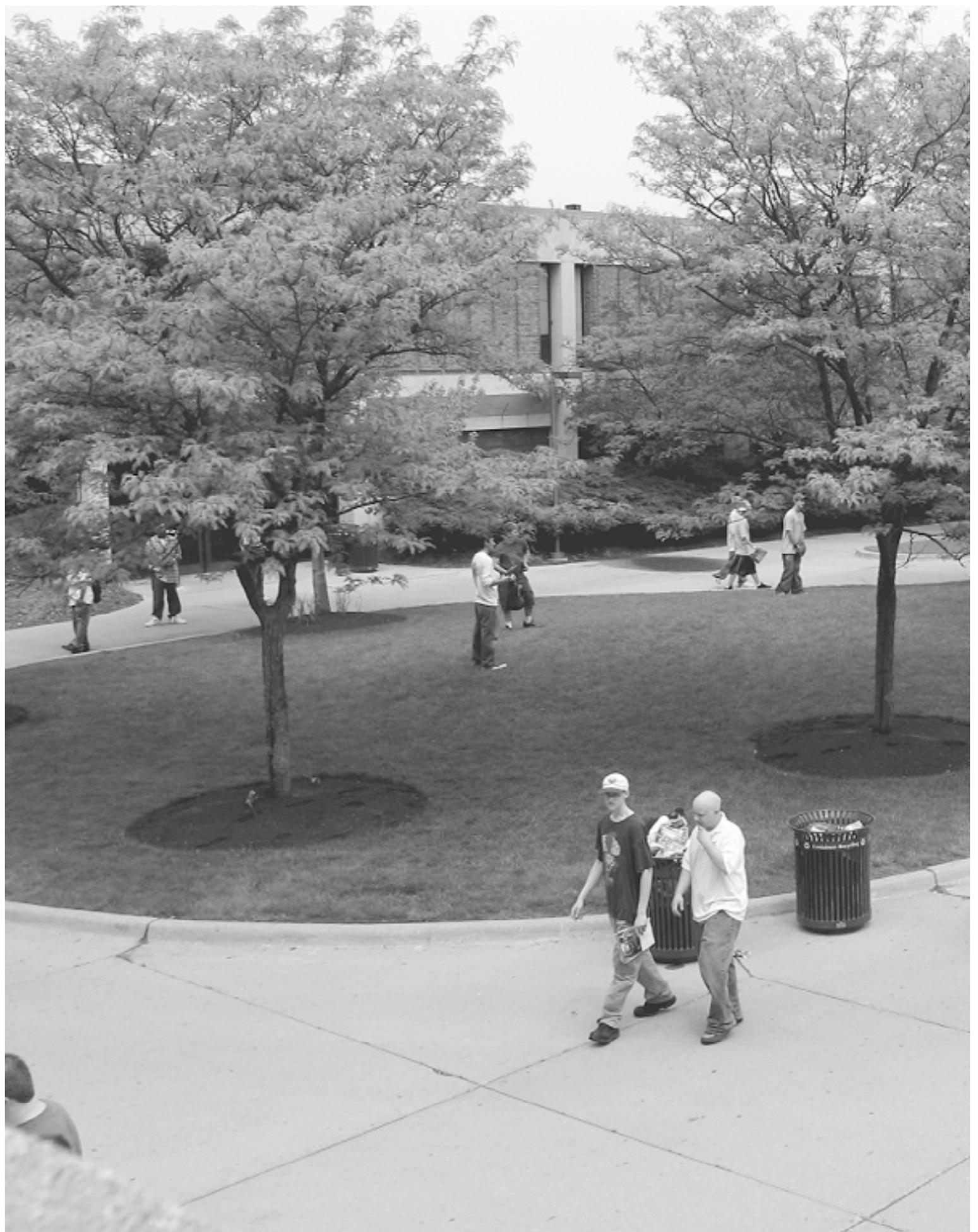
Western Center
7920 Jackson Road
Ann Arbor, MI 48103
(734) 424-0182

Class Locations: WCC Western Center, and Dexter Mill Creek Middle School

Northern Area:

Brighton Center
Brighton High School
7878 Brighton Road
Brighton, MI 48116
(810) 299-4195





Academic Policies/Procedures



Academic Policies/Procedures

Articulation Agreements

Articulation agreements between WCC and four-year colleges and universities allow WCC students in specific programs to apply all WCC credits toward a bachelor's degree. Included with the articulation agreements are curriculum guides which list all courses required to successfully transfer all credits. Approved articulation agreements are available online at www.wccnet.edu and in the Counseling Office. For information on public school articulation, see the section below, Secondary/Postsecondary Articulation.

Assessment of Student Learning

Washtenaw Community College is committed to ensuring that students achieve the learning outcomes established for its programs and courses. To provide feedback that will enable the college to determine whether its programs and courses are successful in achieving this goal, students may be expected to participate in college-wide outcomes assessment activities related to its courses, academic programs, and general education outcomes. In some instances, student work will undergo special reviews. Other activities may include portfolio development, tests, surveys, or other tools to measure student learning. Student participation in assessment activities assures that the college receives information on student learning that can be used to promote continuous improvement of teaching and learning. By choosing to come to WCC, students are expected to participate in assessment activities as may be requested. In all these activities, strict confidentiality of individual student work will be maintained.

Cancellation of Classes

The college may cancel course offerings due to low enrollment, lack of an instructor, or any other reason deemed viable by the Vice President for Instruction. Every effort is made to accommodate students into alternate sections. Information regarding the current status of course offerings for all semesters is available on the College's web site (www.wccnet.edu) and at the Student Connection.

Class Attendance

Students are expected to attend all sessions of the courses for which they register. Regular class attendance is necessary for maximum success in college. In the event of excessive absence or tardiness, individual instructors determine whether the quality of a student's work has been adversely affected and, if warranted, may withdraw a student mid-way through the semester.

For any class with a waitlist, students who do not attend the first two class sessions in a semester may be dropped from the class to allow waitlisted students to enroll in the course. Students not able to attend a class are responsible for contacting the faculty member prior to the second-class meeting.

Class Level

Freshman/First-Year Student - One who has completed fewer than 31 credit hours. Sophomore/Second-Year Student - One who has completed 31 or more credit hours but has not received an associate degree or has not qualified for upper division classification in a four-year college or university.

Complaint Procedure

See the Office of the Associate Vice President of Student Services or look for Student Rights and Responsibilities on the WCC web site.

Course Load/Student Status

Full-time student	One who enrolls in twelve or more credit hours per semester.
Part-time student	One who enrolls in less than twelve credit hours per semester.
Half-time student	A part-time student enrolled in at least six credit hours per semester.

Enrollment certifications are not processed until the refund deadline for the 15-week class session has passed.

Students enrolling in 18 or more credit hours in a semester must have their schedule approved by a counselor before their registration may be processed.

Transfer Credit and Credit for Other Prior Learning

Washtenaw Community College recognizes that students come to college with competencies obtained from prior learning experiences such as previous education, training, or work experience. To receive credit, a prior learning experience must be verified. If it is documented and evaluated to be equivalent to college-level coursework, it is the College's policy to allow equivalent credit to be granted to the student. The following methods may be used to verify equivalency credit: transcript evaluation, credit by examination, portfolio evaluation, advanced placement testing, and articulation credit. Credit for prior learning will be evaluated and posted on the student's transcript only after the student has earned one or more credit hours at WCC and will not apply toward satisfying the minimum credits in residence required for graduation.

The credit does not count as part of a student's credit load for any given semester and is not computed into the grade point average. In most cases, non-traditional credit earned for prior learning experiences will not transfer to other colleges or universities. Other institutions will want to evaluate the transcripts from all colleges previously attended when awarding transfer credit.

College Board Advanced Placement Exams

Credit may be granted to students who have achieved a 3 or above on one of the College Board Advanced Placement exams offered through their high school. The student may be granted credit for a particular course or the credit may apply toward an elective. Contact Student Records at (734) 973-3590 for specific course information.

College Level Examination Program (CLEP)

Credit may be granted for the successful completion of each of the five general examinations of CLEP:

- English Composition*
- Mathematics
- Humanities
- Natural Sciences
- Social Sciences and History

* Students who achieve the minimum score on the English Composition General Examination will be granted English elective credit. To receive credit for ENG 111 (Composition I), students must pass the CLEP English Composition Subject Examination With Essay.

Minimum scores for awarding credit are based on American Council on Education (ACE) recommended credit-granting scores.

Students who have earned six or more credits in any one of the general examination subject areas are not eligible to receive credit for the general examination in that area. Subject examinations exist in the general areas of composition, literature, foreign languages, history, social sciences, science, mathematics, and business. In general, a maximum of three semester credits may be granted for each College-approved subject examination for scores which meet ACE recommended credit-granting scores. Some general and subject examinations also require the successful completion of an essay examination or laboratory demonstration. For information about scheduling a CLEP test, contact the Testing Center at (734) 973-3634.

DANTES Subject Standardized Tests

The DSST provides colleges with a means to measure students' knowledge in commonly taught college courses and awards credit based on student scores. Students can choose from 37 different test titles in the areas of social science, business, mathematics, applied technology, humanities, and physical science. For information about which tests can be used to award academic credit at the College, contact Student Records. For information about scheduling a DANTEs test, contact the Testing Center.

Secondary/Postsecondary Articulation Articulation through Tech Prep

Students who have acquired entry-level occupational skills through high school career and technical education may be eligible to receive college credit for equivalent courses. The student must have taken an approved career or technical course and receive a recommendation from the instructor. The student must also provide the college with his/her student performance record for evaluation by the college instructor.

Students eligible for articulated credit must apply for the credit within two years of their high school graduation. For more information, please contact the high school counselor, the recommending instructor, or the College Tech Prep Office, (734) 973-3706.

Credit by Examination

Students who appear to have proficiency in a course may, upon recommendation of a full-time instructor and with the approval of the department chair, take a course examination for credit. The student must be accepted to the College as a credit student and complete a Credit-By-Examination application form. The cost of the examination is based on the number of credit hours in the course. A maximum of 30 credits earned by examination may be applied toward a degree. The student is responsible for arranging to complete the examination. Students are allowed to attempt credit by examination only once per course. If the student passes the exam, WCC posts the credit with no grade. This credit generally does not transfer to other institutions.

Credit by Portfolio/Document Evaluation

Students with background experiences or certifications obtained through on-the-job training or apprenticeships, for example, may have this prior learning evaluated for college credit. Students may pick up a Non-Traditional Credit Evaluation form from the Office of Student Records and contact the appropriate faculty member(s) in the student's program area. Courses granting CEU's are not normally eligible for college credit.

Students must submit all official documents and information on the length and content of the experience, and any other pertinent documentation to the appropriate faculty member for evaluation. Normally, a maximum of 20 credits may be accepted in this category (with the exception of students with backgrounds in nursing or apprenticeship training).

Military Training

For an evaluation of service school training, students must submit a military transcript and DD 214 member 4 copy (military discharge papers) unless still on active military duty. The documents must show the exact title of the course, location of the course, and length of the course in weeks. Credit may be granted based on the recommendation of the American Council on Education (ACE). If a course is not evaluated by ACE, no credit is granted. If a course is relevant to a student's occupational degree objective, the program advisor and appropriate dean make a decision as to acceptance and application of credit. Other courses may be accepted as elective credit based on the veteran's program of study at WCC.

Transfer Credit from Other U.S. Colleges and Universities

Applicants must submit an official transcript from all colleges previously attended if they plan to apply the credit toward their program of study at WCC. Coursework will be evaluated, at the student's request, after the student has completed one or more credit hours at WCC. Credit will be granted only for courses in which a grade of "C" or better has been earned. Courses which are evaluated to be equivalent to courses offered at WCC are posted on the transcript as the specific

course. Courses, which are evaluated as college-level but not equivalent to a particular WCC course, are posted as elective credit in the appropriate discipline.

The acceptance of transfer credit is governed by the accreditation of the institution and the listing published in the American Association of Collegiate Registrars and Admissions Officers Transfer Credit Practices of Designated Educational Institutions. Credit is accepted from institutions with a general (AG) or provisional (AP) rating. Credit is not accepted from schools that have an N or NP rating. Credit from institutions that are not listed may be evaluated for non-traditional credit. Correspondence Courses from accredited colleges and universities are accepted. Foreign transcripts cannot be evaluated without submission of international credit course-by-course evaluation from ECE or WES. Applications for these outside services are available from the WCC Student Connection.

Entry Assessment Guidelines

WCC is committed to maximizing success for each student. The College provides an open access, student-oriented learning atmosphere in which students have the opportunity to achieve success at the level for which they are ready. While WCC is open to all individuals who can benefit from the College’s educational and service programs, the mandatory entry assessment tests for new students provide information that helps the College match student skill levels with appropriate courses.

To register for 100 and 200 level courses, students must have the minimum college level entrance scores (listed in next paragraph) or successfully complete the prescribed courses, unless different placement scores and/or course prerequisites are specifically listed in a course description. Courses below the 100 level have their own specific placement scores and course prerequisites.

College Level Scores:

All 100 and 200 level courses (except when specified otherwise on the course description) require the minimum College Level Scores in reading and writing, or completion or the equivalent developmental courses with a grade of “C”, “P” (pass), or “S” (satisfactory). The minimum College Level Scores are as follows:

Reading: COMPASS Reading score = 82, or ACS 108 with a “C” or better, (concurrent enrollment is allowed)

(Other accepted test scores: ASSET Reading score = 43, or ACT Reading score = 19, or SAT Verbal = 460)

Writing: COMPASS Writing score of 81, or ENG 091 with a “C” or better

(Other accepted test scores: ASSET Writing score = 46, or ACT Writing score = 20, or SAT Verbal = 480)

Math: Math courses require individually established minimum test scores in mathematics or completion of equivalent courses with a “C” or better. Math prerequisites are listed on the course descriptions.

Students who produce documentation of ACT or SAT scores are exempted from taking the Entry Assessment tests. Some pro-

grams have an additional screening process. For detailed information, see the program admission requirements for your specific program in the “Programs of Study” Section of this catalog.

Grades

Grading Scale

Grade	Grade Points Per Credit Hour
A Superior	4.0
A-.....	3.7
B+	3.3
B Excellent.....	3.0
B-.....	2.7
C+	2.3
C Average	2.0
C-.....	1.7
D+	1.3
D Below Average	1.0
D-	0.7
F Failure	0
S* Satisfactory	0
U* Unsatisfactory	0
I* Incomplete; Credit Withheld	0
IX* Expired Incomplete.....	0
W* Withdrawal.....	0
DF* Deferred	0
N* Non-Attendance	0
AU* Audit	0
P* Pass	0
NP* No Pass	0

NOTE: Grades (except S, P, and AU) having 0 grade points may be treated by other educational institutions as an ‘F’.

*** Explanation of Grades:**

Satisfactory ‘S’ or Unsatisfactory ‘U’: ‘S’ and ‘U’ grades are given for courses numbered 051 and below. Credits for courses with ‘S’ or ‘U’ grades are not figured into credits attempted in determining a student’s GPA and do not count toward graduation.

Incomplete Grade ‘I’ Credit Withheld: If the instructor determines that the student has nearly completed the requirements of a course but is missing a small but essential part of the course due to unforeseen or extenuating circumstances, the instructor may issue an ‘I’ grade. The ‘I’ grade will remain on the student’s transcript until the requirements of the course are met and a letter grade given or an instructor-determined deadline has passed with a maximum of one year. The final grade will depend on the quality of the completed work and its significance to the course. After the deadline, the grade that has been preset by the instructor will be posted on the transcript if the work is not completed. The ‘I’ grade could become a letter grade such as B, C, D, or S and credit granted or a U, F, or IX (permanent ‘I’) in which case a student would need to register in the course again to receive credit. Neither the ‘I’ or the ‘IX’ grade will be figured into credits attempted or honor points earned.

Withdrawal 'W': A 'W' grade is posted to the student's permanent academic record for any course the student withdraws from after the 100% refund deadline. The 'W' grade is not figured into credits attempted in determining a student's GPA.

Deferred Grade 'DF' Credit Withheld: In certain designated courses, a student may be unable to complete the required work until the following semester. If, in the opinion of the instructor, the student is making normal progress, the 'DF' may be assigned. Students must re-enroll in the course and complete the required work the following semester (Spring/Summer semester). The 'DF' grade is not figured into credits attempted in determining a student's GPA.

Non-Attendance 'N': No credit due to lack of attendance. Generally this grade is assigned to a student who has only attended class once or twice.

Audit 'AU' No Credit: A student may enroll in a credit course on a non-credit (audit) basis. The number of credits the course normally carries is not included as part of the total credit load; however, tuition is assessed by the number of credits for the course. Students may change from credit to audit status or vice versa early in the semester without the instructor's permission. Students may make the same changes later in the semester if the instructor's authorization is obtained. Refer to the Academic Class Schedule of courses for specific dates each semester. Credit is not earned in courses taken on an audit basis.

Pass 'P'/No Pass 'NP': Pass/No Pass grades are given only in specifically-designated courses numbered above 051. The Pass/No Pass grades must be part of the approved course syllabus and will apply to all students in all sections of the course. Students and faculty cannot elect this grading option for other courses. The 'P' grade equates to 'C' or better work and will not be included in a student's GPA. No more than 25 percent of credits applied toward an associate degree or certificate can have a 'P' grade.

Grade Appeal Procedure

A student may appeal any grade from any course. The process consists of the following steps:

1. Student discusses concerns with instructor.
2. If step one does not resolve the appeal, the student submits to the department chair a written request for a meeting. This step must be taken within five months of the posting of the grade to the student's record.
3. After discussion with the student and/or the instructor, the department chair may suggest to the student that there is either no basis for appeal, or that student may wish to appeal to the dean.
4. If the student wishes to pursue the appeal, he/she should submit the appeal in writing to the division dean with a request for a meeting.
5. The division dean then invites both the student and the instructor to a meeting and issues a final decision. This step must be completed within six months of the posting of the grade to the student's record.

All parties are to be notified of any action taken during the entire process.

Grade Point Average (GPA)

Grade points measure the achievement of students for the number of credit hours attempted. Grade points are determined by multiplying the grade points per credit hour by the credit hour value of the course attempted. The cumulative grade point average is the total number of grade points earned divided by the total number of credit hours attempted. Attempted credit hours include the number of credit hours of "F" even though no grade points are earned for this grade.

Academic Intervention Program

Purpose: The primary purpose of the Academic Intervention Program is to promote retention and academic success. It is the College's intention to identify students who are showing signs of significant academic struggle and provide support and services to assist them in meeting their educational goals.

Definition: Washtenaw Community College wants to ensure that all students make satisfactory progress toward achieving their educational goals. The fundamental standard of academic progress is the completion of attempted credits and the attainment of a minimum cumulative grade point average (GPA) of 2.0. As a safeguard against further academic struggle, interventions and restrictions may apply immediately in the case of the courses listed below* or after a student has attempted a minimum of 12 credit hours (which includes developmental courses) and failed to maintain a cumulative GPA of 2.0. These interventions will be applied at the time of the student's next enrollment.

*The following courses do not calculate into the grade point average but a student enrolled in these courses who does not successfully complete the entire course in one semester will receive immediate academic intervention as described in this procedure. Successful completion is defined as receiving one of the following grades: A (superior), B (excellent), C (average), S (satisfactory) or P (pass).

- | | |
|-----------|------------------------|
| • REA 040 | • ENG 050 |
| • REA 050 | • ENG 051 |
| • REA 070 | • ENG 060, 060A & 060B |
| • MTH 039 | • ENG 064 |
| • MTH 062 | • ENG 065 |
| | • ENG 067 |

Elements

Academic progress is evaluated after a student has attempted 12 or more credits **or** at the end of a semester in which the student has enrolled in one or more of the courses attempted from the list above.*

Academic Intervention Program continued on next page.

Good Standing: Cumulative GPA of ≥ 2.0 (greater than or equal to 2.0). A student is in Good Standing when he or she has a cumulative GPA of ≥ 2.0 and successfully completes each course attempted from the list above.*

Step 1: Academic Caution Status:

A student is placed in Academic Caution Status,

- if after having attempted 12 or more credits, his or her cumulative GPA is < 2.0 (less than 2.0) **or**
- if he or she does not successfully complete each course attempted from the list above.*

Academic Caution Process

1. The student is notified by mail that he or she has been placed in Academic Caution Status. A letter will be mailed to the student on the second work day after grades are posted at the end of the semester.
2. The student will be placed on registration hold status by Enrollment Services and will be unable to register or change a registration until he or she sees a counselor or advisor to develop an Academic Plan (AP).
 - A. The Academic Plan will identify academic improvement strategies which will include interventions such as participating in the Student Success Seminar, tutoring, or study groups; working with Student Resource and Women's Center (SRWC); working with Learning Support Services (LSS) on disability related accommodations or other issues; or fulfilling other interventions appropriate to the student's needs. The Academic Plan will be documented in the College's computer system and can be accessed by counselors and advisors.
 - B. Once the counselor or advisor and the student are satisfied with the Academic Plan, the counselor or advisor may lift the hold for the semester.
3. A student in Academic Caution Status **cannot** take more than 15 credit hours. **It is the student's responsibility and in his or her best interest to modify any pre-existing registration to reflect this 15 credit hour limitation.** Fifteen credit hours are rarely recommended at this stage but are available under special circumstances.
4. A student in Academic Caution Status will progress to one of three steps:
 - Good Standing if the cumulative GPA is 2.0 or higher **and** the student successfully completes each course attempted from the list above.*
 - Remain in Academic Caution Status if the cumulative GPA is below 2.0 but the semester GPA is 2.0 or higher **and** the student successfully completes each course attempted from the list above.*
 - Move into Academic Warning Status if the semester GPA is below 2.0 **or** the student does not successfully complete each course attempted from the list above.*
5. If a student in Academic Caution Status is likely to move into Academic Warning Status, the Academic Plan and the

planned student schedule should reflect no more than 13 credits. This is because students who are placed into Academic Warning Status have a 13 credit hour limitation. **It is the student's responsibility and in his or her best interest to modify any pre-existing registration to reflect this 13 credit hour limitation.**

Step 2: Academic Warning Status:

A student who is in Academic Caution Status will be moved to Academic Warning Status

- if his or her semester GPA is < 2.0 **or**
- if he or she does not successfully complete each course attempted from the list above.*

Academic Warning Process

1. The student is notified by mail that he or she has been placed in Academic Warning Status. A letter will be mailed to the student on the second work day after grades are posted at the end of the semester.
2. The student will be placed on registration hold status.
3. A student in Academic Warning Status **cannot** take more than 13 credit hours. **It is the student's responsibility and in his or her best interest to modify any pre-existing registration to reflect this 13 credit hour limitation.**
4. A student in Academic Warning Status must see a counselor or advisor to:
 - A. Update his or her Academic Plan (AP).
 - B. Register or change a registration to include one of the following required Intervention Courses:
 - The following Academic Skills credit courses: ACS100, ACS101, ACS102, ACS110, ACS121 or ACS122.
 - Other approved courses designated by a counselor or advisor which may include: a non credit success course, seminar, or workshop; repeating an academic course previously taken; or another designated course.
 - C. Once the counselor or advisor and the student are satisfied with the AP, the counselor or advisor may lift the hold for the semester.
5. A student in Academic Warning Status will progress to one of three steps:
 - Good Standing if the cumulative GPA is ≥ 2.0 and the student successfully completes each course attempted from the list above.*
 - Moved back into Academic Caution Status if the student achieves a semester GPA of ≥ 2.0 , completes 66% of attempted credits and successfully completes each course attempted from the list above.*
 - Face Suspension if one of the following occurs:
 - i. The student does not achieve a semester GPA of ≥ 2.0**or**

ii. The student does not complete 66% of attempted credits

or

iii. The student does not successfully complete each course attempted from the list above.*

Step 3: Academic Suspension:

A student who is in Academic Warning Status will be suspended if one of the following occurs:

- if the semester GPA is <2.0
- or**
- if he or she does not successfully complete 66% of attempted credits
- or**
- if he or she does not successfully complete each course attempted from the list above.*

The soonest suspension can occur for any student is the end of a student's 3rd semester.

Suspension Process

1. The student is notified by mail that he or she has been suspended and of the length of the suspension. A letter will be mailed to the student on the second work day after grades are posted at the end of the semester.
 - A. If it is a first suspension: the student will be suspended according to the semester in which the student was in Academic Warning Status but failed to make sufficient progress: from fall semester, the student will be suspended for winter term; from winter semester, the student will be suspended for fall term
 - B. If it is a 2nd or subsequent suspension, the student will be suspended for one full year starting from the date of the suspension.
2. When a student returns from suspension, the student is in Academic Warning Status.

Appeals Process

1. The student may appeal his or her suspension to the Suspension Appeals Committee (SAC) by doing the following:
 - a. Student sends a letter of appeal to the committee in care of the Dean of Academic Placement, Counseling & Support Services. Appeal letters must be received by the Dean's office five working days prior to the first day of the semester of suspension.
 - b. The SAC meets to review all appeals for the upcoming semester. The committee will accept or deny each student's appeal. The SAC will be chaired by a dean from one of the academic divisions.
 - c. The SAC chair is responsible for notifying all students who have appealed of the committee's decision prior to the last day of registration.
 - d. If the appeal is denied, pre-registered students will automatically be dropped from all of their courses.

- e. The SAC will meet in January, June, and August.
2. If the student chooses not to appeal, then the suspension process as outlined above goes into effect.

Possible Appeal Outcomes:

- If the suspension is waived by the SAC, the student will return in Academic Warning Status.
- If the suspension is upheld by the SAC and it is a 1st suspension, the student will be suspended as outlined above in 1A of the Suspension Process.
- If the suspension is upheld by the SAC and it is a 2nd or subsequent suspension, the student will be suspended as outlined above in 1B of the Suspension Process.
- The SAC may impose other appropriate enrollment restrictions.

Graduation Requirements

Application for Graduation

To be eligible for graduation, you must file an Application for Graduation with the Office of Student Records. The application should be turned in four months prior to the beginning of the semester in which the student plans to graduate. This allows enough time for the college to verify that students will meet their program requirements by the expected date of graduation, and for students to make adjustments in their schedule for their last semester, if necessary.

The form is available online or can be picked up from the Student Connection on the second floor of the Student Center Building. Find the form online by going to the Help menu at the top of the Web page, then to Student Forms. Degrees and certificates are issued in December, May, June, or August, depending on when the student has completed their degree requirements and applied for graduation. Students who plan to graduate must submit an Application for Graduation form to the Student Connection even if they do not plan to attend the commencement ceremony.

Graduation Requirements for an Associate Degree

To be eligible for graduation with an associate's degree from Washtenaw Community College you must meet all of the following requirements:

1. Fulfill all prescribed course and credit hour requirements of your specific curriculum (see Programs of Study Section for specific requirements). A minimum of 60 credits is required for a degree. Courses numbered below 100 do not count toward degree completion.
2. Complete a minimum of 15 residence credits (Washtenaw Community College credits) toward completion of each degree pursued. Credit for prior learning, including credit by exam and transfer credit, may not be used as residence credit.

3. Complete the General Education Requirements as specified for the type of degree for which you are applying. See “General Education Requirements” in the Curriculum Section for details. This requirement may be waived if you have earned a bachelor’s degree or higher from an accredited U.S. college or university. You may request a waiver of general education requirements in the Office of Student Records.
4. Earn a minimum cumulative grade point average of 2.0 and if applicable, any minimum GPA specified in your program.
5. Meet all financial and library obligations to the College.
6. File an Application for Graduation form.
7. To be eligible for a second associate degree, students must complete 15 additional credit hours that are different from the credits used to complete their first associate degree. Students must meet all degree requirements for the program they plan to complete.

Graduation Requirements for a Certificate

To be eligible for graduation with a Certificate from Washtenaw Community College you must meet all of the following requirements:

1. Fulfill the prescribed requirements of your specific certificate curriculum including courses, credit hours, and/or hours of attendance. (see Programs of Study Section for specific requirements) Courses numbered below 100 do not count toward graduation for the Certificate. Courses numbered 051 and below do not count toward graduation for the Certificate of Completion.
2. Complete a minimum of 75% of the total credits required as “residence credit” for each certificate pursued except for the Certificate of Completion, which requires that all credit hours (if there are any) be completed as residence credit. Credit for prior learning, including credit by exam and transfer credit, may not be used as residence credit.
3. Earn a minimum cumulative and program grade point average (GPA) of 2.0.
4. If applicable, earn the minimum grade point average (GPA) specified for your program.
5. To earn a second certificate in the same program area, you must complete at least nine additional credit hours, including the specific course requirements in the curriculum.
6. Meet all financial and library obligations to the College.
7. File an Application for Graduation form.

Selecting the Program Year for Meeting Graduation Requirements

In meeting program requirements for graduation, you may select either those requirements that were in effect during the year in which you initially enrolled in your program (if the program is still active) or those in effect when you complete your program. This does not apply to meeting the core curriculum/general education requirements that were in effect before Fall 2000. Students who started associate’s degree pro-

grams before Fall 2000 had until Fall 2003 to complete their programs using the general education requirements that were in effect when they started. In Fall 2003 and thereafter, all associate’s degree students are required to meet the new General Education Requirements that went into effect in Fall 2000.

Discontinued Programs

When a program is discontinued, you are given a specified amount of time to complete the program (usually three years), after which you must change to a different program. If you change programs you should see a program advisor to select appropriate courses and make course substitutions as necessary. If you interrupt your studies for more than two consecutive semesters, the College strongly encourages you to change to the requirements that are in effect the year in which you return. Graduation requirements may be completed during any semester.

Course Substitutions

Courses required for a program of study may be substituted by other courses only with the approval of the program advisor and the appropriate Division Dean. A course substitution form must be filed with the Office of Student Records.

Waiver of Program Requirements

Under extreme circumstances, a required course may be waived with the approval of the program advisor, the Division Dean, and the Executive Vice President for Instruction. A Waiver of Program Requirements form must be filed with the Office of Student Records.

Graduation Ceremony

The College’s Commencement ceremony is held in May. The conferring of degrees and college certificates, and the awarding of honors highlight the commencement exercises. Students receiving associate’s degrees or college certificates of 15 credits or more are expected to participate in the commencement. Students must meet all financial and library obligations to the College before a transcript, diploma, or certificate will be issued.

Honor Roll and Graduation Honors

The Deans’ Honor Roll acknowledges students who have completed 12 or more credits during a semester with a minimum 3.5 grade point average. Students completing 12 or more credits with a minimum 3.8 grade point average are considered High Honor Roll students.

Students attending the college on a part-time basis who, over the previous three semesters (Spring/Summer counts as one semester), have accumulated at least 15 credits and earned a minimum 3.8 grade point average are also on the Deans’ Honor Roll. Students earning a 3.8 grade point average or higher are invited to the annual spring Honors Convocation.

Graduation honors are awarded to students earning a minimum 3.5 cumulative grade point average at the time of graduation; High Honors are awarded to students earning a minimum 3.8 cumulative grade point average at the time of gradu-

ation. Honors or High Honors is indicated on students' transcripts, the commencement program, and press releases.

Honor Society (Phi Theta Kappa)

Phi Theta Kappa, the international honor society for two-year colleges, has been recognizing academic achievement since 1918. This organization has chartered 1,100 chapters; it inducted its one-millionth member in 1993.

To be eligible for membership, students must be enrolled at WCC or another regionally accredited institution offering an associate degree program. They must have completed at least 12 hours of course work leading to an associate degree (part-time students may be eligible) and have a cumulative GPA of 3.5.

Students inducted into the organization will receive a Golden Key membership pin, an embossed certificate, the Golden Key Newsletter, and a Phi Theta Kappa Scholarship Directory. Some \$34 million in transfer scholarships is available exclusively for society members as well as many other scholarship opportunities. Society members will wear a gold braid and tassel at commencement ceremonies and receive a gold diploma seal indicating membership. This designation will also be included on students' academic transcripts.

If you meet the eligibility requirements for Phi Theta Kappa or would like further information, a brochure is available in the Student Activities office, or you may call the chapter advisor for Phi Theta Kappa at (734) 973-3691.

Release of Student Information Policy (FERPA)

Washtenaw Community College is committed to allowing students access to their educational records and to protect their rights to privacy by limiting the transfer of their records without their consent, according to the Family Educational Rights and Privacy Act (FERPA). The College will also follow the FERPA guidelines that allow students to petition for corrections to inaccuracies in their records.

Education records are maintained in various offices of Washtenaw Community College, 4800 E. Huron River Drive, Ann Arbor, Michigan. Refer to the Office of Student Records for types and custodians of records.

No one shall have access to, nor will the College disclose, any non-directory information from a student's educational records without the written consent of the student except to WCC personnel and third parties performing an assigned College activity, and any appropriate parties designated by federal law.

Although it is the practice of the College not to release information without the informed consent of the student, at its discretion, the College may provide directory information in accordance with the provisions of FERPA to include: student name, address, telephone number, e-mail address, semesters of attendance, full-time/part-time status, degree(s) awarded, major filed(s), and date(s) of graduation. Upon request, the College discloses educational records without consent to officials of another school in which the student seeks to enroll.

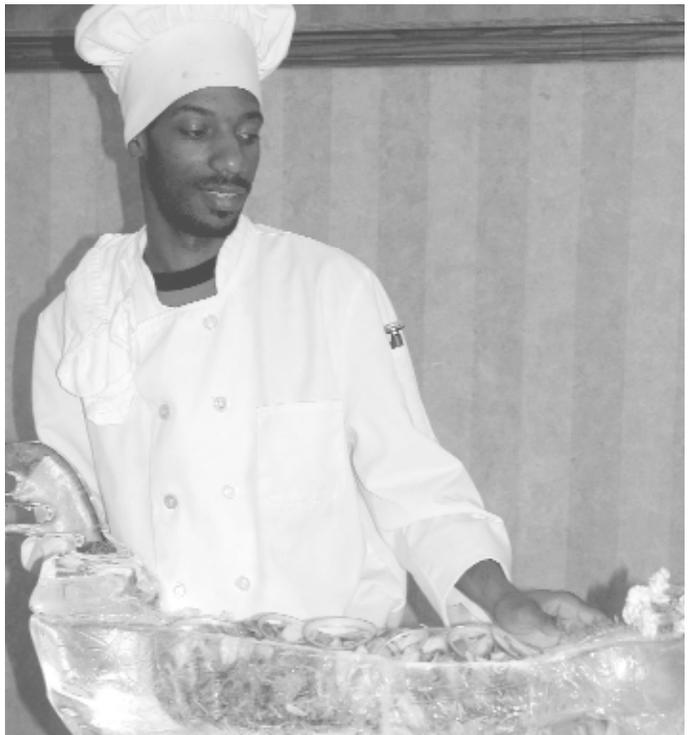
Students may have directory information withheld by filing, within two weeks of the first day of the academic semester, a

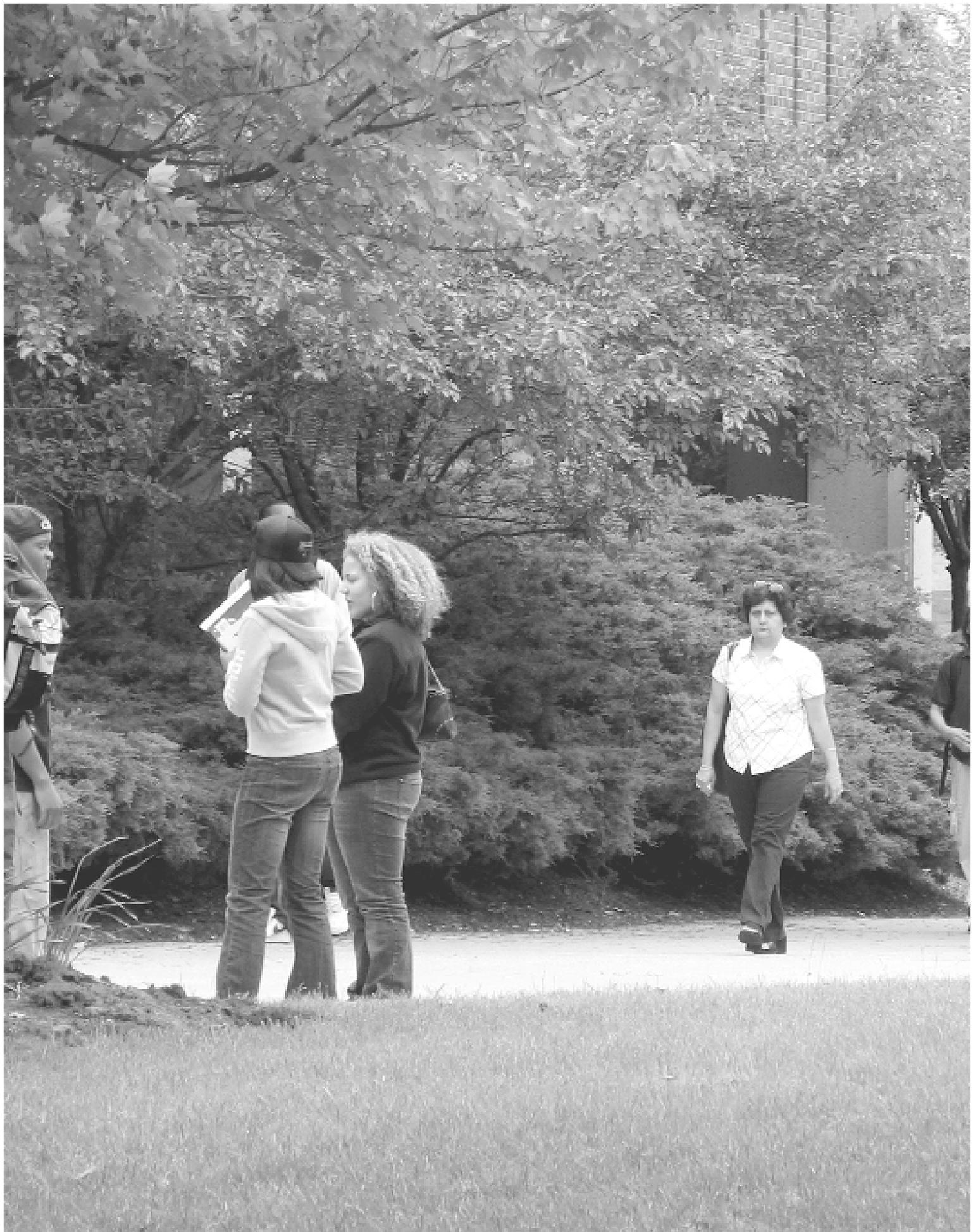
petition for exemption with the Student Connection. This petition would mean that Washtenaw Community College would not release any directory information to potential employers, to insurance companies for verification of enrollment, or to some other organizations requesting information on the student's status, unless the student provides a written release. WCC assumes that failure to specifically request the withholding of directory information indicates individual approval for disclosure.

Students wishing to review their educational records must file a written request with the Student Records Office. Records covered by FERPA will be made available for inspection within 30 days of the request.

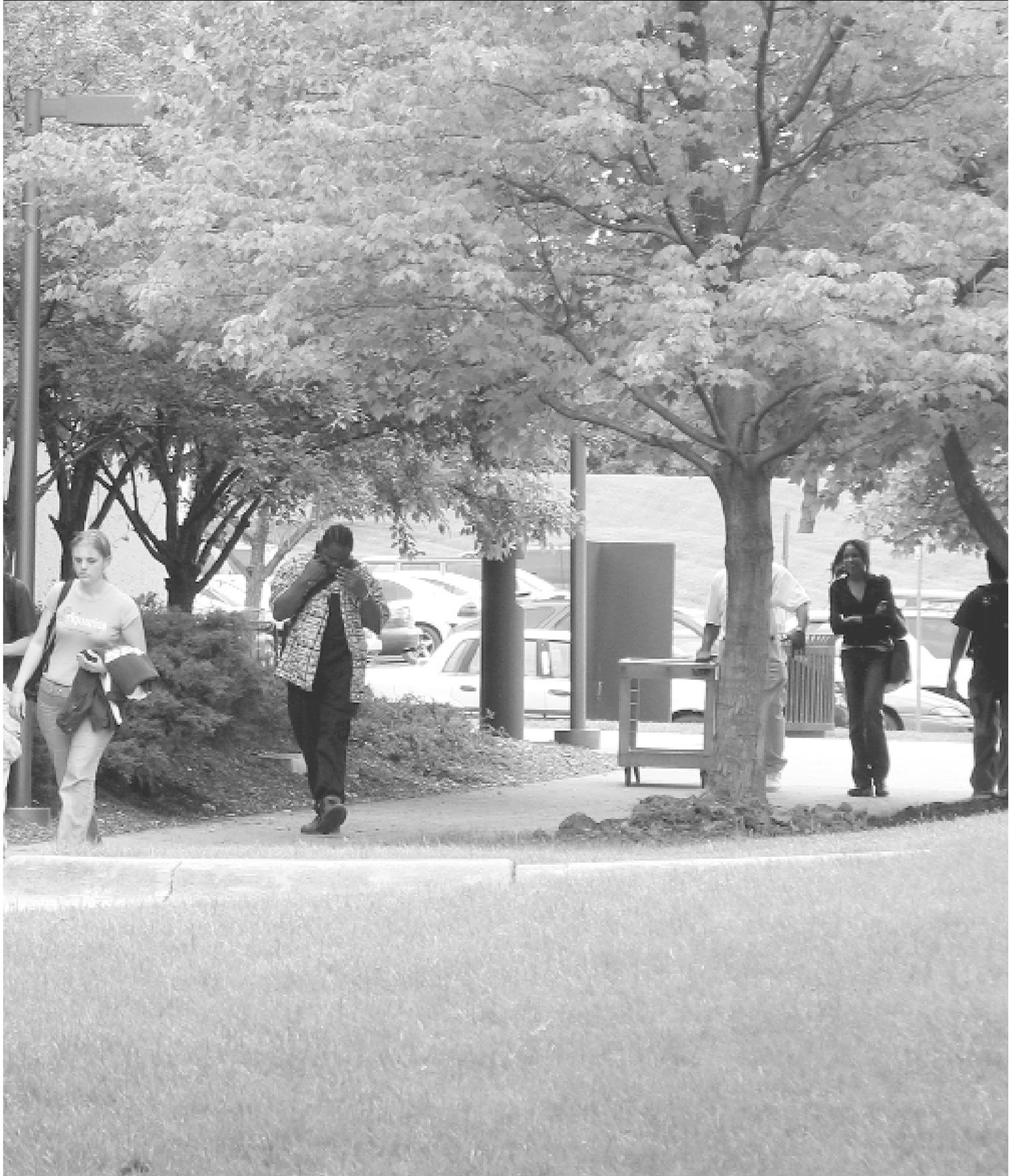
The law provides students with the right to inspect and review information in their educational records, to seek amendment of items they believe to be inaccurate, to have a hearing if the outcome of the amendment request is unsatisfactory, and to submit explanatory statements for inclusion in their file if they feel the decision of the hearing panel is unacceptable. The student should write the Student Records Office, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the College does not make the change, the student will be informed and advised of the right to hearing. Information about requesting a hearing will be included in the notice.

Students who believe that the adjudication of the hearing was unfair, or not in keeping with the provisions of FERPA, may make a written request for assistance to the president of WCC. Further, students who believe their rights have been abridged may file complaints with the Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue., S.W., Washington, D.C., 20202-4605, concerning the alleged failure of WCC to comply with the Act.





Campus Information



Campus Information

College Closing for Emergency and Severe Weather

Occasionally extreme weather conditions or other unforeseen events necessitate closing the College either before or after classes have begun for the day. Students should check the College Web site, www.wccnet.edu, or call the School Closing Information Line at 734-677-5288 for the most up to date and accurate information. The following media also will be notified of school closings: WEMU-FM (89.1), WHMI-FM (93.5), WWWF-FM (102.9), WQKL-FM (107.1), WUOM-FM (91.7), WAAM-AM (1600), WSDS-AM (1480), WNRS-AM (1290), WTKA-AM (1050), WWJ-AM (950), WDET-FM (101.9), WJR-AM (760 AM), WJBK (Fox, Channel 2), WDIV (NBC, Channel 4), WXYZ (ABC, Channel 7), WILX (NBC, Channel 10).

Dental Clinic

The College has a complete modern dental clinic, which is open to students, faculty, and staff. Treatment is provided by University of Michigan dental students under the supervision of a licensed dentist. Contact the Dental Clinic at (734) 973-3338 for current information regarding services provided, hours of operation, and fees.

Eating and Drinking in Classes

Eating and drinking in classes and instructional labs is strongly discouraged. However, faculty members are provided the freedom to make judgments regarding these matters in their particular classes. In instances where eating and drinking in classes is detrimental to the learning atmosphere or the well-being of instructional equipment/facilities, the College administration reserves the right to deny these privileges in selected rooms. Students may also file complaints if they feel that eating and/or drinking rules in a particular course are inappropriate and are inhibiting their learning. Such complaints should be filed with the area dean or the associate vice president for student services.

Campus Safety and Security

Access our web site to find the emergency exits in your building, learn emergency procedures and look up statistics. Go to the WCC home page, look at the *About WCC* heading, and choose *Campus Safety*.

Emergencies

Emergency Notification Services for Students

If the Office of Campus Safety and Security receives a request to locate a student on campus because of a medical emergency, they will attempt to locate the student in the assigned classroom. If the student cannot be located, the caller will be informed. No other information will be released to the caller.

Reporting an Emergency

The Office of Campus Safety and Security relies upon all members of the campus community to assist in making the campus a safe place by reporting emergencies and suspected criminal activity directly to the Campus Safety and Security Department by dialing the campus emergency number, extension 3411, or 734 973-3411, if calling from an off campus location.

Campus telephones are labeled on the handset with this number. Free campus 'House Phones' are located in the lobbies and hallways of campus buildings. Campus Safety and Security staff are available 24 hours a day to respond to emergency calls.

Emergency telephones have been placed at several campus locations as well. These phones ring directly to the Office of Campus Safety and Security. Emergency phones located in campus parking lots and exterior areas are easily identified as green cylindrical towers, with the word "Emergency" printed on the side, and have a blue light at the top. Pushing the button on the user panel operates these phones. Emergency phones located in the buildings are wall mounted blue boxes, and are also operated by pushing the button on the user panel.

When notifying the Office of Campus Safety and Security of a potential emergency, or suspected criminal activity, be prepared to provide the following information to the dispatcher:

- Type of incident or activity, location of incident, and description of persons involved (if criminal in nature)
- Suspected injury or condition (if medical emergency)
- Your name, location, and number calling from

This information will aid Campus Safety and Security staff in their response and subsequent handling of the incident. You should remain available to assist staff with any required additional information once they arrive. Campus Safety and Security staff are trained in medical emergency procedures and will notify additional medical and/or law enforcement support as needed.

Campus sites are patrolled by local law enforcement agencies. Security personnel maintain a close working relationship with those agencies and serve as the College's liaison with them. Security personnel receive both annual and on-going training in a variety of safety and security related subjects.

The College will report criminal activity to the law enforcement agency in whose venue the act occurs. The College will annually request from each law enforcement agency data indicating criminal activity for each particular site in accordance with the Student Right To Know and Campus Security Act.



Anonymous Tip Line

The Campus Safety and Security Department employs a voice mail account to facilitate anonymous tips. The phone number is (734) 677-5343 (or extension 5343, if on campus), and is checked daily by CSSD staff. This line is not restricted to anonymous tips, and may be utilized by anyone wishing to leave a message.

Escort Services

Staff, students and guests may request a security escort from any location on campus to any other location on campus by contacting the Office of Campus Safety and Security at extension #3411.

Motorist Assists

Security staff will provide vehicle jump-start assistance to those who leave their lights on, etc. The Campus Safety and Security Department will assist motorists in contacting local assistance for further service needs.

Food Services

A variety of food services are offered on the first floor of the Student Center Building. Students can get pizza, breakfast items, grilled food, soups, salads, and submarine sandwiches. The bookstore also has a large convenience area stocked with beverages and snacks. The first floor dining area is open all year and students should check specific vendors for hours. Further convenience is provided by food and drink vending machines located in every building on campus.

Garrett's (734) 973-3584, a restaurant operated by students in the College's Food and Hospitality program, is located on the first floor of the Student Center Building. Lunch is served Monday through Thursday from 11:30 a.m. to 12:45 p.m., during the fall and winter semesters only. It is open to students, staff and the general public.

Lost and Found

Found items may be turned in to the Campus Safety and Security Department where they will be kept for one month. Persons may retrieve found items at the Campus Safety and Security Department in the Plant Operations Building. Persons who have lost property on college premises should contact the office at ext. 3411 (973-3411 from off campus) with a description and approximate value of the item.

Meeting Rooms

Organized student or community and business groups may secure rooms for meetings by calling the Office of Conference Services at (734) 677-5033.

Parking

Parking is provided on campus for general, handicapped, visitor, vendor and service vehicles. Parking is prohibited in the following areas: bus stops, fire lanes, main travel lanes, sidewalks, handicapped spaces without a permit, restricted parking spaces without a permit, marked crosswalks, building entrances and exits, and outside marked parking spaces. Parking regulations on campus are covered by Campus Safety personal and violations will be issued.

Smoke-Free Campus

In the interest of providing a safe and healthy environment for the College's students, employees, and visitors, smoking is prohibited in all Washtenaw Community College buildings and restricted to designated areas outside and away from building entrances.

Student Connection

The Student Connection is a resource for online business at WCC, such as the admissions process, registration, checking grades, and viewing the online schedule. The staff can also assist students in ordering transcripts, reporting a change in address, and applying for graduation. The Student Connection can be reached by calling (734) 973-3543 or visiting the second floor of the Student Center Building, across from the Cashier.



A Respiration

visc at T5
- R is shorter, wider, straighter
Secondary (2°) bronchi
Tertiary (3°) bronchi
interlobular bronchi
terminal respiratory
alveolar ducts
alveolar sacs
alveoli
- type I cells - square
- type II cells - secret to surface for alveolar macrophages

Lungs
1 Structure
a Rt - 2 lobes, Lt - 3 lobes
b surrounded by visceral



3 IRV - intercostal relax - diaphragm down + in
4 ↑ pressure in thorax
5 Air moves out
6 Accessory muscles
a internal intercostals
b abdominal
one or more times volumes
5 IC = TV + IRV (3,500ml)
6 EC = TV + ERV (1,600ml)
7 FRC = ERV + RV (2,300ml)
8 VC = IRV + TV + ERV (4,600ml)
9 TLC = VC + RV (5,800ml)

C Lung Volumes
TV = 500ml
VC = 3000ml
IRV = 1100ml
RV = 1200ml

Curriculum



All programs offered by Washtenaw Community College are listed and described in this section of the Bulletin. Programs are arranged alphabetically according to the general career or discipline area to which they belong. The following additional information is provided so that students can quickly and easily find the programs and course-related information that fit their needs and interests:

- An overview of the types of degrees and certificates available at WCC;
- General Education requirements;
- The MACRAO Transfer Agreement;
- An alphabetical index listing all programs;
- Detailed descriptions of each program listed with the title and a unique identifying code; and
- A Curriculum Organization Chart indicating the disciplines and departments found within the divisions in the College.

Degrees and Certificates Awarded

Associate Degrees

Washtenaw Community College offers three associate degrees that are assigned based on a program's primary purpose, and the minimum level of prescribed general education requirements. The degree title and specific program title will appear on the diploma. The degrees and their purposes are as follows:

Associate in Arts (AA)

The Associate in Arts is a transfer degree, used primarily by humanities and social science programs. Additionally, some transfer programs in health, technology and business use the AA degree title.

Associate in Science (AS)

The Associate in Science degree is primarily used by transfer programs that have significant math and science requirements.

Associate in Applied Science (AAS)

The Associate in Applied Science is the standard career-entry degree. It is used for programs that prepare students for careers in health, business and technology. This degree has dual use for some programs that are primarily career-entry but also have articulation agreements with specific bachelor's degree programs. This degree is noted with an AP prefix in program codes.

Certificates

The College offers four types of certificates that are designed to meet a variety of student needs ranging from preparation for entry-level jobs to advanced job skills for those who are already in the work force. Certificates can also form the foundation for an associate degree. The certificate titles and their purposes are as follows:

Certificate of Completion (CC)

The Certificate of Completion is used for short-term programs covering a discrete body of skills and/or knowledge that is intended to prepare students for a specific entry-level occupation or basic literacy attainment. The Certificate of Completion can be credit or noncredit, but is limited to a maximum of eight credit hours.

Certificate (CC or CF)

The Certificate is awarded for standard credit programs that normally take two semesters to complete. Primarily used to prepare students for entry-level occupations, the certificate may also be used to prepare students for an advanced certificate. Certificates may also form the basis for an associate degree.

Advanced Certificate (CV)

The Advanced Certificate is for students who are pursuing advanced study in an occupational area. These may be short term or longer programs that require completion of a certificate or equivalent industry experience for admission. Some advanced certificates prepare students for industry certification exams. The Advanced Certificate may also be added to a Certificate to form the basis for an associate degree.

Post-Associate Certificate (CP)

The Post-Associate Certificate is intended for students who are pursuing advanced study and/or formal certification in an occupational area. These programs can be from nine to thirty-six credit hours in length and require an associate degree or equivalent industry experience for admission to the program.

Discontinuation of Degrees and Certificates

Washtenaw Community College's policy is to phase out discontinued programs over a period of three years. Students following programs that were discontinued are urged to see a program advisor to determine whether it is possible to complete their programs or, if it is necessary, to change to a new program. Students will be advised on making course substitutions and, if necessary, on selecting a new program.

General Education Graduation Requirements

Philosophy Statement

General Education is highly valued at Washtenaw Community College because it develops and nurtures certain habits of mind that reach beyond a student's area of academic emphasis and enables the student to meet critically, objectively, and successfully the challenges of education, work, and life. By requiring a strong core of common learning, the College demonstrates its commitment to providing a broad-based education to all degree recipients, which includes useful skills, knowledge, and experiences to support a variety of life-long endeavors. To this end, it shall be the policy of the College to maintain a substantial program of general education to be included in all degree programs.

The College defines general education as a prescribed curriculum that assures a broad acquaintance with the basic areas of academic study. The general education requirements are designed to provide degree students certain skills and knowledge that include an understanding of and appreciation for the important modes of human thought, communication, and inquiry.

Students who have earned a bachelor's degree or higher from an accredited U.S. college or university may request a waiver of the general education requirements in the Office of Student Records.

General Education Course Requirements

Students pursuing associate degrees are required to meet the general education requirements in the eight areas listed below. The content areas are met through course distribution requirements (successfully completing courses from restricted distribution lists). Critical thinking is incorporated into the courses in the first six areas and does not require any additional coursework. Computer and information literacy is met through competency testing.

Writing - Develop, organize, and express thoughts in writing using Standard English

Speech - Speak in an organized and effective manner and listen critically and with comprehension

Mathematics - Understand the applications and perform computations using the concepts of college-level mathematics

Natural Science - Understand principles and applications of modern science

Social and Behavioral Science - Understand principles and applications of social and behavioral sciences in exploring the dynamics of human behavior

Arts and Humanities - Understand and apply information related to the nature and variety of the human experience through personal and cultural enrichment

Critical Thinking - Demonstrate skill in analyzing, synthesizing and evaluating

Computer and Information Literacy - Demonstrate the skill to use computer information systems including using software and the ability to locate, retrieve, and evaluate networked information

Course Distribution Requirements

Associate degree students must complete courses from each of the six General Education areas below. The requirements vary, depending on which degree is being earned. The chart below lists the number of general education credit hours required for each degree.

	AA	AS	AAS
Writing	6-7 credits	6-7 credits	3-4 credits
Speech	3 credits	3 credits	3 credits
Mathematics	3-4 credits	3-4 credits	3-4 credits
Natural Science	3-4 credits	3-4 credits	3-4 credits
Social & Behavioral Science	6 credits	6 credits	3 credits
Arts and Humanities	6 credits	6 credits	3 credits
	27-30 credits	27-30 credits	18-21 credits

Computer and Information Literacy Requirement

Associate degree students must demonstrate basic computer skills and knowledge. Courses taken at other institutions, work experience, or transfer credit will not satisfy this requirement.

Students can fulfill this requirement through either of the following options:

1. Pass the Computer and Information Literacy test with a score of 70% or higher. Students can take the test two times. If a passing score is not attained, CIS 099 must be taken and passed with a "C" or better.

or

2. Pass, with a "C" or higher, specified courses that incorporate the Computer and Information Literacy objectives. These courses might be taken as part of the degree requirements for a particular program. The courses include:

- a. CIS 099 Computer Literacy;
- b. CIS 100 Introduction to Software Applications;
- c. CIS 110 Introduction to Computer Information Systems.

Students who are seeking an associate degree should take the Computer and Information Literacy test at their earliest opportunity, preferably upon admittance to the College. Some courses and programs require students to have passed this test before enrolling. The test is administered in the Testing Center. The schedule for testing can be found in the Academic Class Schedule.

MACRAO Transfer Agreement

MACRAO Transfer Agreement

The Michigan Association of Collegiate Registrars and Admissions Officers has developed an agreement to facilitate transfer from Michigan community colleges to baccalaureate colleges and universities. The agreement provides for transfer of up to 30 semester credit hours to meet many (in some cases all) of the general education requirements at participating Michigan four-year colleges and universities. Students should check with the college to which they plan to transfer to determine if the MACRAO agreement is honored or if the college puts limitations or provisos on the agreement. Please see macrao.org for additional information.

How the Agreement Works

The MACRAO Transfer Agreement stipulates that 30 semester credit hours of 100-level and above, compatible, college-level coursework completed at one Michigan college or university will transfer to another Michigan college or university, and be applied toward meeting the student's general education requirements at the "transferred to" institution. A complete listing of course and credit hour requirements is included below. The institution offering the courses (the college in which a student begins) determines the specific courses in each category. Once students have completed the course requirements for meeting MACRAO, they must request that their transcripts be certified as "MACRAO Agreement Satisfied." This can be done in the Office of Student Records before a transcript is sent to a transfer college.



MACRAO Transfer Requirements

I. English Composition (6 Credits)

Composition (ENG)111, 226

II. Social Science

(8-9 Credits in more than one subject area)

Anthropology (ANT).....201, 202, 205
 Economics (ECO).....211, 222, 280
 Geography (GEO).....101, 103, 212
 History (HST)121, 122, 123, 150, 200, 201, 202, 215, 216, 220, 230, 235, 240, 250, 251, 260
 Political Science (PLS).....112, 150, 211, 218, 220, 250
 Psychology (PSY)100, 107, 130, 150, 200, 206, 207, 209, 210, 220, 251, 257, 260
 Sociology (SOC)100, 201, 202, 203, 205, 207, 225, 230, 250

III. Science and Math (8-9 Credits in more than one discipline; one course must be a *laboratory course*)

Astronomy (AST).....100, 111
 Biology (BIO)101, 102, 103, 107, 109, 111, 200, 208, 215, 220, 227, 228, 237, 259
 Chemistry (CEM)105, 111, 122, 140, 211, 218, 222
 Geology (GLG)100, 103, 104, 109, 110, 114, 125, 202, 219, 289
 Mathematics (MTH)107, 148*, 149*, 160, 169, 176, 178, 180, 181, 182, 191, 192, 197, 210, 293, 295
 Physics (PHY)100*, 105, 111, 122, 211, 222

**Only for students in Elementary or Early Childhood Education*

IV. Humanities (8-9 Credits in more than one discipline)

Art (ART)101, 102, 105, 108, 111, 112, 114, 120, 122, 125, 130, 140, 143, 150
 Communication (COM)101, 102, 130, 142, 183, 200, 225
 Dance (DAN)130, 180, 200
 Drama (DRA)152, 167, 170, 208, 209, 220
 French (FRN)111, 122, 213, 224
 German (GRM)111, 122
 Humanities (HUM)101, 102, 103, 145, 146, 150, 160, 170, 175, 190
 Literature (ENG).....140, 160, 170, 181, 200, 210, 211, 212, 213, 214, 222, 223, 224, 240, 241, 242
 Music (MUS)108, 140, 180, 207
 Philosophy (PHL).....101, 102, 120, 123, 200, 205, 244, 250
 Spanish (SPN)111, 122, 213, 224

Articulation Agreements

Many WCC programs have articulation agreements with other colleges and universities that allow students to transfer courses to a bachelor's degree program without loss of credit. These programs are designed to meet MACRAO requirements and should be followed carefully so as not to lose the benefits of MACRAO. If a program meets MACRAO, it will be noted in the program description. Copies of articulation agreements can be obtained in the counseling office.

Four-Year Colleges and Universities that accept MACRAO

The institutions listed below accept the MACRAO Transfer Agreement. Those marked with an * have limitations, exceptions, or provisos. Check with a counselor or an admissions representative from the four-year college/university to learn about these exceptions before selecting courses for a program of study.

The Colleges and Universities listed below accept the Macrao transfer agreement

Adrian College*	Finlandia University*	Oakland University*
Albion College	Grand Valley State University*	Olivet College
Baker College	Lake Superior State University	Rochester College
Calvin College*	Lawrence Technological University*	Saginaw Valley State University*
Central Michigan University	Madonna University*	Sienna Heights University*
Cleary University	Marygrove College	Spring Arbor University
Concordia University*	Michigan State University*	St. Mary's College
Davenport University	Michigan Technological University*	Western Michigan University
Eastern Michigan University*	Northern Michigan University*	
Ferris State University*	Northwood University	



Approved Courses for General Education

Distribution Areas

The following courses are approved for General Education in the Writing, Speech, Mathematics, Natural Sciences, Social and Behavioral Sciences, and Arts and Humanities areas. Some courses are limited to a specific degree or program; check the footnotes when selecting courses. Students also should check the requirements for their programs to determine if specific courses are required or recommended.

Writing

ENG 100 ¹	Communication Skills.....	4
ENG 107 ¹	Technical Communication	3
ENG 111	Composition I	4
ENG 226	Composition II	3
ENG 208	Advanced Technical Writing I	3
ENG 209	Advanced Technical Writing II.....	4

¹ May be used for the AAS degree only.

Speech

COM 101	Fundamentals of Speaking	3
COM 102	Interpersonal Communication.....	3
COM 142	Oral Interpretation of Literature.....	3
COM 183	Advanced Public Speaking	3
COM 200	Family Communication.....	3
COM 225*	Intercultural Communication.....	3

* Meets EMU's cross cultural requirements

Mathematics

Any 100-level or higher MTH course, with the exception of the following courses, which apply to only the programs or degrees specified.

MTH 107 ¹	Triangle Trigonometry.....	3
MTH 148 ²	Functional Math for Elementary School Teachers I	4
MTH 149 ²	Functional Math for Elementary School Teachers II	4
MTH 151 ¹	Technical Algebra.....	4
MTH 152 ¹	Technical Geometry and Trigonometry.....	4
MTH 163 ¹	Business Mathematics.....	3
MTH 165 ³	Health Science Mathematics	3
MTH 167 ³	Math Applications for Health Science	3
MTH 210 ²	Algebra for Elementary Teachers	4

¹ May be used for the AAS degree only.

² For students following an elementary or early childhood education track only.

³ For Students in Health Programs only.

Natural Sciences

Any 100-level or higher, 3 credit or more course in the following disciplines, with the exceptions noted below:

AST, BIO, CEM, GLG, PHY

The following courses apply only to the programs specified:

GLG 202 ²	Earth Science for Elementary Teachers.....	3
PHY 110 ¹	Applied Physics	4
SCI 101 ¹	The Nature of Science	3
SCI 102 ³	Applied Science	3

¹ May be used for the AAS degree only.

² For students following an elementary or early childhood education track only.

³ For United Association students only.

Social and Behavioral Science

Any 100-level or higher, 3 credit or more course in the following disciplines:

ANT, ECO, GEO, HST*, PLS, PSY*, SOC*

* HST 150, HST 235, HST 240, PSY 107, and SOC 205 meet EMU's cross cultural requirements

Arts and Humanities

Any 100-level or higher, 3 credit or more course in the following disciplines:

FRN, GRM, PHL, SPN

Or, any course listed below:

ART 130	Art Appreciation	3
ART 143*	Art and Culture of Afro-America.....	3
ART 150*	Monuments from Around the World.....	3
DAN 180	Dance Appreciation: The World of Dance	3
DRA 152	Acting for the Theatre I.....	3
ENG 140	Horror and Science Fiction	3
ENG 160	Introduction to Literature: Poetry and Drama	3
ENG 170	Introduction to Literature: Short Story and Novel.....	3
ENG 181*	African American Literature.....	3
ENG 200	Shakespeare.....	3
ENG 211	American Literature I	3
ENG 212	English Literature I.....	3
ENG 213	World Literature I.....	3
ENG 214*	Literature of the Non-Western World	3
ENG 222	American Literature II	3
ENG 223	English Literature II.....	3
ENG 224	World Literature II.....	3
ENG 240	Children's Literature.....	3
ENG 241	Adolescent Literature	3
ENG 242*	Multicultural Literature for Youth	3

ENG 260	Journal Workshop I.....3	HUM 150	International Cinema.....3
ENG 261	Journal Workshop II.....3	HUM 160	American Film.....3
ENG 270	Creative Writing I.....3	HUM 175	Arts & Cultures of Middle East (3000 BCE-1800 CE).....3
ENG 271	Creative Writing II.....3	HUM 190	Third Cinema.....3
GDT 101	History of Graphic Design.....3	MUS 140	Music Theory I.....3
HUM 101	Humanities I - Ancient to Medieval Times.....3	MUS 142	Music Theory II.....3
HUM 102	Humanities II - Renaissance to Modern Times.....3	MUS 180	Music Appreciation.....3
HUM 103	Introduction to Humanities – 20th Century.....3	PHO 103	History of Photography.....3
HUM 145	Comparative Religions.....3		<i>* Meets EMU's cross-cultural requirement</i>
HUM 146	Mythology.....3		



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Architectural Technology AAS Degree	123	Computer Systems Technology Certificate.....	117
Auto Body Repair (<i>see Collision Repair</i>).....	75	Construction and Related Trades Programs.....	122
Automation Technology Certificate and AAS Degree.....	147-150	Construction Management AA Degree	126
Automotive Technologies Programs.....	72	Construction Supervision AAS Degree (UA)	163
Automotive Mechanics Certificate	73	Construction Supervision AS Degree (UA).....	164
Baking and Pastry Certificate	133	Construction Supervision Certificate (UA).....	163
Basic Photographic Imaging Certificate	169	Criminal Justice AA Degree	183
Biology/Pre-medicine Concentration	190	Criminal Justice - Law Enforcement AAS Degree	131
Business Programs.....	76	CulinaryArts Programs	132
Business AA Degree.....	181	Culinaryand Hospitality Management AAS Degree	136
Business Office Systems Programs	82	CulinaryArts Certificate	134
Business Sales and Marketing Certificate.....	79	Custom Cars and Concepts Certificate.....	74
Cabinetry/Millwork Systems Technology Advanced Certificate	125	Dental Assisting Certificate	139
Chemistry/Pre-Medicine Concentration	191	Digital Video/Film Production Certificate	169
Child Care Programs.....	86	E-Business Advanced Certificate	95
Child Care Professional AAS Degree	88	E-Business Fundamentals Certificate.....	79
Child Care and Education Advanced Certificate.....	87	Electronics Technology (<i>see Industrial Electronics Technology</i>) ..	148
Child Development Certificate.....	87	ElementaryEducation AA Degree	184
Collision Repair Certificate	75	Engineering Science (<i>see Physics/Pre-Engineering</i>)	191
Commercial Property Maintenance Advanced Certificate	125	Entrepreneurship Certificate.....	80
Computer-Aided Drafting (CAD) Programs.....	90	Facilities Management Administration Advanced Certificate	127
Computer Aided Drafting Certificate and Advanced Certificate....	91	Fluid Power Certificate	147
Computer Aided Drafting and Design AAS Degree	92	Foundations of Computer Programming Certificate	104
Computer Forensics AAS Degree	111	Graphic Design Certificate and AAS Degree.....	70, 171
Computer Forensics Advanced Certificate.....	112	Health Programs	138
Computer Information Systems Transfer AA Degree	182	Health Care Foundations Certificate	140
Computer Internet Programs.....	94	Heating, Ventilation, Air Conditioning and Refrigeration AAS Degree	178
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Heating, Ventilation, Air Conditioning and Refrigeration - Industrial Advanced Certificate	179	Photographic Imaging (see Basic Photographic Imaging)	169
Hospitality Management Certificate	135	Physics/Pre-Engineering Concentration	191
Human Resource Management Certificate	80	Power Equipment Technology Certificate	75
Human Services AA Degree	186	Radiography AAS Degree	145
Industrial Electronics Technology Certificate	148	Registered Nursing AAS Degree	142
Industrial, Manufacturing, and Automation Technology Programs	146	Residential Construction Technology Certificate	128
Industrial Training AS and AAS Degrees	166	Residential Design Advanced Certificate	128
Information Assurance Certificate	117	Residential Planning and Estimating Certificate	129
Interactive Web Design Advanced Certificate	101	Secondary Education AA Degree	185
International Studies AA Degree	187	Surveying Assistant Certificate	129
Internet Professional AAS Degree	96	Technical Communication Programs (see Technical Writing)	160
Java Developer Advanced Certificate	108	Technical Writing Certificate, AA Degree, and AS Degree	161, 192, 193
Journalism AA Degree	188	United Association Programs	162
Journeyman Industrial AAS Degree	157	University Transfer Programs	180
Liberal Arts Transfer AA Degree	189	Unix Systems Certificate	121
Linux Systems Advanced Certificate	120	Video (see Digital Video/Film Production)	169
Machine Tool Technology Certificate	148	Visual Arts Technology Programs	168
Management Supervision Advanced Certificate and AAS Degree	81	Web Application Developer Advanced Certificate	97
Manufacturing and Industrial Computing Certificate	151	Web Database Developer Post-Associate Certificate	107
Math and Science AS Degree	190	Web Graphic Design Advanced Certificate	95
Mathematics Concentration	191	Web Professional Advanced Certificate	100
Medical Administrative Assistant Option	84	Web Technology Certificate	98
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Music Performance Certificate	153	Welding, Fabrication, and HVAC Programs	174
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Network Security Advanced Certificate	118		
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Nursing, Registered AAS Degree	142		
Object-Oriented Programming with C++ Advanced Certificate	104		
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Oracle Database Administration Post-Associate Certificate	105		
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Paraprofessional Portfolio Preparation Certificate	89		
Pharmacy Technology Certificate	144		
Photographic Technology AAS Degree	173		

Career Degree and Certificate Programs

Washtenaw Community College offers over 127 programs, divided into two basic types: career degree and certificate programs; and university parallel/transfer programs. Career degree and certificate programs are described below; university parallel/transfer program descriptions begin on page 174.

The career degree and certification programs are grouped into general categories or areas. These categories are listed alphabetically in this section, and each category includes a short description of the career-related degrees and certifications in that area. A chart below the description shows all career degrees and certificates that are available within the specific disciplines in that area.

Career programs are designed for students who want to learn job skills. Their goals may include a desire to begin a first job, to change career fields, or to gain advanced skills for their current jobs. These programs lead to the four types of certificates offered at WCC, or to the Associate in Applied Science Degree. Although transfer is not the focus of these programs, some might have articulation agreements with four-year colleges or universities that allow students to transfer some or all of their credits to a bachelor's degree. If a program has a formal articulation agreement, it will be noted in the program description.

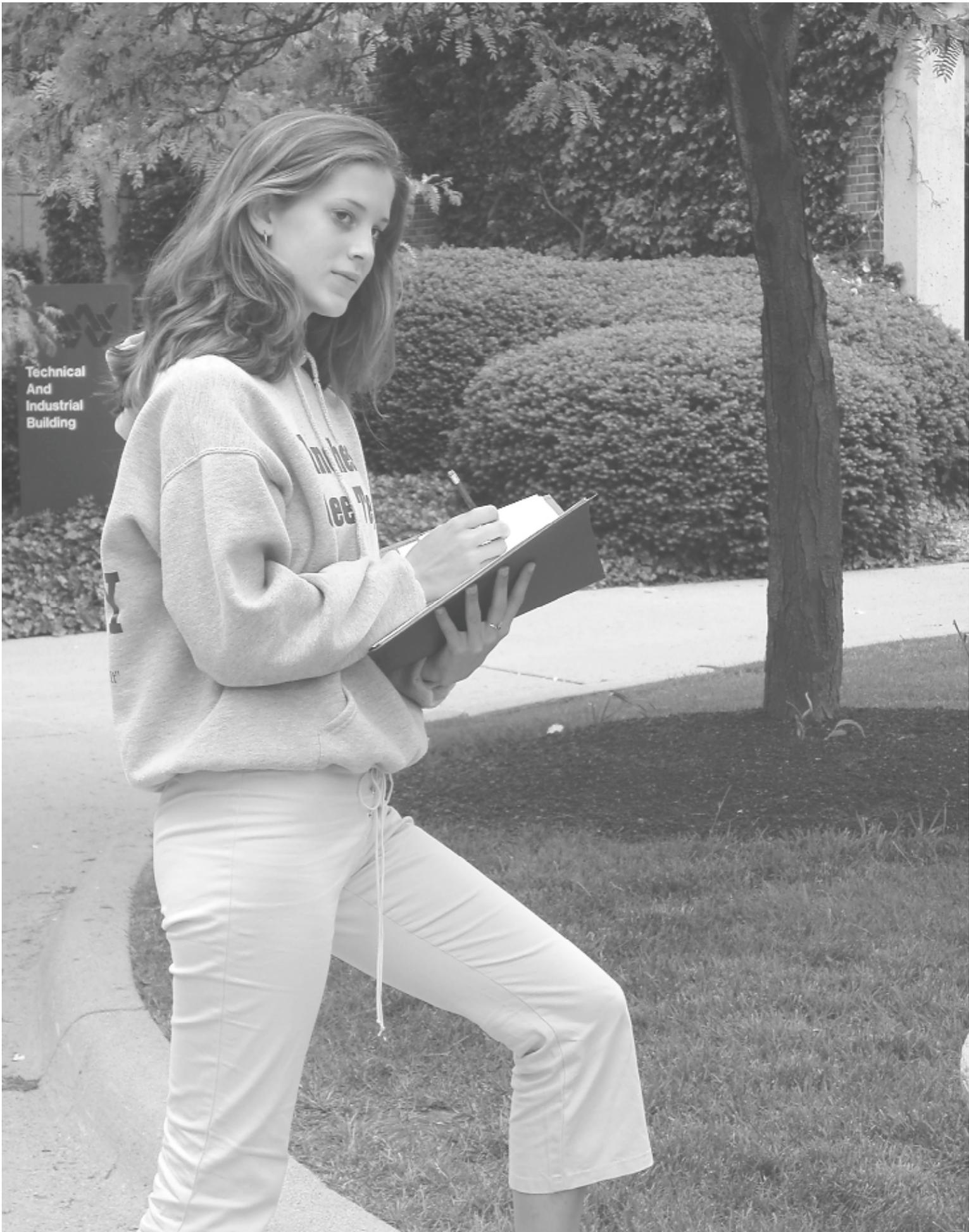
Students who think they would like to earn a bachelor's degree should see the Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) Agreement on page 64 of this Bulletin.

Some certificate programs in this section refer to the Occupational Studies program for earning an Associate in Applied Science Degree in a particular career path. If a certificate program does not already lead to an associate degree, students can earn an AAS degree with the Certificate title by completing the requirements for the Occupational Studies program as follows:

1. Complete the certificate.
2. Complete additional occupational credits to bring the total to 25 credit hours.
3. Complete the General Education requirements.
4. Complete elective credits to total 60 credit hours.

After completing these requirements, a student is then eligible for the Associate in Applied Science (AAS) degree in Occupational Studies. Additional information about this degree can be found in this section of the Bulletin under Occupational Studies.





Technical
And
Industrial
Building

Automotive Technologies

Career Degree and Certificate Programs

There are four programs available in Automotive Technologies: Auto Restoration, Automotive Mechanics, Collision Repair, and Power Equipment Technology. The student can attain a certificate in one of these fields, and if desired, can continue on to an advanced certificate, and then to an associate degree in Management Supervision. All programs provide hands-on training necessary for immediate entry into the workplace.

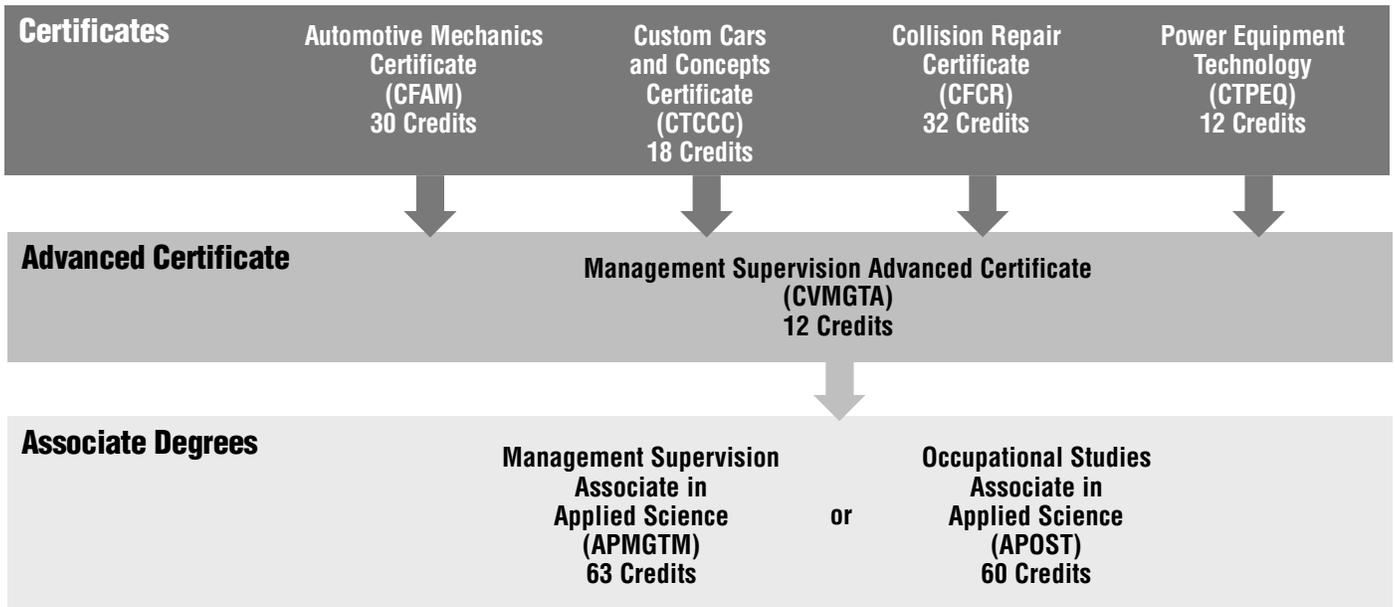
Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for

these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Automotive Mechanics (CFAM)

Certificate

Core Courses

(16 Credits)

ABR 111	Auto Body I: Repair Fundamentals	4
ARF 115	Classic Auto Restoration I	4
ASV 141	Automotive Mechanics I	4
MTT 102	Machining for Auto Applications	2
WAF 100	Fundamentals of Welding	2

Major/Area Requirements

(14 Credits)

ASV 142	Automotive Mechanics II	4
ASV 143	Automotive Mechanics III	4
ASV 144	Automotive Mechanics IV	4
ASV 248	Engine Performance	2

Minimum Credits Required for the Program:

30 Credits

Notes:

*Students can earn an associate degree in Auto Mechanics by following the Occupational Studies Program. The following courses are recommended for completing the program:

ASV 241 Engine Repair	(2)
ASV 242 Automatic Transmissions	(2)
ASV 243 Manual Drive Trains and Axles	(2)
ASV 244 Suspension and Steering	(2)
ASV 245 Brakes	(2)
ASV 246 Electrical Circuits	(2)
ASV 247 Heating and Air Conditioning	(2)

Automotive Mechanics (CFAM)

This program prepares students for entry-level jobs as an auto mechanic, where you will work under the supervision of an experienced automotive technician. You will receive core skills in the areas of automotive welding, machining and autobody repair. You also develop entry-level diagnosis and repair abilities in the areas of brakes, suspensions, engines, electrical systems, performance, and drive trains. Some employers require or prefer employees to have an associate degree as a condition for employment or advancement. *You can earn an AAS degree in Automotive Mechanics by completing the requirements for the Occupational Studies program (APOST). See the footnotes below for additional courses that are recommended for earning an AAS degree in Automotive Mechanics.



Major/Area Requirements

(18 Credits)

ABR 251	Custom Cars and Concepts I	3
ABR 252	Custom Cars and Concepts II	3
ABR 253	Custom Cars and Concepts III	3
ABR 254	Custom Cars and Concepts IV	3
ABR 255	Car Show Participation	6

Minimum Credits Required for the Program:

18 Credits



Custom Cars and Concepts (CTCCC)

This program provides the student with true passion for customizing cars an opportunity to build and expand on the core knowledge and skills acquired in the areas of auto restoration, welding and fabrication, mechanics, and collision repair. Students working in a team environment will design, build, complete, and show a project vehicle. Projects completed in this program will compliment a student's resume by providing them with a demonstration of their respective talents for potential employers. Employment possibilities for students completing courses in this program range from auto restoration and customization technician to a professional level race facility.

Program Admission Requirements:

Completion of the following classes with a minimum grade of "B".

ABR 111 Auto Body I: Repair Fundamentals

ABR 112 Auto Body II: Refinishing Fundamentals

ASV 141 Automotive Mechanics I

MTT 102 Machining for Auto Applications

WAF 105 Welding for Art and Engineering

Core Courses

(16 Credits)

ABR 111	Auto Body I: Repair Fundamentals	4
ARF 115	Classic Auto Restoration I	4
ASV 141	Automotive Mechanics I	4
MTT 102	Machining for Auto Applications	2
WAF 100	Fundamentals of Welding	2

Major/Area Requirements

(16 Credits)

ABR 112	Auto Body II: Refinishing Fundamentals	4
ABR 113	Applied Body Welding & Estimation	4
ABR 123	Auto Body Repair Applications	4
ABR 124	Auto Refinishing Applications	4

Minimum Credits Required for the Program:

32 Credits

Notes:

*Students can earn an associate degree in Collision Repair by following the Occupational Studies Program. The following courses are recommended for completing the program:

ABR 130 Custom Painting	(4)
ABR 219 Advanced Auto Body I	(4)
ABR 224 Advanced Auto Body II	(4)
ABR 226 Advanced Auto Body III	(4)
ABR 229 Advanced Auto Body IV	(4)

Power Equipment Technology (CTPEQ)

Certificate

Major/Area Requirements

(12 Credits)

PET 100	Power Equipment Repair I	3
PET 110	Power Equipment Repair II	3
PET 120	Power Equipment Repair III	3
PET 130	Power Equipment Repair IV	3

Minimum Credits Required for the Program:

12 Credits

Collision Repair (CFCR)

This program prepares you for entry-level jobs where you will repair and refinish damaged automobiles under the supervision of an auto body technician. You will receive core skills in the areas of automotive welding, machining and mechanics. You also get training in using manuals for estimating job costs. Some employers require or prefer employees to have an associate degree as a condition for employment or advancement.

*You can earn an AAS degree in Collision Repair by completing the requirements for the Occupational Studies program (APOST). See the footnotes below for additional courses that are recommended for earning an AAS degree in Collision Repair.

Power Equipment Technology (CTPEQ)

The Power Equipment Technology Certificate program provides students with the ability to repair all types of two-cycle and four-cycle engines, including motorcycles, all-terrain vehicles (ATV's), snowmobiles, commercial lawnmowers, chainsaws and outboard motors. Areas of instruction include theory of operation, maintenance and repair, and hydrostatic transmission repair.

Business

Career Degree and Certificate Programs

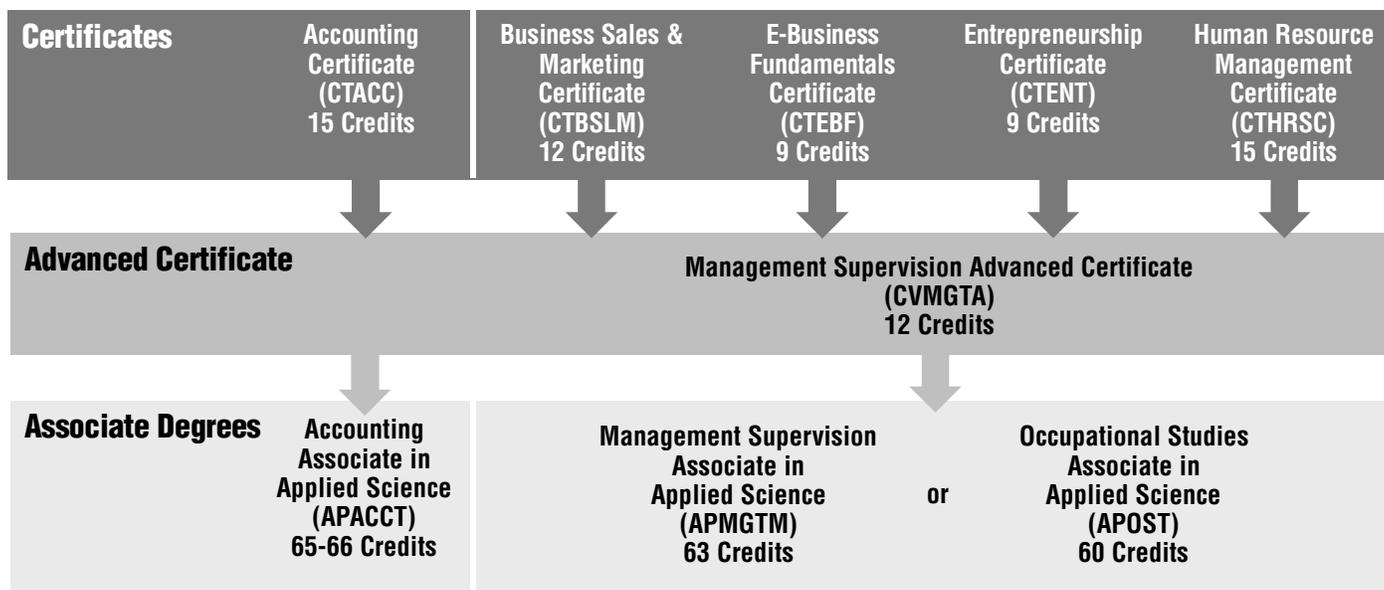
Washtenaw Community College offers five areas of study in Business. The programs include: Accounting, Sales and Marketing, E-Business Fundamentals, Entrepreneurship, and Human Resource Management. The student may attain a certificate in the program field and an advanced certificate or an associate degree in Management Supervision as well as an associate in applied science degree in Accounting. In addition, a transfer program in Business is also available. All the programs focus on current workplace practices, principles, and technology necessary for on-the-job success.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Accounting (CTACC)

Certificate

Major/Area Requirements

(15 Credits)

ACC 111	Principles of Accounting I	3
ACC 131	Computer Applications in Accounting	3
BOS 183	Spreadsheet Software Applications	3
CIS 110	Introduction to Computer Information Systems	3
TAX 101	Income Taxes for Individuals	3

Minimum Credits Required for the Program:

15 Credits

Accounting (CTACC)

This program prepares you for entry-level positions with accounting and tax services, CPA firms, and small businesses where you will provide accounting skills, computer skills, and office support. It also gives you credit that can be applied toward the Associate's Degree in Accounting.

Program Admission Requirements:

One year of high school algebra or MTH 097 or MTH 163 or minimum COMPASS Algebra score of 46



General Education Requirements**(20 Credits)**

ENG 111	Composition I	4
COM 101	Fundamentals of Speaking	3
MTH 181	Mathematical Analysis I	4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Major/Area Requirements**(39 Credits)**

ACC 111	Principles of Accounting I	3
ACC 122	Principles of Accounting II	3
ACC 131	Computer Applications in Accounting	3
ACC 213	Intermediate Accounting	3
ACC 225	Managerial Cost Accounting	3
BMG 111	Business Law I	3
BMG 140	Introduction to Business	3
BMG 207	Business Communication	3
BMG 220	Principles of Finance	3
BMG 265	Business Statistics	3
BOS 183	Spreadsheet Software Applications	3
CIS 110	Introduction to Computer Information Systems	3
TAX 101	Income Taxes for Individuals	3

Required Support Courses**(6 Credits)**

ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3

Minimum Credits Required for the Program:**65 Credits***Notes:*

*ENG 181 or ENG 214 will meet the cross-cultural requirement at EMU.

Note: University of Michigan - Ann Arbor Business School does not accept Business or Accounting courses from community colleges. If you wish to transfer into an accounting major at UM, please see a counselor.

Accounting (APACCT)

This program prepares students for jobs with duties assigned to a beginning accountant such as verifying additions, checking audits, postings, and vouchers, analyzing accounts, and preparing financial statements. Many of the courses transfer to four-year colleges, including programs at Eastern Michigan University, Madonna University, and Walsh College. If your primary goal is to transfer into a bachelor's of business administration program in accounting, you should consider the Business Transfer program.

Articulation:

This program has articulation agreements with the following four-year colleges:

Cleary College
Madonna College
Walsh College

Program Admission Requirements:

Two years of high school algebra or MTH 169 with a grade of "C" or better or minimum COMPASS Algebra score of 66 is required to enroll in MTH 181.

Continuing Eligibility**Requirements:**

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Major/Area Requirements		(12 Credits)
BMG 140	Introduction to Business*	3
BMG 160	Principles of Sales	3
BMG 207	Business Communication	3
BMG 250	Principles of Marketing	3

Minimum Credits Required for the Program: 12 Credits

Notes:

*BMG 140 should be taken before other program courses. For students with business experience, credit for BMG 140 may be awarded through credit for prior learning experience. Talk to your faculty advisor for more information.

Business Sales & Marketing (CTBSLM)

This program prepares students for immediate employment in sales jobs that require skills in sales presentation, negotiation, customer service, display preparation, inventory analysis, and basic market research. The courses in this program may be applied toward an Associate in Applied Science degree in Management Supervision.

Program Admission Requirements:

Competency in keyboarding is necessary for success in this program. If you need to improve your keyboarding skills you should take BOS 101A before beginning the program.

E-Business Fundamentals (CTEBF)

Certificate

Major/Area Requirements		(9 Credits)
BMG 155	Business on the Internet	3
BMG 207	Business Communication	3
INP 140	Web Site Management	3

Minimum Credits Required for the Program: 9 Credits

Notes:

The recommended sequence for taking these classes is INP 140, BMG 207, BMG 155. Courses may be taken concurrently.

E-Business Fundamentals (CTEBF)

This certificate is designed to meet the needs of students seeking to understand how to create a Web site that is used to advertise and/or sell a limited product line or service. Course work is suitable as an introduction to e-business and Web technology but requires that the student be able to use the Internet (e-mail and browsing) in their daily lives.

Program Admission Requirements:

Program admission is based on passing scores on all college placement tests; and passing score on the Internet placement examination or INP 099 or CIS 099 with a grade of "C" or better.

Major/Area Requirements (9 Credits)

BMG 109	Entrepreneurship I - The Essentials	3
BMG 201	Entrepreneurship II - Market Planning	3
BMG 209	Entrepreneurship III - Business Planning	3

Minimum Credits Required for the Program: 9 Credits



Entrepreneurship (CTENT)

This certificate provides students with the concepts, theory, and practice they need to start and operate a small business enterprise. Students acquire a fundamental knowledge of small business operations that is used to create a business plan that includes an in-depth plan of marketing and customer relationship management. Program studies include a significant number of opportunities to network in the community with agencies devoted to helping the entrepreneur get started, such as the local Small Business & Technology Development Center (SBTDC). This certificate is appropriate for students who wish to become self-employed or simply become a more effective employee at a small business enterprise. This series of courses is a great way to refine that idea or concept you have for starting a business of your own.

Program Admission Requirements:
A high school course in basic computer skills including use of the Internet or INP 099 or CIS 099. BMG 101: The Business of Your Career or equivalent work experience.

Human Resource Management (CTHRSC)

Certificate

Major/Area Requirements (15 Credits)

BMG 150	Labor-Management Relations	3
BMG 200	Human Relations in Business	3
BMG 208	Principles of Management	3
BMG 240	Human Resources Management	3
BMG 279	Performance Management	3

Minimum Credits Required for the Program: 15 Credits

Human Resource Management (CTHRSC)

This program prepares you for entry-level jobs as a human resource assistant or specialist where you will be assisting in activities that range from recruiting, interviewing and hiring job candidates to evaluating jobs, negotiating contracts, and ensuring company compliance with equal opportunity regulations. This program also provides you with basic management skills that will improve your ability to manage people.

General Education Requirements (18 Credits)

Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Major/Area Requirements (42 Credits)

	Complete a certificate or degree in any occupational/technical area plus additional related credits to equal a minimum of 15 credit hours.	15
	Complete the Management Supervision Advanced Certificate (12 credits).	
BMG 230	Introduction to Supervision	3
BMG 273	Managing Operations	3
BMG 279	Performance Management	3
BMG 291	Project Management	3
	Complete an additional 9 credit hours of business courses in the BMG discipline.	9
	Complete an additional 6 credit hours in the disciplines of ACC, BMG, CIS, and/or INP.	6

Minimum Credits Required for the Program: 60 Credits

Management Supervision (CVMGTA)

Advanced Certificate

Major/Area Requirements (12 Credits)

BMG 230	Introduction to Supervision	3
BMG 273	Managing Operations	3
BMG 279	Performance Management	3
BMG 291	Project Management	3

Minimum Credits Required for the Program: 12 Credits

Program Admission Requirements: Successful completion of a career certificate or degree program or equivalent work experience. CIS 100 with a "C-" or better or equivalent skills.

Management Supervision (APMGTM)

Some employers require or prefer employees to have an associate degree as a condition for employment or for advancement. You can earn an Associate in Applied Science Degree in Management Supervision, by completing the requirements listed below. See an advisor to develop a plan and select appropriate courses for this program.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Business Office Systems

Degree and Certificate Programs

The student may attain a certificate, advanced certificate, or an associate degree in Business Office Systems-related fields. The college offers three fields of study with two levels of certification leading to an associate degree. The available programs of study are Administrative Assistant I and II, Computer Software Applications, and Medical Office Assistant.

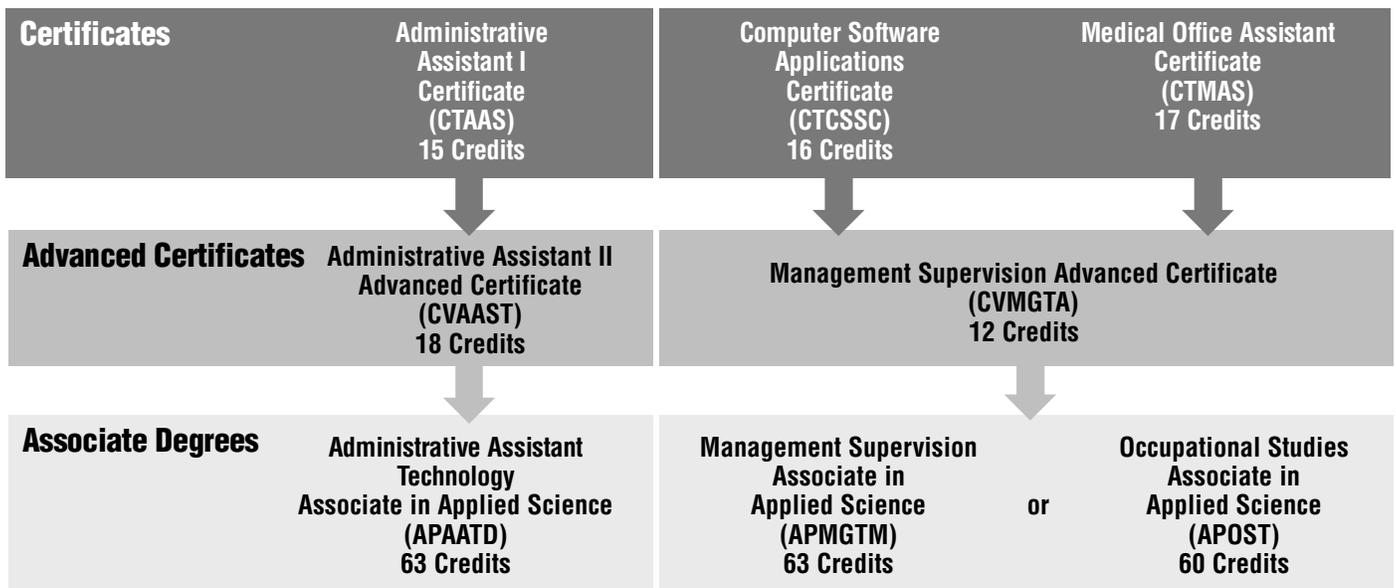
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After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a

more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Administrative Assistant I (CTAAS)

Certificate

Major/Area Requirements		(15 Credits)
BOS 107	Office Administration I	4
BOS 157	Word Processing and Document Formatting I	3
BOS 183	Spreadsheet Software Applications	3
BOS 206	Scheduling and Internet Office Applications	2
BOS 257	Word Processing and Document Formatting II	3
Minimum Credits Required for the Program:		15 Credits

Administrative Assistant I (CTAAS)

This program prepares you for immediate employment in entry-level information processing, data entry, receptionist, and general office positions where skills in keyboarding and document formatting using computers, record management, and Internet communication skills are important. It also gives you credits that can be used toward an associate degree in Administrative Assistant Technology.

Administrative Assistant II (CVAAST)

Advanced Certificate

Major/Area Requirements		(18 Credits)
BOS 130	Office Financial Applications	3
BOS 182	Database Software Applications	3
BOS 207	Presentation Software Applications	2
BOS 208	Desktop Publishing for the Office	3
BOS 225	Integrated Office Applications	3
BOS 250	Office Administration II	4
Minimum Credits Required for the Program:		18 Credits

Administrative Assistant II (CVAAST)

This program provides comprehensive preparation for individuals who are currently employed as office assistants, and who wish to advance their careers in office administration by upgrading their skills. Providing the knowledge and skills necessary for employment as a high-level administrative assistant or executive assistant in the public or private sector, this advanced certificate builds on skills developed in the Administrative Assistant I certificate program. In the Administrative Assistant II program, emphasis is placed on the expanding duties of an administrative assistant, and on the necessity of acquiring an in-depth knowledge of integrated software applications for the office. While mastering the technical knowledge essential for the office professional, students will also learn office management; and organizational principles. Additionally, the program provides opportunities for skill enhancement in information processing, basic financial management, electronic presentations, and office administration. Upon completion of this program, the student will receive an advanced certificate as an administrative assistant.

General Education Requirements		(19 Credits)
ENG 111	Composition I	4
COM 101	Fundamentals of Speaking	3
MTH 163	Business Mathematics	3
Nat. Sci.	Elective(s)*	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

**BIO 102 or BIO 109 is required for the Medical Administrative Assistant Option.*

Major/Area Requirements		(23 Credits)
BOS 107	Office Administration I	4
BOS 157	Word Processing and Document Formatting I	3
BOS 182	Database Software Applications	3
BOS 183	Spreadsheet Software Applications	3
BOS 206	Scheduling and Internet Office Applications	2
BOS 207	Presentation Software Applications	2
BOS 225	Integrated Office Applications	3
BOS 257	Word Processing and Document Formatting II	3

Required Support Courses		(8 Credits)
CIS 100	Introduction to Software Applications	3
CIS 117	Windows Operating System	2
COM 102 or	Interpersonal Communication	
ENG 226	Composition II	3

Concentration/Option Credits Required for the Program: 13

Complete the required courses in either the Administrative Assistant or Medical Administrative Assistant Option below. Check course descriptions for prerequisites.

Administrative Assistant Option (ADMA)		(13 Credits)
ACC 111	Principles of Accounting I	3
BOS 130	Office Financial Applications	3
BOS 208	Desktop Publishing for the Office	3
BOS 250	Office Administration II	4

Medical Administrative Assistant Option (MEDA)		(15 Credits)
BOS 210	Medical Transcription	3
BOS 223	Medical Office Procedures	3
BOS 224	Medical Office Insurance and Billing	4
HSC 101	Healthcare Terminology	1
HSC 115	Medical Office and Laboratory Procedures	3
HSC 131	CPR/FPR and First Aid	1

Minimum Credits Required for the Program: 63 Credits

Administrative Assistant Technology (APAATD)

This program prepares you for higher-level support positions in office settings where increased responsibilities require technical skills in desktop publishing, presentation software, accounting, and database software. You will also gain broader skills through completion of the general education courses required for an associate's degree.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Computer Software Applications (CTCSSC)

Certificate

Major/Area Requirements		(16 Credits)
BOS 157	Word Processing and Document Formatting I	3
BOS 182	Database Software Applications	3
BOS 183	Spreadsheet Software Applications	3
BOS 206	Scheduling and Internet Office Applications	2
BOS 207	Presentation Software Applications	2
BOS 208 or	Desktop Publishing for the Office	
BOS 257	Word Processing and Document Formatting II	3

Minimum Credits Required for the Program: 16 Credits

Computer Software Applications (CTCSSC)

This program provides computer skills training to an expert level in six typical office software applications, using the Microsoft Office Suite as well as a Web browser. These courses are primarily intended for students preparing for careers in the administrative office support area. The courses also give students skills that can be applied toward careers in computer application support and records management.

Medical Office Assistant (CTMAS)

Certificate

Major/Area Requirements		(17 Credits)
BOS 157	Word Processing and Document Formatting I	3
BOS 210	Medical Transcription	3
BOS 223	Medical Office Procedures	3
BOS 224	Medical Office Insurance and Billing	4
HSC 101	Healthcare Terminology	1
HSC 115	Medical Office and Laboratory Procedures	3

Minimum Credits Required for the Program: 17 Credits

Medical Assistant (CTMAS)

This program prepares the student for entry-level positions in doctors' offices, clinics, hospitals, pharmaceutical or insurance companies, or public health facilities where health information is prepared, analyzed, and retrieved. The student learns to perform receptionist duties, prepare charts and reports, schedule and bill patients, code and submit bills to insurance companies, and perform some patient-care duties such as sterilizing instruments and taking vital signs.



Child Care

Degree and Certificate Programs

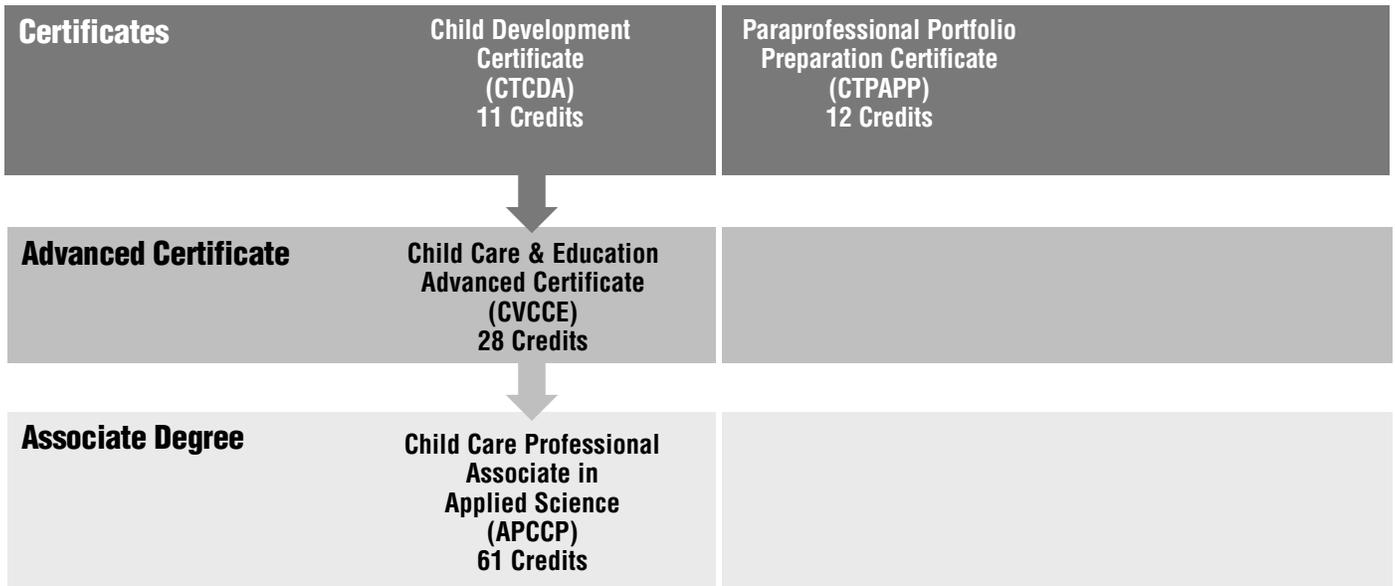
Students can enter the rapidly expanding field of child care by completing the Child Development Certificate, which prepares students for the Child Development Associate (CDA) credential exam. A certificate is available also for those wishing to prepare a school paraprofessional portfolio. After completing either of these certificates, students can continue to the Child Care and Education Advanced Certificate. Those students wishing to become a director of a child care center (qualified by the State of Michigan), can complete the Child Care Professional Associate in Applied Science degree program.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Child Development (CTCDA)

Certificate

Major/Area Requirements		(11 Credits)
CCP 122	Child Development Credentialing I	4
CCP 123	Child Development Credentialing II	4
CCP 132	Child Development Practicum I	1-2
CCP 133	Child Development Practicum II	1-2
HSC 131	CPR/FPR and First Aid	1
	Optional (not required): CCP 124 and/or CCP 134*	

Minimum Credits Required for the Program: 11 Credits

*Notes: *These additional courses are not required for the WCC Certificate, but may be taken to prepare for the final assessment test administered by the National Council and to complete the final observation assessment for the Child Development Associate credential.*

Child Development (CTCDA)

This Child Development Certificate is the first level in a three-tier training program. This program prepares students for the assessment exam required for the Child Development Associate (CDA) credential. It also prepares students for employment in child care centers or in family home daycare settings working with infants and toddlers, or preschoolers. Skills from the 13 functional areas required by the National Council for Early Childhood Professional Recognition are emphasized.

Program Admission Requirements:

Students must be at least 18 years of age and have a high school diploma or equivalent.

Child Care and Education (CVCCE)

Advanced Certificate

Major/Area Requirements		(25 Credits)
CCP 101	Child Development	3
CCP 113	Health, Safety and Nutrition for Child Care	3
CCP 160	Foundations of Child Care and Early Education	3
CCP 209	Curriculum for Young Children	3
CCP 210	Child Guidance and Classroom Management	3
CIS 100	Introduction to Software Applications	3
COM 101	Fundamentals of Speaking	3
ENG 111	Composition I	4

Minimum Credits Required for the Program: 25 Credits

Child Care and Education (CVCCE)

This certificate provides advanced training for child care professionals, and for paraprofessionals in school settings. It is the second level of a three-tier training program for adults who work with children under age 12. It is intended for students who are employed in a program that serves children under age 12, in a group setting.

Program Admission Requirements:

Students must have one of the following to enter this program: completion of a two-year vocational child care certificate; a CDA certificate; 12 credits in child care or elementary education; or concurrent enrollment in the Child Development Certificate program (CTCDA). Completion of the CTCDA is required before completing the Child Care Education Advanced Certificate.

Students in the program are assumed to be employed in a program that serves children under age 12 in a group setting.

General Education Requirements		(20 Credits)
ENG 111	Composition I	4
COM 101	Fundamentals of Speaking	3
MTH 148	Functional Mathematics for Elementary Teachers I	4
Nat. Sci.	Elective(s)*	3-4
Soc. Sci.	Elective(s)	3
MUS 140 or	Music Theory I	
MUS 180	Music Appreciation	3

*The following courses are recommended for the Natural Science Elective:
 AST 111, BIO 101, GLG 100, GLG 104, or SCI 101

Major/Area Requirements (41 credits)

The courses in the major/area requirements for the Child Care Professional Associate Degree are also part of the Child Care and Education Advanced Certificate & the Child Development Certificate. See an advisor for assistance.

CCP 101 **	Child Development	3
CCP 113	Health, Safety and Nutrition for Child Care	3
CCP 122	Child Development Credentialing I	4
CCP 123	Child Development Credentialing II	4
CCP 132	Child Development Practicum I	1-2
CCP 133	Child Development Practicum II	1-2
CCP 160	Foundations of Child Care and Early Education	3
CCP 200	Working with Parents	3
CCP 209	Curriculum for Young Children	3
CCP 210	Child Guidance and Classroom Management	3
CCP 218	Advanced Child Care Seminar	1
CCP 219	Advanced Child Care Practicum	2
CCP 251	Education of Exceptional Children	3
CIS 100	Introduction to Software Applications	3
HSC 131	CPR/FPR and First Aid	1
ENG 240 or	Children's Literature	
ENG 242	Multicultural Literature for Youth	3

Notes:

**CCP 101 must be taken before or concurrently with any other CCP course

Minimum Credits Required for the Program: 61 Credits

Child Care Professional (APCCP)

Completion of the Child Care Professional Associate in Applied Science degree qualifies students to be a director of a child care center in the State of Michigan, or to be a lead teacher in a Head Start program. The program is the last level in a three-tier training program for adults who work with children under twelve in group settings.

Program Admission Requirements:

Entrance requirements are: completion of the Child Development (CTCDA) certificate, or current CDA, or two-year high school vocational child care certificate; and completion of the Child Care Advanced Certificate. Or equivalent, with a minimum grade of a "C" in all child care courses. College level COMPASS scores are required in the courses of this program.

Continuing Eligibility Requirements:

Students who wish to enroll in child care practicum courses: CCP 132, 133, and 134 must be employed a minimum of 8 hours for 15 weeks for each credit of practicum. Permission is required to enroll in any CCP practicum course. Permission can be granted only after the student has submitted a Work Place Learning Agreement, Student Agreement, and an Employer Agreement.

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Major/Area Requirements		(12 Credits)
EDU 100	Paraprofessional Roles and Responsibilities	3
EDU 101	Assisting in Reading and Writing Instruction	3
EDU 102	Assisting in Mathematics Instruction	3
EDU 103	Special Issues in Paraprofessional Practice	3

Minimum Credits Required for the Program: 12 Credits

Paraprofessional Portfolio Preparation (CTPAPP)

This 15-credit certificate program will prepare current and prospective paraprofessionals to meet federally-mandated increases in conditions of employment, by preparing them to create a portfolio. This portfolio will demonstrate competence in the ability to assist in reading, writing, and mathematics instruction. Students can complete the coursework in three semesters. An introductory course provides an overview of paraprofessional responsibilities, and the role of the portfolio in meeting job requirements. This course is followed by three courses, each of which focuses on a content area (reading, writing, mathematics). State-mandated guidelines will be used throughout the content-area courses.

Program Admission Requirements:
Employment as a Paraprofessional



Computer-Aided Drafting (CAD)

Degree and Certificate Programs

The CAD program focuses on current workplace practices, principles, and technology in the field of Computer-Aided Drafting necessary for entry into the workforce. The College offers two levels of certification leading to an associate degree in Computer-Aided Drafting and Design.

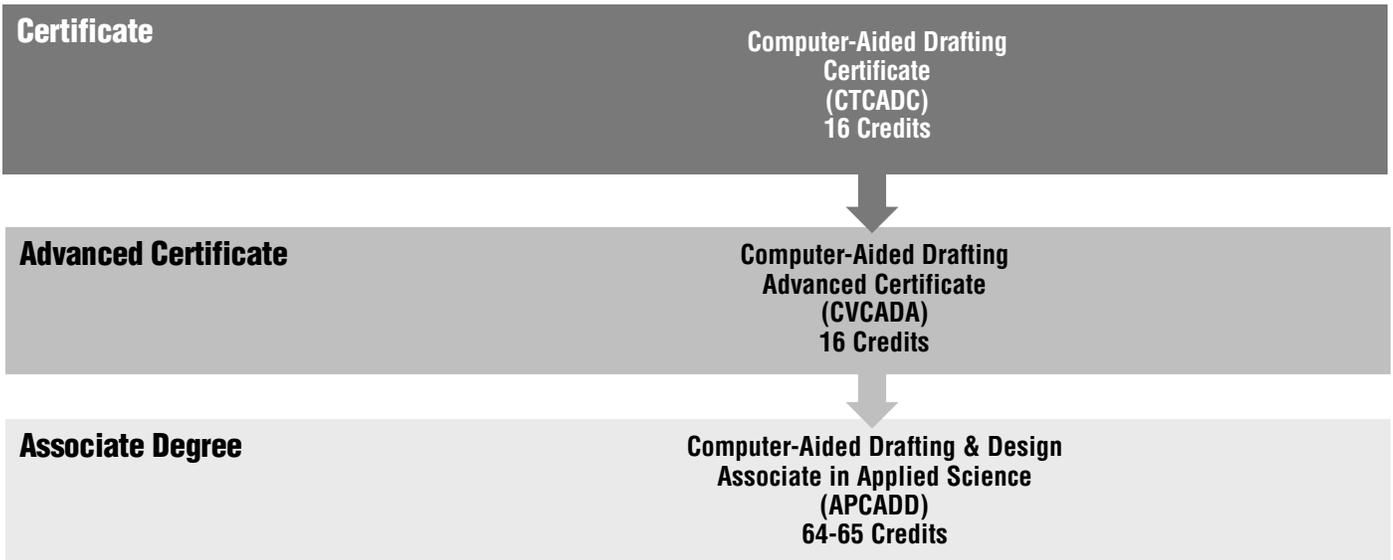
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Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Computer-Aided Drafting (CTCADC)

Certificate

Major/Area Requirements		(15 Credits)
CAD 105	Blueprint Reading and Analysis	3
CAD 111	CAD I-Detailing	4
CAD 113	CAD II	4
CAD 115	Descriptive Geometry	4
Minimum Credits Required for the Program:		15 Credits

Computer-Aided Drafting (CTCADC)

The Computer Aided Drafting Certificate prepares students for entry-level work in the field of computer-aided drafting. The student will use CAD software to create dimensional detail and assembly drawings. The program also gives a foundation for WCC's advanced certificate in CAD.

Computer-Aided Drafting (CVCADA)

Advanced Certificate

Major/Area Requirements		(16 Credits)
CAD 211	CAD III	4
CAD 217	Mechanical Design	4
CAD 221	CAD IV	4
MTT 111	Machine Shop Theory and Practice	4
Minimum Credits Required for the Program:		16 Credits

Computer-Aided Drafting (CVCADA)

This program prepares students for jobs as a CAD Designer/Drafter, able to prepare CAD-based models of assemblies and details by working from rough sketches, specifications, catalogs, existing CAD parts and models, and calculations provided by engineers and designers. The program provides the skills to generate complete and accurate assembly and detail drawings and 3-D models using industry conventions for manufacturability and economy. Credits can be applied toward the Associate Degree in Computer-Aided Drafting and Design.

Program Admission Requirements:

Students must complete the Computer-Aided Drafting Certificate.

General Education Requirements		(19 Credits)
ENG 107 or	Technical Writing	
ENG 111	Composition I*	3-4
Speech	Elective(s)	3
MTH 107 or	Triangle Trigonometry	
MTH 178	General Trigonometry	3
PHY 105 or	Conceptual Physics	
PHY 111	General Physics I*	4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

*Choose ENG 111 and PHY 111 if you plan to transfer to a four-year college.

Major/Area Requirements (44 Credits)

	Complete the Computer-Aided Drafting Certificate	(15 Credits)
CAD 105	Blueprint Reading and Analysis	3
CAD 111	CAD I-Detailing	4
CAD 113	CAD II	4
CAD 115	Descriptive Geometry	4
	Complete the Computer-Aided Drafting Advanced Certificate	(16 Credits)
CAD 211	CAD III	4
CAD 217	Mechanical Design	4
CAD 221	CAD IV	4
MTT 111	Machine Shop Theory and Practice	4
	Complete additional courses for the degree.	(13 Credits)
CAD 109	Theory of Dies	3
CAD 213	Mechanisms	4
CAD 215	Geometric Dimensioning and Tolerancing	3
CAD 219	Theory of Jigs and Fixtures	3

Minimum Credits Required for the Program: 63 Credits

Notes: The following course sequence is recommended for the major courses.

Check course descriptions for pre and co-requisites:

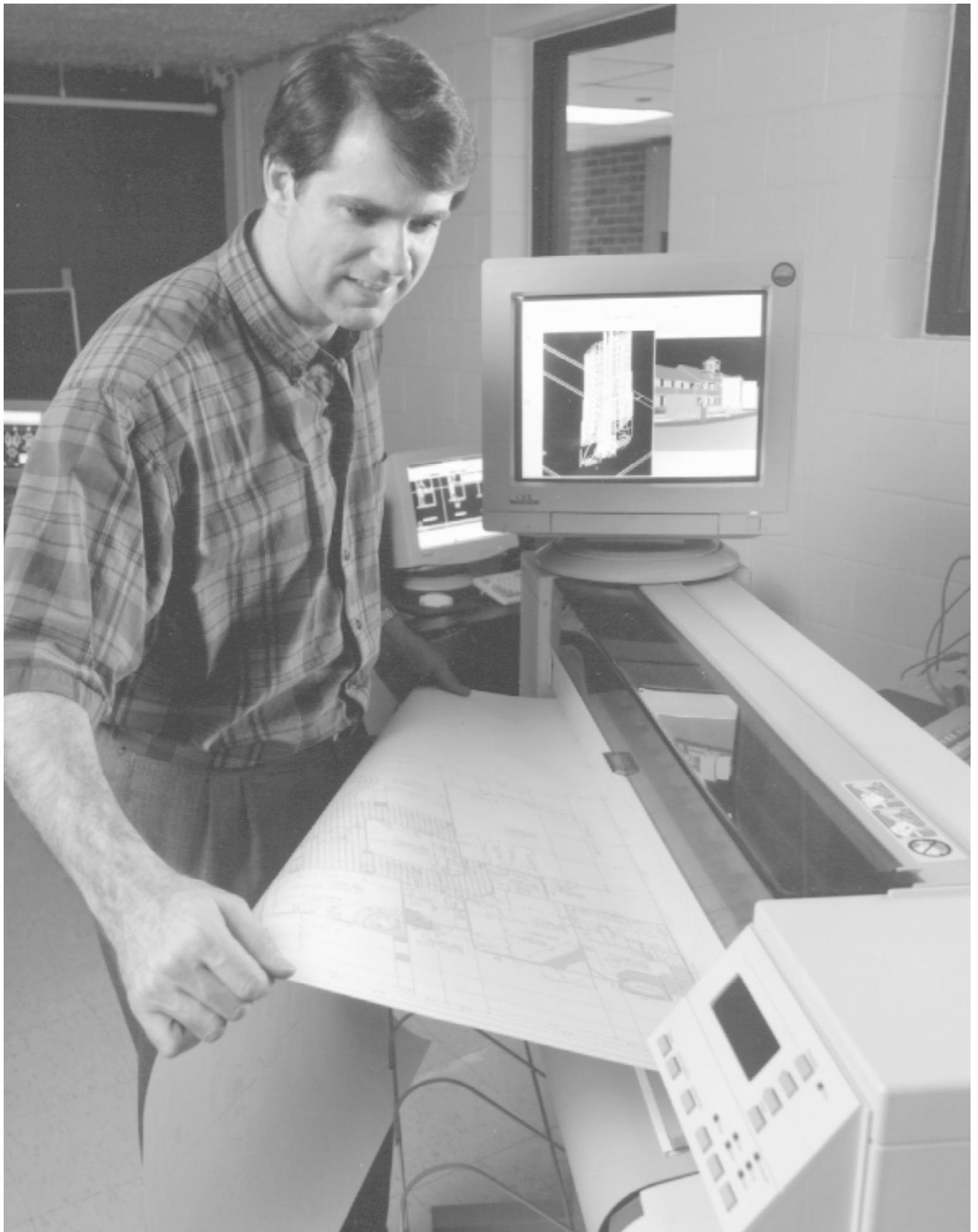
I	II	III	IV
CAD 111	CAD 113	CAD 211	IDD 211
CAD 105	CAD 115	CAD 219	CAD 213
CAD 109	CAD 215	MTH 111	CAD 217
			CAD 221

Computer-Aided Drafting and Design (APCADD)

This program prepares students for jobs as a CAD operator or technician, able to prepare clear, complete, and accurate detail and assembly drawings from rough sketches, specifications, and calculations of engineers and designers to be used for mechanical applications.

Program Admission Requirements: Students must have a minimum score of 46 on the COMPASS Algebra test or complete MTH 097 with a "C" or better to enroll in MTH 107; or a score of 46 on the COMPASS College Algebra test or MTH 169 with a "C" or better to enroll in MTH 178. Two years of high school algebra is recommended.

Continuing Eligibility Requirements: Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



Computer Internet

Degree and Certificate Programs

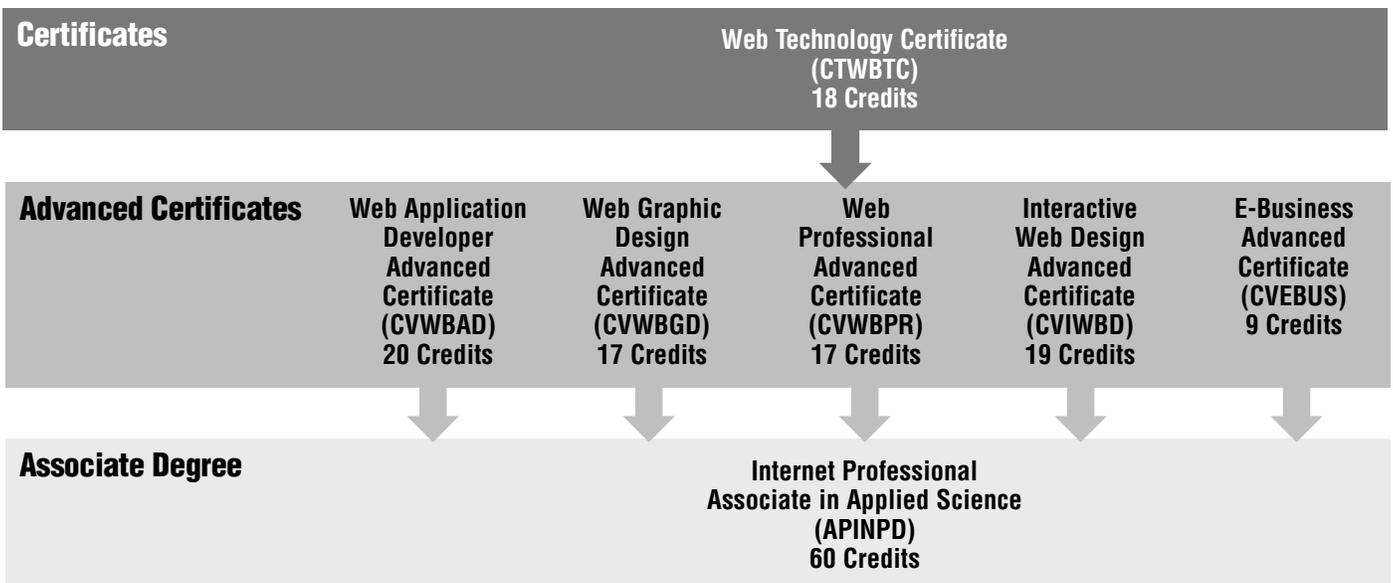
The College offers a broad range of options leading to a career as an Internet Professional. The Web Technology certificate program serves as the foundation for five specialized advanced certificates: E-Business, Web Application Developer, Web Graphic Design, Web Professional, or Interactive Web Design. These programs were developed to allow students the flexibility to obtain multiple advanced certificates for well-rounded preparation for employment. After completing a certificate and an advanced certificate, students can also pursue an Associate in Applied Science degree.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



E-Business (CVEBUS)

Advanced Certificate

Major/Area Requirements		(9 Credits)
BMG 155	Business on the Internet	3
BMG 215	Planning an E-Commerce Business	3
INP 290	Web Development II	3
Minimum Credits Required for the Program:		9 Credits

E-Business (CVEBUS)

This program is designed for students who wish to expand their skills in the area of e-business. Students acquire the knowledge and skill needed to develop e-commerce Web sites and Web-based applications from both a business and technical standpoint. The program is intended for students and professionals with a technical background.

Program Admission Requirements: Students must complete the Web Technology Certificate or have equivalent industry experience.

Web Graphic Design (CVWBGD)

Advanced Certificate

Major/Area Requirements		(17 Credits)
GDT 112	Graphic Communication I	4
GDT 270	Web Site Design	4
INP 182	Photoshop for the Web	3
INP 212	Web Imaging II	3
INP 290	Web Development II	3
Minimum Credits Required for the Program:		17 Credits

Web Graphic Design (CVWBGD)

This program is designed for students who wish to enhance their skills in Web technology, especially in the area of creating visual interfaces for Web sites and other interactive and streaming media. It provides the knowledge and skills necessary for broader spectrum of employment opportunities in Web design and development such as Web graphic designer, production artist, lead designer, or creative lead. The student will integrate the concepts, principles and methods of graphic design and Web technology to create effective presentation media for Web users. Students will learn to create and optimize graphics, and to use these skills in creating effective layouts and navigational systems. The student will apply industry-standard Web technologies, protocols, concepts, and practices in the development of Web sites and Web pages. Successful completion of the Web Technology Certificate is a prerequisite for enrolling the Web Graphic Design Advanced Certificate.

Program Admission Requirements: Students must complete the Web Technology Certificate or have significant industry experience prior to starting this certificate.

General Education Requirements	(18 Credits)
Writing Elective(s)*	3-4
Speech Elective(s)**	3
Math Elective(s)	3-4
Nat. Sci. Elective(s)	3-4
Soc. Sci. Elective(s)	3
Arts/Human. Elective(s)	3

*If transferring, choose ENG 111.

**If transferring, choose COM 101.

Major/Area Requirements	(22 Credits)
INP 150 Web Coding I	3
INP 152 Web Imaging I	3
INP 153 Designing User Experience I	3
INP 160 Internet Technology	3
INP 170 Web Coding II	3
INP 190 Web Development I	3

Additional elective courses must be taken if total program credits is below 60.***4

***After completing all course requirements and a program option, students should have a minimum of 60 credits. If additional elective courses are needed, students should meet with an INP advisor to select appropriate courses.

Minimum Concentration/Option Credits Required for the Program: 20 Credits

Complete one of the five Internet Professional Options listed below and complete the additional courses listed within the option. Check course prerequisites and meet with an INP advisor to determine the best sequence for taking courses.

Internet Professional Options

E-Business (EBS) (20 Credits)
Complete the E-Business Advanced Certificate, INP 295, and any combination of the following electives to reach a minimum of 60 credits: BMG 106, BMG 109, BMG 111, BMG 201, BMG 207, BMG 209, INP 203, INP 253, CSS 200, CSS 205

Interactive Web Design (IWD) (21 Credits)
Complete the Interactive Web Design Advanced Certificate and INP 295

Web Application Developer (WAD) (22-23 Credits)
Complete the Web Application Developer Advanced Certificate and INP 295

Web Graphic Design (WGD) (22-23 Credits)
Complete the Web Graphic Design Advanced Certificate, INP 295, and choose a minimum of 3 credits from: BMG 109, BMG 155, BMG 215, GDT 100

Web Professional (WPR) (20-21 Credits)
Complete the Web Professional Advanced Certificate and choose a minimum of 3 credits from: BMG 109, BMG 215, CIS 265, CIS 270, CIS 279, CIS 282, CPS 276, GDT 100, GDT 112, INP 253

Minimum Credits Required for the Program: 60 Credits

Internet Professional (APINPD)

This is a comprehensive program for students who wish to develop skills in Web design and development. It prepares the student for employment as an internet professional with options in several areas of specialization. The student will develop knowledge and skills in the core aspects of Web design and development, and will be able to apply industry-standard Web technologies, protocols, concepts, and practices for Web authoring, Web graphics, user-based Web development, information architecture, project management, organizing and sorting complex information, and human-computer interaction. By preparing the student to manage the processes of Web development from conception to product delivery, this program makes a broad spectrum of employment opportunities available to the student. Successful completion of the Web Technology Certificate and one of the related advanced certificates is a prerequisite for enrolling in the Internet Professional Associate in Applied Science Degree.

Articulation:

This program has an articulation agreement with Eastern Michigan University for its Technology Management program. The Technology Management program is part of the College of Technology in the Department of Interdisciplinary Technology.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

For successful continuation in the program, a minimum grade of "C-" is required for all INP courses.

Major/Area Requirements		(20 Credits)
INP 271	Web Coding III	3
INP 275	Web Database	3
INP 280	Web Content Management	4
INP 290	Web Development II	3
CPS 171 or	Introduction to Programming with C++	
CPS 185	Introduction to Visual Basic .Net Programming	4
CIS 270 or	Perl Programming	
CPS 276	Web Programming Using Apache, MySQL, and PHP	3-4

Minimum Credits Required for the Program: **20 Credits**

Web Application Developer (CVWBAD)

This program is designed for students who wish to develop skills in Web application development and programming, specializing in creating dynamic server-side applications for Web sites. It provides the knowledge and skills necessary for creating database-enabled applications, dynamic content, and interactive Web sites. The student will learn and use object-oriented programming, and apply industry-standard Web technologies, protocols, concepts, and practices in the development of effective and interactive systems for the Web. Successful completion of the Web Technology Certificate is a prerequisite for enrolling in the Web Application Developer Advanced Certificate.

Program Admission Requirements: Students must complete the Web Technology Certificate, Object-Oriented Programming Certificate or have significant industry experience prior to starting this certificate.



Major/Area Requirements

(18 Credits)

INP 150	Web Coding I	3
INP 152	Web Imaging I	3
INP 153	Designing User Experience I	3
INP 160	Internet Technology	3
INP 170	Web Coding II	3
INP 190	Web Development I	3

Minimum Credits Required for the Program:

18 Credits

Web Technology (CTWBTC)

This program is designed for students who wish to enhance their skills as internet professionals. It provides the knowledge and skills necessary for employment as an information architect, or e-commerce analyst. The program introduces techniques for effective Web site development. The student will create effective user interfaces for the Web, develop data-driven Web pages which include organizing and sorting complex information, develop an e-commerce site, as well as plan and publish a medium size Web site. The student will apply industry standard Web technologies, protocols, concepts and practices in the development of Web sites and Web pages. The program prepares students to manage the processes of Web development from conception to product delivery utilizing industry standard practices. Successful completion of the Web Technology Certificate is a prerequisite for enrolling the Web Professional Advanced Certificate.

Program Admission Requirements:

A high school course or equivalent course in basic computer skills including use of the Internet or INP 099 with a minimum grade of "C-".





Major/Area Requirements		(17 Credits)
BMG 155	Business on the Internet	3
INP 203	Designing User Experience II	3
INP 271	Web Coding III	3
INP 290	Web Development II	3
INP 295	Professional Practices	2
INP 182 or INP 275	Photoshop for the Web Web Database	3

Minimum Credits Required for the Program: 17 Credits

Web Professional (CVWBPR)

This program is designed for students who wish to enhance their skills as internet professionals. It provides the knowledge and skills necessary for employment as an information architect, or e-commerce analyst. The program introduces techniques for effective Web site development. The student will create effective user interfaces for the Web, develop data-driven Web pages which include organizing and sorting complex information, develop an e-commerce site, as well as plan and publish a medium size Web site. The student will apply industry standard Web technologies, protocols, concepts and practices in the development of Web sites and Web pages. The program prepares students to manage the processes of Web development from conception to product delivery utilizing industry standard practices. Successful completion of the Web Technology Certificate is a prerequisite for enrolling the Web Professional Advanced Certificate.

Program Admission Requirements: Students must complete the Web Technology Certificate or have equivalent industry experience.

Major/Area Requirements

(19 Credits)

INP 182	Photoshop for the Web	3
INP 212	Web Imaging II	3
INP 272	Web Animation I	3
INP 276	Web Animation II	4
INP 282	Web Audio/Video I	3
INP 290	Web Development II	3

Minimum Credits Required for the Program:

19 Credits

Interactive Web Design (CVIWBD)

This program is designed for students who wish to develop skills in interactive Web design, and provides the knowledge and skills necessary to develop a specialization in creating interactive interfaces for the Web and streaming media. Potential jobs include interactive Web designer, Flash designer, interaction designer, and multimedia Web designer. Emphasizing visual communication, the program develops students skills in creating effective layouts and navigational systems. The student will learn to create and optimize graphics, and non-linear interfaces for the Web user, as well as developing teamwork skills. The student will apply industry-standard Web technologies, protocols, concepts, and practices in interactive Web page design. Successful completion of the Web Technology Certificate is a prerequisite for enrolling the Interactive Web Design Advanced Certificate.

Program Admission Requirements:

Students must complete the Web Technology Certificate or have significant industry experience prior to starting this certificate.



Computer Programming

Degree and Certificate Programs

The College offers three fields of study in Computer Programming: Computer Programming, Oracle, and Web Programming. Within these fields, there are two levels of certification leading to an associate degree and two post-associate certificates. These programs were developed to provide students with flexibility in choosing programming options that are consistent with specific career demands.

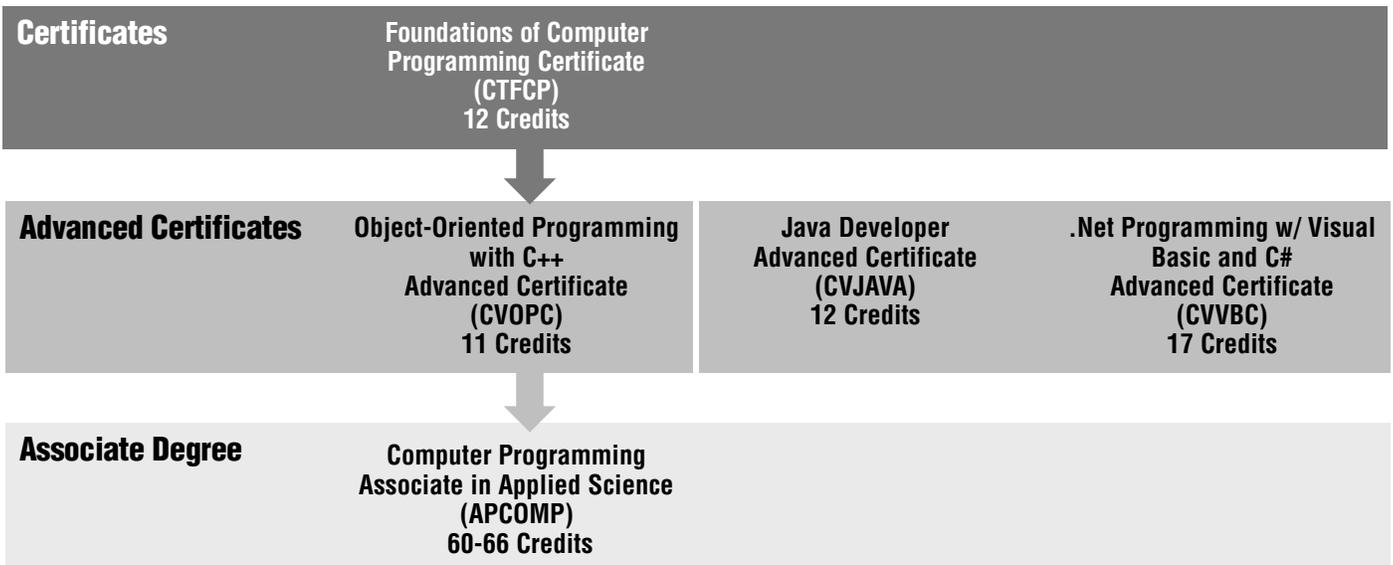
Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for

these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Post-Associate Certificates	Web Database Developer Post-Associate Certificate (CPWDD) 14 Credits	Oracle Database Administration Post-Associate Certificate (CPODA) 12 Credits	Oracle Developer Post-Associate Certificate (CPORAC) 11 Credits
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General Education Requirements		(19 Credits)
Writing	Elective(s)*	3-4
Speech	Elective(s)	3
MTH 169 or	Intermediate Algebra	
MTH 176 or	College Algebra	
MTH 181	Mathematical Analysis I**	4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

*ENG 181 and ENG 214 satisfy EMU's cross cultural requirement
 **MTH 181 satisfies the requirements of EMU's Technology Management program

Major/Area Requirements		(19 Credits)
CIS 110	Introduction to Computer Information Systems	3
CIS 117	Windows Operating System	2
CIS 121	Linux/UNIX Fundamentals	3
CIS 221	UNIX Tools and Scripts	3
CIS 282	Relational Database Concepts & Application	3
CIS 288	Systems Analysis and Design	3
ENG 245	Career Practices Seminar	2
	Complete one course from: CIS 174, CIS 238, CIS 265, CIS 286, CIS 291A or INP 140	

Required Support Courses		(12 Credits)
BMG 200	Human Relations in Business	3
BMG 106 or	Legal Basics in Business	
BMG 155	Business on the Internet	3
	Complete additional credits as free electives to bring the program total to a minimum of 60 credits.	6

Minimum Concentration/Option Credits Required for the Program: 10 Credits
 Complete the required courses in one of the following program options. Check course prerequisites to determine the sequence for taking courses.

Computer Programming Options

.Net, Visual Basic and C# Programming Options (NVBC)		(12 Credits)
CPS 185	Introduction to Visual Basic .Net Programming	4
CPS 285	Advanced Visual Basic .Net Programming	4
CPS 293	C# .NET	4
Business Computer Programming Option (BCOM)		(10 Credits)
ACC 111	Principles of Accounting I	3
CIS 291A	Introduction to Oracle SQL	3
CPS 171	Introduction to Programming with C++	4
C++ Programming Option (CPLS)		(12 Credits)
CPS 171	Introduction to Programming with C++	4
CPS 271	Object Features of C++	4
CPS 272	Data Structures with C++	4
Java Programming Option (JAVP)		(12 Credits)
CIS 175	Beginning Java Programming	4
CIS 269	Java Certification Preparation	4
CIS 278 or	Java Server Programming	
CIS 279	XML Programming	4

Minimum Credits Required for the Program: 60 Credits

Notes: Students transferring to EMU should see an advisor for additional courses that meet the requirements of EMU's Technology Management program. See also the Computer Science Concentration of the Math and Science Program in the Transfer Section

Computer Programming (APCOMP)

This program prepares students for entry-level or trainee computer programmer positions, where they'll work with a systems analyst in an applications environment to support information processing functions. The program also gives students the opportunity to focus their program in a particular discipline by choosing from a list of elective courses covering topics such as UNIX, Visual Basic programming, and object-oriented programming, among others.

Program Admission Requirements:

Students need one semester of high school word processing and spreadsheets or CIS 100 or permission of program advisor to enroll in CIS 110.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Foundations of Computer Programming (CTFCP)

Certificate

Major/Area Requirements		(12 Credits)
CIS 110	Introduction to Computer Information Systems	3
CPS 120	Intro to Computer Science	3
CIS 117 or	Windows Operating System	
CIS 121	Linux/UNIX Fundamentals	2 - 3
CIS 175 or	Beginning Java Programming	
CPS 171 or	Introduction to Programming with C++	
CPS 185	Introduction to Visual Basic .Net Programming	4

Minimum Credits Required for the Program: **12 Credits**

Foundations of Computer Programming (CTFCP)

Foundations of Computer Programming provides skills for students who wish to develop the strong foundation required to become a computer programming professional. The student will be introduced computer science, programming logic, as well as developing algorithms to solve programming problems. In addition, students will acquire an understanding of the impact of information systems and information technology on the business, industrial, and other environments in which they will work as programmers. Successful completion of the courses in this program allows students to continue their study into the advanced certificate level: Web Programming Tools; Object-Oriented Programming with C++; Java Developer; and .Net Programming with Visual Basic and C#.

Program Admission Requirements: Students must have a minimum COMPASS Algebra score of 66 or MTH 169 with a minimum grade of "C".

Object-Oriented Programming with C++ (CVOPC)

Advanced Certificate

Major/Area Requirements		(11 Credits)
CIS 288	Systems Analysis and Design	3
CPS 271	Object Features of C++ *	4
CPS 272	Data Structures with C++	4

Minimum Credits Required for the Program: **11 Credits**

Notes:

*Students may substitute CPS 290 for CPS 271.

The following sequence of courses is recommended. Please check course descriptions for pre and co-requisites:

I	II
CIS 288	CPS 272
CPS 271	

Object-Oriented Programming with C++ (CVOPC)

This program prepares you for jobs as a computer programmer where you will write code and develop applications utilizing object-oriented programming techniques. You will also develop skills that can be applied to the related jobs of programmer/analyst and software architect.

Program Admission Requirements: Completion of the Foundations of Computer Programming Certificate with a GPA of 2.0 or better

Completion of CPS 171, Introduction to Programming with C++ with a minimum grade of "C" or better.

Major/Area Requirements		(12 Credits)
CIS 291A	Introduction to Oracle SQL	3
CIS 296	Oracle9i Database: Fundamentals I	3
CIS 297	Oracle9i Database: Fundamentals II	3
CIS 298	Oracle9i Database: Performance and Tuning	3

Minimum Credits Required for the Program: 12 Credits

Notes: The courses in this program must be taken in sequence

Oracle Database Administration (CPODA)

This program gives students advanced skills to increase your marketability as an information systems administrator. The program builds on the skills acquired through a degree program in computer information systems or from individual experience as an information technology professional. The program also prepares students for the Oracle Database Administrator certification exams.

Program Admission Requirements:

Completion of one of the following degree programs with a grade of 2.0 or better in CIS 282 and CPS 171:

- Computer Information Systems Transfer (AACIST)
- Math and Science (ASMSAS) with a Computer Science Concentration (COMS)
- Computer Programming (APCOMP)
- Internet Professional (APINPD)
- Completion of the following course with a grade of "C" or better:
- CIS 282 Relational Database Concepts and Application

Completion of one of the following programming courses:

- CPS 171 Introduction to Programming with C++
- CPS 185 Introduction to Visual Basic .Net Programming
- CIS 175 Beginning Java Programming
- CIS 265 Programming the Web



Major/Area Requirements		(9 Credits)
CIS 291A	Introduction to Oracle SQL	3
CIS 291B	Program with PL/SQL	3
CIS 292	Oracle 9i: Forms Developer: Build Internet Applications	3

Minimum Credits Required for the Program: **9 (Credits)**

Notes: The courses in this program must be taken in sequence



Oracle Developer (CPORAC)

This program prepares students for a job as an Oracle database application developer. These courses are intended for a person who already has a background in object oriented programming and relational database theory and practice. The program also gives students skills that can be applied to the related jobs of programmer/analyst, database application developer, Oracle developer, Web database developer, or e-commerce software architect. Students will also be prepared for completion of the certification examinations that are offered by Oracle University.

Program Admission Requirements:

Completion of one of the following degree programs with a GPA of 2.0 or better:

- Computer Information Systems Transfer (AACIST)
- Math and Science (ASMSAS) with a Computer Science Concentration (COMS)
- Computer Programming (APCOMP)
- Internet Professional (APINPD)

Completion of the following course with a grade of "C" or better:

- CIS 282 Relational Database Concepts and Application

Completion of one of the following programming courses:

- CPS 171 Introduction to Programming with C++
- CPS 185 Introduction to Visual Basic .Net Programming
- CIS 175 Beginning Java Programming
- CIS 265 Programming the Web

Web Database Developer (CPWDD)

Post-Associate Certificate

Major/Area Requirements		(14 Credits)
CIS 278	Java Server Programming	4
CPS 276	Web Programming Using Apache, MySQL, and PHP	4
INP 275	Web Database	3
CIS 282 or CIS 291A	Relational Database Concepts & Application Introduction to Oracle SQL	3

Minimum Credits Required for the Program: 14 Credits

Notes: The following sequence of courses is recommended. Please check course descriptions for pre and co-requisites.

I	II
CIS 282	CIS 278
or	CPS 276
CIS 291A	INP 275

Web Database Developer (CPWDD)

This post-associate program gives students advanced skills in developing Web databases and e-commerce applications. It is intended for students with a strong programming background and prior experience with SQL. The program also gives students skills that can be applied to the jobs of e-commerce software architect, e-business strategist, Java software developer, and Web application developer.

Program Admission Requirements:

Completion of one of the following degree programs with a GPA of 2.0 or better:

- Computer Information Systems Transfer (AACIST)
- Math and Science (ASMSAS) with a Computer Science Concentration (COMS)
- Computer Programming (APCOMP)
- Internet Professional (APINPD)

Completion of one of the following courses with a grade of "C" or better:

- CPS 185 Introduction to Visual Basic .Net Programming
- CPS 171 Introduction to Programming with C++
- CIS 175 Beginning Java Programming
- CIS 269 Java Certification Preparation



Major/Area Requirements

(12 Credits)

CIS 269	Java Certification Preparation	4
CIS 278	Java Server Programming	4
CIS 279	XML Programming	4

Minimum Credits Required for the Program:

12 Credits

Notes: Suggested course sequence:

I	II
CIS 269	CIS 278
	CIS 279

Java Developer (CVJAVA)

This program gives students advanced skills in developing Java programs. These courses are intended for students who already have a background in programming and who need to acquire skills in Java application development. The program also gives students skills that can be applied to the related jobs of programmer/analyst or Web programmer. Prior course work or experience in using HTML to compose Web pages is helpful.

Program Admission Requirements:

Completion of the Foundations in Computer Programming Certificate with a GPA of 2.0 or better.

Completion of the following courses with grades of "C" or better:

- CIS 175 Beginning Java Programming
- INP 150 Basic HTML or equivalent experience



Major/Area Requirements		(12 Credits)
CPS 185	Introduction to Visual Basic .Net Programming	4
CPS 285	Advanced Visual Basic .Net Programming	4
CPS 293	C# .NET	4

Minimum Credits Required for the Program: 12 Credits

Note:
The following sequence of courses is recommended. Please check course descriptions for pre and co-requisites:

I	II
CPS 185	CPS 285
	CPS 293

.Net Programming with Visual Basic and C# (CVVBC)

This program prepares students for a job as a developer of graphical user interface programs on a PC. It is intended for those students who need to acquire skills in Windows application development in Visual Basic and for students who wish to acquire skills in programming dynamic Web pages. The program also gives individuals skills that can be applied to the related jobs of programmer/analyst, Windows programmer, PC programmer, and Web programmer.

Program Admission Requirements:

Completion of the Foundations of Computer Programming Certificate with a GPA of 2.0 or better.



Computer Systems

Degree and Certificate Programs

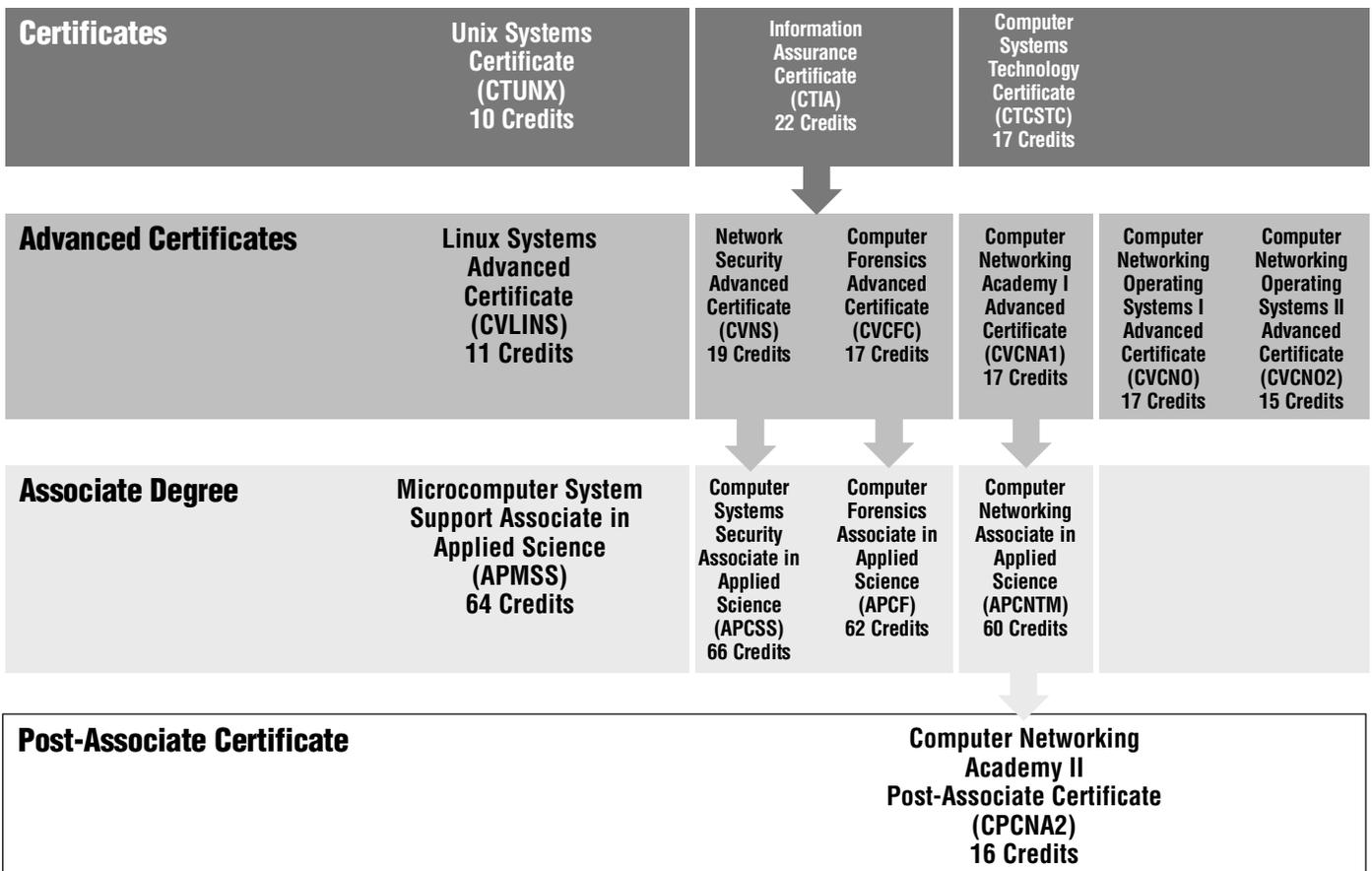
There are four associate degree programs within Computer Systems and a number of advanced certificates and post-associate certificates. Basic certificates are available in Unix Systems, Computer Systems Technology, and Information Assurance. Advanced certifications can be obtained in Computer Networking Academy I, Computer Networking Operating Systems I, Network Security, Computer Forensics, and Linux Systems. Associate degrees can be obtained in Computer Networking, Microcomputer System Support, Computer Systems Security, and Computer Forensics. A post-associate certificate is also available in Computer Networking Academy II.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)*	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)**	3

*Choose one of the following courses: MTH 169, MTH 176, MTH 178, or MTH 181.

MTH 181 satisfies the requirements of EMU's Technology Management program.

**ENG 181 & 214 satisfy EMU's cross cultural requirement.

Major/Area Requirements		(32 Credits)
CIS 121	Linux/UNIX Fundamentals	3
CJT 208	Criminal Evidence and Procedure	3
CNT 201	Administering Microsoft Windows XP Professional	3
CSS 180	Computer Security for PC's	4
CSS 200	Information Assurance I	4
CSS 205	Information Assurance II	4
CSS 240	High-Technology Crime	3
CSS 270	Computer Forensics I	4
CSS 275	Computer Forensics II	4

Minimum Concentration/Option Credits Required for the Program: 12 Credits

Elect either of the following options:

Computer Forensics Options

Network Security (NSEC)		(12 Credits)
CNT 206	Internetworking I - Fundamentals	4
CNT 216	Internetworking II - Routers	4
CSS 210	Managing Network Security I	4

Completion of CSS 215 and CSS 220 is highly recommended for students selecting the Network Security Option.

Windows/Unix Operating System Security (WUNX)		(18 Credits)
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Choose three courses from the following:

CIS 221	UNIX Tools and Scripts	3
CIS 286	UNIX Systems Administration	4
CNT 211	Administering and Managing Microsoft Windows 2003 Server	4
CNT 251	Designing Windows Security	4
INP 285	Web Server Security	3

Minimum Credits Required for the Program: 62 Credits

Computer Forensics (APCF)

This degree program is designed to meet the demand in business and industry for computer security professionals who are trained in computer forensics. Students will learn current techniques in data preservation, identification, and extraction from Linux, FAT, and NTFS file systems and will perform forensic analysis of systems using popular examination tool kits. Students will also learn common practices involved in forensic investigations and evidence handling, and will become informed in federal and state privacy, intellectual property, search and seizure, and cyber-crime laws.

Continuing Eligibility

Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Computer Forensics (CVCFC)

Advanced Certificate

Major/Area Requirements		(14 Credits)
CJT 208	Criminal Evidence and Procedure	3
CSS 240	High-Technology Crime	3
CSS 270	Computer Forensics I	4
CSS 275	Computer Forensics II	4

Minimum Credits Required for the Program: 14 Credits



Computer Forensics (CVCFC)

This certificate program is designed to meet the demand in business and industry for computer security professionals who are trained in computer forensics. Students will learn current techniques in data preservation, identification, and extraction from Linux, FAT, and NTFS file systems and will perform forensic analysis of systems using popular examination tool kits. Students will also learn common practices involved in forensic investigations and evidence handling, and will become informed in federal and state privacy, intellectual property, search and seizure, and cyber-crime laws.

Program Admission Requirements:

Completion of the Information Assurance Certificate program or students must have equivalent knowledge.

Continuing Eligibility Requirements:

Students must maintain a grade of "C" or better in the program require-

Computer Networking Academy I (CVCNA1)

Advanced Certificate

Major/Area Requirements		(16 Credits)
CNT 206	Internetworking I - Fundamentals	4
CNT 216	Internetworking II - Routers	4
CNT 226	Internetworking III - Switches	4
CNT 236	Internetworking IV - WANs	4

Minimum Credits Required for the Program: 16 Credits



Computer Networking Academy I (CVCNA1)

This Cisco Networking Academy program prepares students for a job as a network technician where they will install, configure, and troubleshoot Local Area Networks under the supervision of a network administrator. The focus is placed on cabling systems and internetworking hardware. It also gives students the knowledge needed to pass the Cisco Certified Network Associate exam.

Program Admission Requirements:

Students must complete the Computer Systems Technology (CTCSTC) Certificate with a GPA of 2.0 or better or have equivalent industry experience to be admitted into the program.

Computer Networking Academy II (CPCNA2)

Post-Associate Certificate

Major/Area Requirements		(16 Credits)
CNT 246	Advanced Routing Configuration	4
CNT 256	Remote Access Networks	4
CNT 266	Multi-Layer Switching	4
CNT 276	Network Troubleshooting	4

Minimum Credits Required for the Program: 16 Credits

Computer Networking Academy II (CPCNA2)

This Networking Academy program provides students with the advanced skills needed for a job as a network administrator/engineer, where they will design, install, configure, and troubleshoot Local and Wide Area Networks. The focus is placed on internetworking hardware. It also prepares students to pass the Cisco Certified Network Professional examinations.

Program Admission Requirements:

Students must complete the Computer Networking Associate Degree program (APCNTM) with a GPA of 2.0 or better to be admitted into the program.

Computer Networking Operating Systems I (CVCNO)

Advanced Certificate

Major/Area Requirements		(14 Credits)
CNT 201	Administering Microsoft Windows XP Professional	3
CNT 211	Administering and Managing Microsoft Windows 2003 Server	4
CNT 221	Implementing a Windows Server 2003 Network Infrastructure	3
CNT 224	Microsoft ISA Administration	4

Minimum Credits Required for the Program: 14 Credits

Notes:

This program is designed to be completed in a two semester time frame.

Computer Networking Operating Systems I (CVCNO)

This program lays a foundation in preparation for a profession as a Microsoft Certified Systems Administrator (MCSA) where students will install, configure, and troubleshoot Microsoft client-server networks. The program is designed to deploy and manage Windows 2003/XP components in real life situations.

Installing, configuring, testing, managing, monitoring, and troubleshooting of the Windows 2003/XP systems are all emphasized. Most importantly, specific activities are tested out on workstations to insure they work just as in a real business environment. The program is for both those who are working towards Microsoft certifications i.e., MCSA, MCSE and those who may already have the certifications and want to learn how to implement these technologies. Individuals who have an interest in learning Windows 2003/XP technologies are also welcome.

Program Admission Requirements:

Completion of the Computer Systems Technology program (CTCSTC) or CST 150 and CST 225 with a minimum grade of "C", passing the COMPTIA certification, or equivalent industry experience.

Major/Area Requirements		(16 Credits)
CNT 231	Administering Microsoft Windows 2000 Directory	4
CNT 241	Designing a Windows 2000* Directory Services Infrastructure	4
CNT 251	Designing Windows Security*	4
CNT 261	Planning a Windows Server 2003 Network*	4

Minimum Credits Required for the Program: **16 Credits**

Notes:

*CIS 291 can be substituted for any of the design courses listed above.

This program is designed to be completed in two semesters.

Computer Networking Operating Systems II (CVCN02)

This advanced certificate program lays a foundation for students in preparation for a profession as a Microsoft Certified Systems Engineer (MCSE). It is developed to emphasize the design, planning, and security associated with a Microsoft client/server network structure, which is the next step after mastering the implementing, managing, and administering topics which are covered in the Computer Networking Operating Systems I program. Courses include planning and maintaining an active directory service and planning and maintaining a Windows network infrastructure. The design course teaches about security for a Windows 2003 server.

Program Admission Requirements: Students must complete the Computer Networking Operating Systems I certificate or have equivalent industry experience.



General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Major/Area Requirements (42 Credits)

	Complete the Computer Systems Technology Certificate	(17 Credits)
CST 118	MC Command Line Fundamentals	2
CST 150	Computer Systems Technology I	5
CST 155	Computer Systems Technology II	5
CST 225	Computer Systems Technology III	3
	Complete ELE 174 ELE Co-op Education I or ELE 299 Customer Relations	2
	Complete the Computer Networking Academy I Advanced Certificate CNT 206, CNT 216, CNT 226, and CNT 236	(16 Credits)
	or	
	Complete the Computer Networking Operating Systems I Advanced Certificate CNT 201, CNT 211, CNT 221, and CNT 224	(14 Credits) 14-16
CIS 121	Linux/UNIX Fundamentals	3
CPS 120	Intro to Computer Science	3
	Complete 1-5 additional credits to bring the total to 60 credits	5

Minimum Credits Required for the Program: 60 Credits

Computer Networking (APCNTM)

Some employers require or prefer employees to have an associate degree as a condition for employment or for advancement. Students can earn an Associate in Applied Science Degree in Computer Networking by completing the requirements listed.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)*	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)**	3

*Choose one of the following courses: MTH 169, MTH 176, MTH 178, or MTH 181.

MTH 181 satisfies the requirements of EMU's Technology Management program.

**ENG 181 & 214 satisfy EMU's cross-cultural requirement.

Major/Area Requirements		(49 Credits)
CIS 121	Linux/UNIX Fundamentals	3
CNT 206	Internetworking I - Fundamentals	4
CNT 211	Administering and Managing Microsoft Windows 2003 Server	4
CNT 216	Internetworking II - Routers	4
CSS 180	Computer Security for PC's	4
CSS 200	Information Assurance I	4
CSS 205	Information Assurance II	4
CSS 210	Managing Network Security I	4
CSS 215	Managing Network Security II	4
CSS 220	Network Security Design	4
CSS 240	High-Technology Crime	3
INP 285	Web Server Security	3
CIS 286 or CNT 251	UNIX Systems Administration Designing Windows Security	4

Minimum Credits Required for the Program: 67 Credits

Computer Systems Security (APCSS)

This degree program is designed to prepare individuals to become highly skilled computer systems security professionals and to train individuals for entry level positions as Data Security Analysts, Systems Security Administrators, and Network Security Administrators. In this program, students will master the latest security technologies and will examine the issues of IT security awareness, data confidentiality, systems and network security planning, network security organization, and the legal and ethical issues associated with computer systems security. Students will also execute a vulnerability analysis of a network and will design security systems and implement a security strategy for a network.

Program Admission Requirements:

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a "C" or better to enter MTH 169.

Continuing Eligibility Requirements:

Students must maintain a grade of "C" or better in the program requirements.

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Computer Systems Technology (CTCSTC)

Certificate

Major/Area Requirements		(17 Credits)
CST 118	MC Command Line Fundamentals	2
CST 150	Computer Systems Technology I	5
CST 155	Computer Systems Technology II	5
CST 225	Computer Systems Technology III	3
ELE 174 or ELE 299	ELE Co-op Education I Customer Relations	2

Minimum Credits Required for the Program: 17 Credits

Computer Systems Technology (CTCSTC)

This program prepares students for employment as a microcomputer service technician. While preparing you to pass the Computer Technology Industry Association's (CompTIA) A+ certification examination, the program goes well beyond the requirements of the exam. Develop hands-on troubleshooting skills in solving hardware problems, working with operating systems, and relating to customers. This program also provides the foundation for Washtenaw Community College's two advanced certificates in computer networking.

Information Assurance (CTIA)

Certificate

Major/Area Requirements		(22 Credits)
CIS 121	Linux/UNIX Fundamentals	3
CNT 211	Administering and Managing Microsoft Windows 2003 Server	4
CSS 180	Computer Security for PC's	4
CSS 200	Information Assurance I	4
CSS 205	Information Assurance II	4
CIS 286 or CNT 221	UNIX Systems Administration Implementing a Windows Server 2003 Network Infrastructure	3

Minimum Credits Required for the Program: 22 Credits

Information Assurance (CTIA)

The Information Assurance program provides comprehensive instruction for students who wish to develop a career as a computer security professional, a field within the IT industry and business community in which there is a critical shortage of qualified personnel. With this program, students will develop the required knowledge and skills about information, computer, and network security. The student will become well-versed concerning issues in IT security awareness, data confidentiality, basic network security planning, network security technology, network security organization, and the legal and ethical issues associated with computer systems security. Students receive hands-on training in the methods, techniques, and tools for preventing network attacks. This program is a prerequisite for the Network Security Advanced Certificate program.

Program Admission Requirements:

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a grade of "C" or better.



Major/Area Requirements

(19 Credits)

CNT 251	Designing Windows Security	4
CSS 210	Managing Network Security I	4
CSS 215	Managing Network Security II	4
CSS 220	Network Security Design	4
INP 285	Web Server Security	3

Minimum Credits Required for the Program:

19 Credits

Network Security (CVNS)

This program provides comprehensive instruction for students who wish to enhance their skills in computer systems security technology and implementation. This program is designed to meet the emerging demand for highly-skilled computer systems security professionals within the information technology industry and business community. This advanced certificate program builds on the concepts introduced in Information Assurance, and provides an in-depth examination of computer security technology with an emphasis on executing a vulnerability analysis of an organization network and preparing a design or network security. The student will be trained to use various tools to manage and secure networks, Windows environments, and Web servers, as well as defense mechanisms for Virtual Private Networks (VPN), Host Intrusion Detection Systems (HIDS), and Network Intrusion Detection Systems (NIDS). In addition, the student will master the concepts, principles, types, and topologies of firewalls including packet filtering, proxy firewalls, application gateways, circuit gateways, and other computer security technology. Students must complete the Information Assurance Certificate program, or have equivalent knowledge, before enrolling in this program.

Program Admission Requirements:

CNT 206 Internetworking I - Fundamentals with a minimum grade of "C" or equivalent knowledge

CNT 216 Internetworking II - Routers with a minimum grade of "C" or equivalent knowledge

Completion of the Information Assurance Certificate with minimum GPA of 2.0 or equivalent knowledge



General Education Requirements		(19 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
MTH 169 or	Intermediate Algebra	
MTH 176 or	College Algebra	
MTH 181	Mathematical Analysis I*	4
Nat. Sci.	Elective(s)	3-4
PSY 100	Introductory Psychology	3
Arts/Human.	Elective(s)**	3

Major/Area Requirements		(37 Credits)
CIS 100	Introduction to Software Applications ***	3
CIS 110	Introduction to Computer Information Systems	3
CIS 121	Linux/UNIX Fundamentals	3
CIS 290	Microcomputer System Support	4
CNT 201	Administering Microsoft Windows XP Professional	3
CST 118	MC Command Line Fundamentals	2
CST 150	Computer Systems Technology I	5
CST 155	Computer Systems Technology II	5
CST 225	Computer Systems Technology III	3
ELE 299	Customer Relations	2
	Complete one course from: CPS 120, CPS 171, CPS 185, CIS 175	3-4
	Complete one course from: CIS 174, CIS 221, CIS 265, CIS 286, or COM 102	1-4

Required Support Courses		(8 Credits)
BMG 200	Human Relations in Business	3
ENG 245	Career Practices Seminar	2
	Complete one course from: BMG 150, BMG 106, BMG 208, BMG 230, BMG 240	3

Minimum Credits Required for the Program: 64 Credits

Notes:

*MTH 181 satisfies the requirements of EMU's Technology Management program

**ENG 181 and ENG 214 satisfy EMU's cross cultural requirement

***CIS 100 can be substituted with BOS 157, BOS 182 or BOS 183.

Microcomputer System Support (APMSS)

This program prepares students for jobs supporting the end-user in hardware and software matters, and analyzing the user's needs and implementing the application packages best suited for the situation. This program also emphasizes communications skills. Students interested in transferring into Eastern Michigan University's Technology Management program should choose from among the courses listed in the footnotes below.

Program Admission Requirements:

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a grade of "C" or better to enroll in MTH 169. One year of high school algebra is recommended.

Students must complete a high school course in word processing and spreadsheets or CIS 100 with a grade of "C" or better, or receive permission of the instructor to enroll in CIS 110.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Major/Area Requirements		(12 Credits)
CIS 204	Linux Installation and Configuration	3
CIS 206	Linux System Administration	3
CIS 208	Linux Networking	3
CIS 210	Linux Security and Privacy	3

Minimum Credits Required for the Program: 12 Credits

Notes: The following sequence of courses is recommended. Please check course descriptions for pre and co-requisites:

I	II
CIS 204	CIS 208
CIS 206	CIS 210

Linux Systems (CVLINS)

This program is designed for students seeking jobs installing, configuring, and managing the Linux operating system. It prepares individuals for employment as highly skilled and competent Linux system administrators. As a universal operating system, Linux is used in varied production environments such as hosting commercial Web sites, and developing computer-generated feature films. Through the experiences provided by this program, students will acquire the knowledge and skills necessary for employment. They will have opportunities to develop specific skills including: configure mail, print, and network services; manage access of users and groups; write shell scripts; perform backups; and implement intrusion detection and system hardening techniques. These skills can be applied to jobs such as computer operator, system administrator, data recovery planner, Web server administrator, and computer security administrator. This certificate program prepares students for any of three industry certifications in Linux technology: Linux Professional Institute (LPI); Software Architecture Implementation and Realization (SAIR); and Redhat Certified Engineer (RHCE). This program emphasizes systems management through network administration, installation and configuration, and security and privacy.

Program Admission Requirements:
Completion of the Unix Systems Certificate.



Major/Area Requirements

(10 Credits)

CIS 121	Linux/UNIX Fundamentals	3
CIS 221	UNIX Tools and Scripts	3
CIS 286	UNIX Systems Administration	4

Minimum Credits Required for the Program:

10 Credits

Notes: The following sequence of courses is recommended. Please check course descriptions for pre and co-requisites:

I	II
CIS 121	CIS 221
	CIS 286

Unix Systems (CTUNX)

This program prepares students for jobs installing, configuring, and managing various UNIX and Linux operating systems. They will learn about UNIX/Linux file and directory organization, basic and advanced commands, shell scripting, networking, UNIX/Linux system administration and more. These skills can be applied to the related jobs of computer operator, system administrator, data recovery planner, and computer security coordinator.

Program Admission Requirements:

Students must complete CIS 110 or CPS 120 with a grade of "C" or better or have equivalent knowledge.



Construction and Related Trades

Degree and Certificate Programs

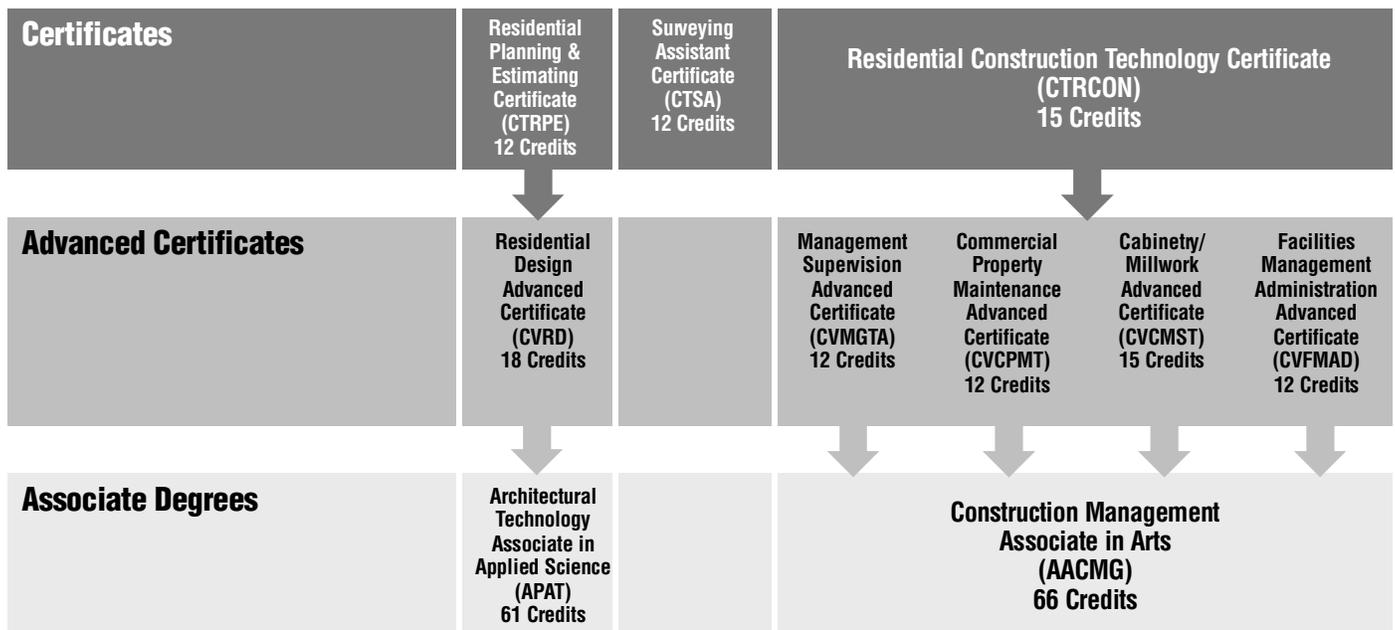
Two general strands of programs are found in the area of Construction and Related Trades: Design and Architectural Technology and Construction. Each strand begins with a basic certificate, and offers continuing coursework that leads to associate degrees. All programs are designed to broaden students' employment opportunities.

The core of all the programs in this area is the Residential Construction Technology Certificate. This certificate provides basic knowledge and skills, which can be developed in several directions. Other certificates include: Residential Planning and Estimating and Surveying Assistant.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some career fields. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree. Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Architectural Technology (APAT)

Associate in Applied Science

General Education Requirements		(19 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)*	3-4
PHY 105	Conceptual Physics	4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Major/Area Requirements		(41 Credits)
ARC 100	Specifications	1
ARC 101	Graphic Communication for the Construction Industry	3
ARC 102	Architectural CAD	2
ARC 109	Surveying Layout I	3
ARC 111	Architectural Drawing I	3
ARC 117	Construction Materials	3
ARC 120	Mechanical & Electrical Systems for Buildings	3
ARC 122	Architectural Drawing II	3
ARC 227	Estimating Construction Costs	3
	Complete a minimum of 17 credits from: ARC 150, ARC 174, ARC 210, ARC 213, ARC 218, ARC 224, ARC 274, BMG 109, BMG 209, BMG 230, BMG 291, CMG 130, CMG 150 **	17

Minimum Credits Required for the Program: 60 Credits

Notes:

*For Math, MTH 152 is recommended

**Students planning to transfer must consult with a program advisor before choosing classes.

Please check course descriptions for pre and co-requisites

Architectural Technology (APAT)

This program prepares students for positions as an architectural drafting technician where they will prepare detailed drawings based on rough sketches, specifications, and calculations made by scientists, engineers, architects, and designers. Students will also calculate the strength, quality, quantity, and cost of materials.

Program Admission Requirements:

Students must have a minimum score of 46 on the COMPASS Algebra test or complete MTH 097 with a grade of "C" or better to enroll in MTH 152. One year of high school algebra is recommended.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.





Cabinetmaking/Millwork Systems Technology (CVC MST)

Advanced Certificate

Major/Area Requirements		(15 Credits)
ARC 170	Cabinetry and Millwork Design	3
CON 170	Introduction to Cabinetry and Millwork	3
CON 173	Cabinet Making Principles and Concepts	3
CON 175	Cabinet Making Fabrication	3
CON 275	Finishing Concepts and Processes	3

Minimum Credits Required for the Program: 15 Credits

Cabinetmaking/Millwork Systems Technology (CVC MST)

According to the National Careers Education and Research Institute, the growth in the housing industry has created a demand for skilled precision wood workers. This program is designed to develop skills and knowledge needed for those positions. Students will develop skills related to the design, fabrication, and installation of interior cabinetry and trim systems for residential construction. The program will provide access to specialty careers as trim carpenters, cabinet-makers, furniture makers, and repair technicians.

Program Admission Requirements: Students must complete the Residential Construction Technology Certificate to be admitted into the program.

Commercial Property Maintenance Technology (CVC PMT)

Advanced Certificate

Major/Area Requirements		(12 Credits)
CON 130	Commercial Property Maintenance I	3
CON 133	Commercial Property Maintenance II	3
CON 135	Commercial Property Maintenance III	3
CON 137	Commercial Property Maintenance IV	3

Minimum Credits Required for the Program: 12 Credits

Commercial Property Maintenance Technology (CVC PMT)

With the growth of the construction industry, there is an increased demand for skilled maintenance personnel. This program prepares students for careers in Commercial Property Maintenance. It is designed for career advancement in Facility Management Administration as well as supervisory positions in commercial properties maintenance in multi-family housing, high rise apartments and business centers, hotels and recreational/leisure centers, hospitals, educational institutions, and municipal agencies. Students who complete the program, can advance in their career paths by completing the Construction Management, Facility Management Administration, and Heating Ventilating and Air Conditioning certificate programs.

Program Admission Requirements: Students must complete the Residential Construction Technology certificate to be admitted into the program.



General Education Requirements (30 Credits)

ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
MTH 160	Basic Statistics	4
PHL 205	Ethics	3
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
CEM 105 or CEM 111	Fundamentals of Chemistry General Chemistry I	4
ENG 181 or ENG 214	African American Literature Literature of the Non-Western World	3

Major/Area Requirements (15 Credits)

ARC 117	Construction Materials	3
CMG 130	Construction Site Safety and MIOSHA Regulations	3
CMG 150	Introduction to Construction Management	3
CMG 170	Construction Graphics	3
CMG 200	Construction Systems	3

Required Support Courses (21 Credits)

ACC 111	Principles of Accounting I	3
BMG 207	Business Communication	3
BMG 240	Human Resources Management	3
CIS 100	Introduction to Software Applications	3
ECO 211	Principles of Economics I	3
MTH 178	General Trigonometry	3
BMG 106 or BMG 111	Legal Basics in Business Business Law I	3

Minimum Credits Required for the Program: 66 Credits

Construction Management (AACMG)

This program prepares students for entry-level jobs in the construction industry as well as for transfer to a bachelor's degree program in construction management at a four-year college or university. Students who transfer will continue developing the skills needed to work for construction contractors, engineering/architectural firms, public agencies, or trade associations in positions such as office engineer, field engineer, safety engineer, project engineer, foreman, estimator, scheduler, expeditor, quality control engineer, inspector, material representative or independent contractor. The program transfers to Eastern Michigan University and Ferris State University. In addition to the required courses within the degree program, students may transfer additional courses taken at WCC that will be applied to Technical, Business and Math/Science requirements for the bachelor's degree program at Eastern Michigan University.

Articulation:

This program has articulation agreements with:

- Eastern Michigan University, College of Technology, for the Bachelor of Science in Construction Management.
- Ferris State University, College of Technology, for the Bachelor of Science in Construction.
- The program meets MACRAO plus EMU's additional four requirements. Students must have their WCC transcripts endorsed for MACRAO completion.
- Copies of articulation agreements can be obtained from the Counseling Office or a program advisor.

Program Admission Requirements:

A minimum COMPASS Algebra score of 66, or MTH 169 with a "C" or better is required to enroll in CMG 150 and MTH 160. Two years of high school algebra is recommended.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Facility Management Administration (CVFMAD)

Advanced Certificate

Major/Area Requirements		(12 Credits)
FMA 101	Introduction to Facility Management	3
FMA 103	Building Systems I	3
FMA 105	Building Systems II	3
FMA 107	Facility Management Technology	3

Minimum Credits Required for the Program: 12 Credits

Facility Management Administration (CVFMAD)

This program prepares students for jobs in the field of facility management where they will manage corporate property assets. The program provides students with skills and knowledge in managing real property assets specifically in the design, operation, and maintenance of building systems. Management of the work environment, planning and project management, real estate, and general service activities are covered.

Program Admission Requirements: Students must complete the Residential Construction Technology Certificate to be admitted into the program.

Field Superintendent (CVFDSP)

Advanced Certificate

Major/Area Requirements		(15 Credits)
ARC 227	Estimating Construction Costs	3
BMG 230	Introduction to Supervision	3
BMG 291	Project Management	3
CMG 150	Introduction to Construction Management	3
CON 190	Building Codes and Quality Control	3

Minimum Credits Required for the Program: 15 Credits

Field Superintendent (CVFDSP)

With the continuing growth of the residential building industry, supervisory personnel are needed to manage the new projects and developments. This program will prepare the practicing professional to advance into positions of increasing responsibility in those positions. It will develop supervisory and administrative skills for Leadworkers, Foremen, and Superintendents. Students who complete the program will be able to work in positions such as a Superintendent, Project Manager, or Construction Office Manager or to start their own construction business.

Program Admission Requirements: Students must complete the Residential Construction Technology Certificate to be admitted into the program.



Residential Construction Technology (CTRCON)

Certificate

Major/Area Requirements		(15 Credits)
ARC 101	Graphic Communication for the Construction Industry	3
CON 104	Construction I	3
CON 105	Construction II	3
CON 204	Construction III	3
CON 205	Construction IV	3

Minimum Credits Required for the Program: 15 Credits

Notes:

Students can earn an associate degree in Residential Construction Technology by following the Occupational Studies Program.

Residential Construction Technology (CTRCON)

This program prepares you for entry-level jobs in a broad range of careers in the construction industry, where you'll need an understanding of building systems, the safe use of tools and equipment, materials, and the vocabulary of the field. This program also gives you the potential for being selected for one of the many apprentice classifications associated with the construction field.

Residential Design (CVRD)

Advanced Certificate

Major/Area Requirements		(12 Credits)
ARC 000	Architectural Studio	0
ARC 109	Surveying Layout I	3
ARC 111	Architectural Drawing I	3
ARC 120	Mechanical & Electrical Systems for Buildings	3
ARC 122	Architectural Drawing II	3

Minimum Credits Required for the Program: 12 Credits

Residential Design (CRVD)

This program prepares students for jobs as an architectural drafting detailer where students are expected to draw each part shown on a layout by giving dimensions, materials, and any other necessary information to make the drawing clear and complete.

Program Admission Requirements: Students must complete the Residential Planning and Estimating certificate to be admitted into the program.



Residential Planning and Estimating (CTRPE)

Certificate

Major/Area Requirements		(12 Credits)
ARC 100	Specifications	1
ARC 101	Graphic Communication for the Construction Industry	3
ARC 102	Architectural CAD	2
ARC 117	Construction Materials	3
ARC 227	Estimating Construction Costs	3

Minimum Credits Required for the Program: 12 Credits

Residential Planning and Estimating (CTRPE)

Construction is one of the nation's largest industries and the need for skilled workers in the field is expected to increase. Students in the Residential Planning and Estimating program will learn the skills needed for these positions: blueprint reading, basic architectural design, and basic CAD. The program prepares students for positions in residential construction planning where they will schedule work, research products, develop bills of materials or estimates, and prepare proposals.

Surveying Assistant (CTSA)

Certificate

Major/Area Requirements		(12 Credits)
ARC 109	Surveying Layout I	3
ARC 143	Surveying Layout II	3
ARC 209	Surveying Layout III	3
ARC 243	Surveying Layout IV	3

Minimum Credits Required for the Program: 12 Credits

Surveying Assistant (CTSA)

This program will provide technical training in the area of Surveyor's Assistant. Surveying technicians assist surveyors in making precise measurements of the earth's surface for the purpose of establishing property boundaries, subdividing land parcels, creating maps of land and water forms for planning, navigation and general use, and the layout and control of construction projects. Technicians are familiar with the operation of sophisticated optical and electronic surveying instruments needed for compiling this information. Surveying technicians may work for private engineering and land surveying firms. They may also find jobs with local and state governmental agencies.



Criminal Justice

Degree Program

The Associate in Applied Science degree in Criminal Justice – Law Enforcement prepares students for certification in law enforcement jobs in the State of Michigan.

Associate Degree

**Criminal Justice – Law Enforcement
Associate in Applied Science
(APCJLE)
60 Credits**



General Education Requirements		(20 Credits)
ENG 100 or	Communication Skills	
ENG 111	Composition I	4
COM 102	Interpersonal Communication	3
MTH 151 or	Technical Algebra	
MTH 160 or	Basic Statistics	
MTH 169	Intermediate Algebra	4
Nat. Sci.	Elective(s)	3
PSY 100 or	Introductory Psychology	
PSY 200	Child Psychology	3
Arts/Human.	Elective(s)	3

Major/Area Requirements		(40 Credits)
CJT 100	Introduction to Criminal Justice	3
CJT 111	Police/Community Relations	3
CJT 120	Criminal Justice Ethics	3
CJT 160	Criminal Justice Constitutional Law	3
CJT 221	Law Enforcement Training	16
CJT 224	Criminal Investigation	3
CJT 225	Seminar in Criminal Justice	3
PEA 102	Cardiovascular Training	1
PEA 105	Weight Training-Cybex/Free Weights	2
Elective	Complete one course from the following: SOC 100, SOC 202, SOC 205, SOC 207, SOC 250, or CJT 223	3

Note: It is recommended that students take one or two semesters of Spanish in addition to the program requirements.

Minimum Credits Required for the Program: 60 Credits

Note:

The following sequence of courses is recommended for Criminal Justice courses:

I	II	III	IV
CJT 100	CJT 111	CJT 224	CJT 221
CJT 120	CJT 160	CJT 225	

Criminal Justice - Law Enforcement (APCJLE)

This program prepares students for certification to work in law enforcement jobs in the State of Michigan. You must complete the academic program prior to entering the Police Academy component of the program.

Continuing Eligibility Requirements:

- Admission to the Police Academy component of this program (CJT 221) is based on passing reading, writing, and physical activity examinations as well as fingerprinting and criminal history checks.
- Students who do not enter the academy may complete the Criminal Justice Associate in Arts Degree instead of the Criminal Justice Law Enforcement Associate in Applied Science Degree, and will not be certified for employment.
- Students admitted to the Police Academy are required to purchase gym clothes, khaki uniforms, textbooks, and other supplies.
- Academy students are required to adhere to additional rules of behavior and discipline beyond the general code of conduct.
- Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Culinary Arts

Degree and Certificate Programs

The Culinary Arts programs of study reflect current market demand and provide the student with the necessary skills for immediate entry into employment. There are three fields of study in Culinary Arts that can lead to an associate degree in Culinary and Hospitality Management or Management Supervision. Students can also apply the credits from the certificates and degree to continued study at a transfer university. These programs have produced award-winning students, ready to enter rewarding careers.

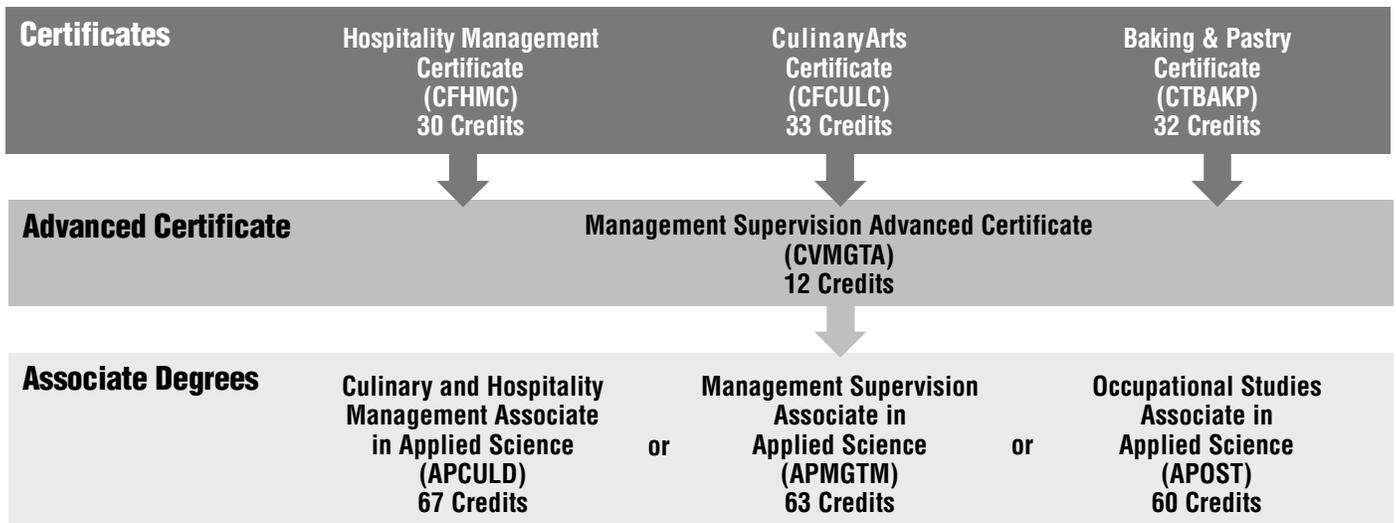
Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for

these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Major/Area Requirements		(32 Credits)
CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene*	3
CUL 114	Baking I	3
CUL 115	Pastry I	3
CUL 118	Principles of Nutrition	3
CUL 120	Culinary Skills	3
CUL 121	Introduction to Food Preparation Techniques	3
CUL 124	Baking II	3
CUL 125	Pastry II	3
CUL 130	Beginning Cake Decorating	1
CUL 131	Wedding Cake Design	1
CUL 224	Principles of Cost Control	3

Minimum Credits Required for the Program: 32 Credits

Notes:

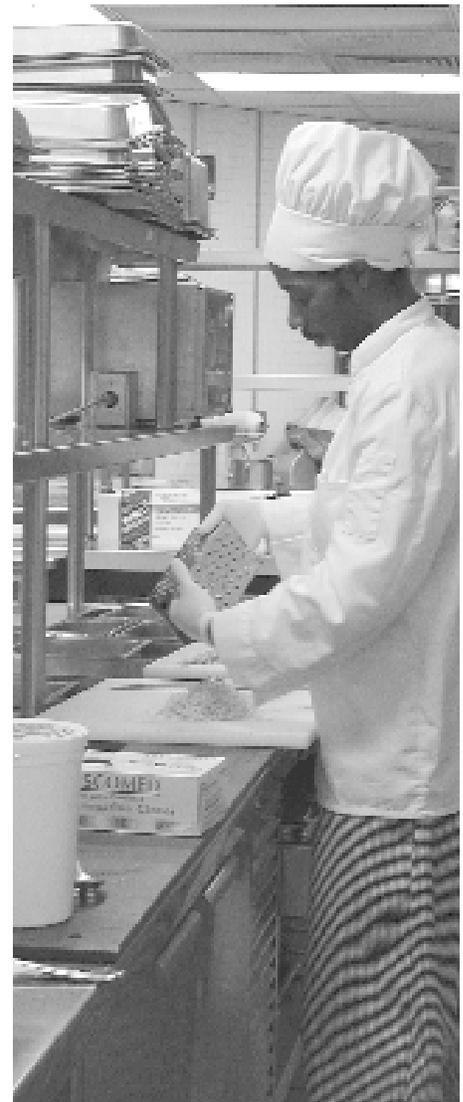
*CUL 110 must be taken as a pre- or co-requisite with any of the lab classes: CUL 114, CUL 115, CUL 120, CUL 121.

The following sequence of courses is recommended for Culinary Arts courses. Please check course descriptions for pre and co-requisites:

I	II	III
CUL 100	CUL 120	CUL 125
CUL 110	CUL 121	CUL 130
CUL 114	CUL 124	CUL 131
CUL 115	CUL 224	
CUL 118		

Baking and Pastry (CTBAKP)

This program prepares students for careers in commercial baking, where they will work in retail deli-bakeries, country clubs, resorts, hotels, and institutional food service operations. Courses can be applied toward the Associate in Applied Science Degree in Culinary and Hospitality Management.



CULINARY ARTS PROGRAMS

Major/Area Requirements

(33 Credits)

CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene**	3
CUL 114	Baking I	3
CUL 118	Principles of Nutrition	3
CUL 120	Culinary Skills	3
CUL 121	Introduction to Food Preparation Techniques	3
CUL 150	Food Service Management	3
CUL 151	Food Service Marketing	3
CUL 210	Garde Manger*	3
CUL 230	Quantity Food Production	3
CUL 231	A La Carte Kitchen	3

Culinary Arts (CFCULC)

This program prepares students for a position as a food production specialist in a hotel, restaurant, or institution, where sauteing, roasting, broiling, baking, vegetable preparation, producing soups and sauces, food storage, and sanitation will be among the skills you will use. The program also gives students a foundation for continued study toward an Associate in Applied Science in Culinary and Hospitality Management.

Minimum Credits Required for the Program:

33 Credits

Notes:

*CUL 210 is offered in spring semesters only

**CUL 110 must be taken as a pre- or co-requisite with any of the lab classes: CUL 114, CUL 115, CUL 120, CUL 121.

Recommended sequence for Culinary Arts courses:

I	II	IS
CUL 100	CUL 114	CUL 210*
CUL 110**	CUL 150	
CUL 118	CUL 151	
CUL 120	CUL 230	
CUL 121	CUL 231	



Major/Area Requirements

(30 Credits)

BMG 207	Business Communication	3
CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene*	3
CUL 118	Principles of Nutrition	3
CUL 150	Food Service Management	3
CUL 151	Food Service Marketing	3
CUL 220	Organization/Management of Food Systems	3
CUL 224	Principles of Cost Control	3
CUL 250	Principles of Beverage Service	3
CUL 174	Co-op Education I	3

Minimum Credits Required for the Program:

30 Credits

*Notes: *CUL 110 must be taken as a pre- or co-requisite with any of the lab classes: CUL 114, CUL 115, CUL 120, CUL 121.*

<i>I</i>	<i>II</i>	<i>IS</i>
<i>CUL 100</i>	<i>CUL 174</i>	<i>CUL 250</i>
<i>CUL 110</i>	<i>CUL 220</i>	
<i>CUL 118</i>	<i>CUL 224</i>	
<i>CUL 150</i>	<i>BMG 207</i>	
<i>CUL 151</i>		

Hospitality Management (CFHMC)

This program prepares students for an entry level supervisory position in the hospitality management industry such as a dining room manager in a restaurant, country club, hotel, or retirement community. This certificate also equips students with the skills needed for an entry level position in banquet and catering sales. In addition, it provides a foundation for continued study toward an Associate in Applied Science in Culinary and Hospitality Management, or serves as the first year study toward a 1+ 3 transfer toward a baccalaureate degree at a four-year college or university.



General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
MTH 163	Business Mathematics	3
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Students who earn a certificate prior to entering the degree program need to select all 3 credit hour courses in the General Education requirements area.

Major/Area Requirements		(49 Credits)
CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene**	3
CUL 114	Baking I	3
CUL 118	Principles of Nutrition	3
CUL 120	Culinary Skills	3
CUL 121	Introduction to Food Preparation Techniques	3
CUL 150	Food Service Management	3
CUL 151	Food Service Marketing	3
CUL 210	Garde Manger*	3
CUL 220	Organization/Management of Food Systems	3
CUL 224	Principles of Cost Control	3
CUL 228	Layout and Equipment*	3
CUL 230	Quantity Food Production	3
CUL 231	A La Carte Kitchen	3
CUL 115 or CUL 124	Pastry I Baking II	3
CUL 125 or CUL 227 or CUL 250	Pastry II Advanced Culinary Techniques Principles of Beverage Service*	2 - 3
Elective	CUL 174 Co-op Education I***	2

Minimum Credits Required for the Program: 67 Credits

Notes:

*CUL 210, CUL 228 and CUL 250 are offered in spring semesters only

**CUL 110 must be taken as a co-requisite with any of the lab classes: CUL 114, CUL 115, CUL 120, CUL 121.

***Students who earn a certificate in Hospitality Management prior to entering the degree program, do not need to take CUL 174. Students who earn a certificate in Baking and Pastry, need to take CUL 174 as a one credit course. Students who earn a certificate in Culinary Arts, need to take CUL 174 as a two credit course.

The following sequence of courses is recommended for Culinary Arts courses. Please check course descriptions for pre and co-requisites:

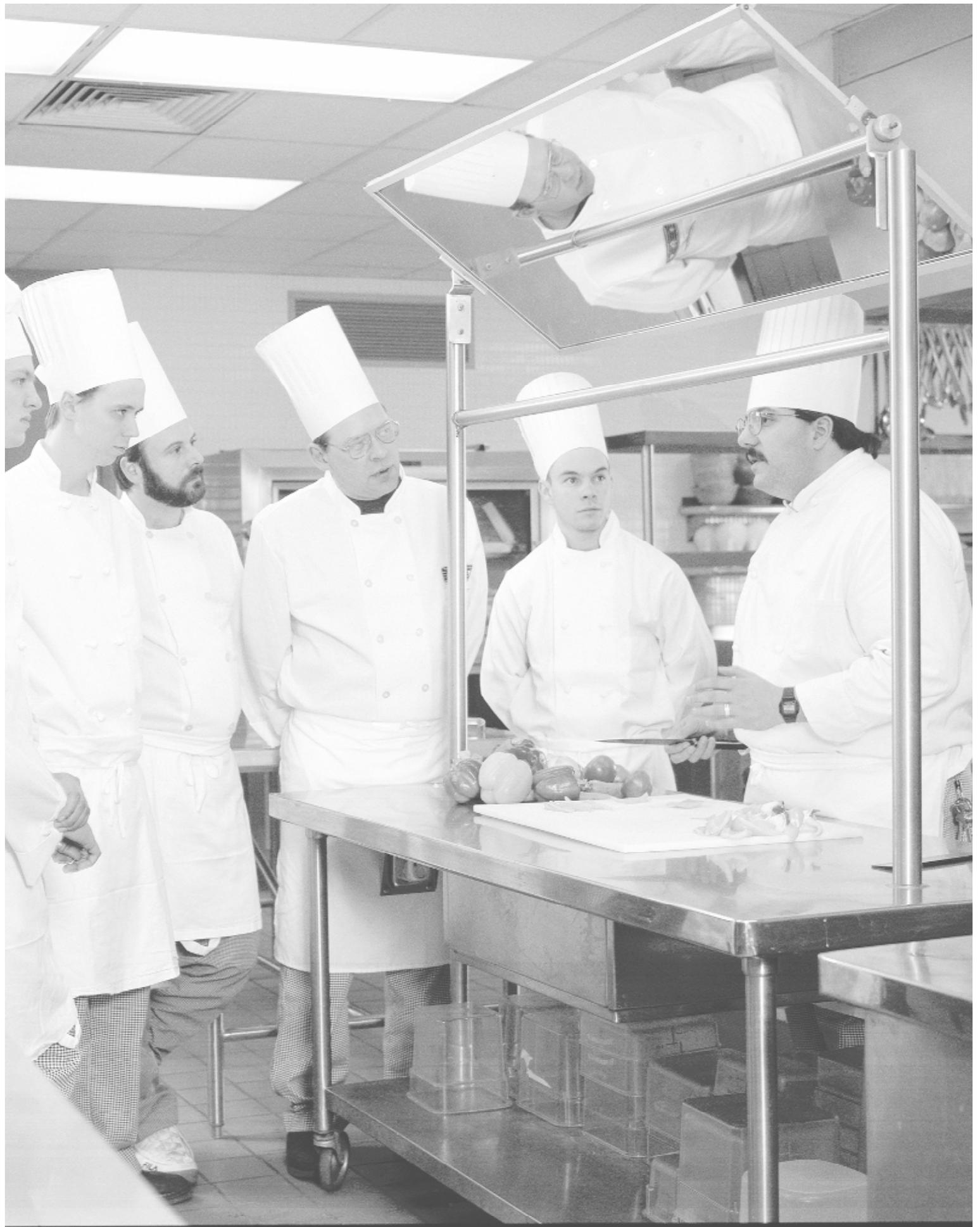
IF	IW	IS	2F	2W
CUL 100	CUL 114	CUL 210*	(CUL 115 or CUL 124)	CUL 174
CUL 110	CUL 150	CUL 228*	CUL 224	(CUL 125 or CUL 227 or CUL 250*)
CUL 118	CUL 151		CUL 230	
CUL 120	CUL 220		CUL 231	
CUL 121				

Culinary and Hospitality Management (APCULD)

This program prepares students for a career as a professional culinarian in a restaurant, hospitality, or institutional setting. Culinary Arts professionals have a variety of responsibilities that may include supervising and coordinating the activities of food service workers or dining room employees, planning menus, estimating daily or weekly needs, ordering and maintaining inventories of supplies and equipment, and keeping records of meals served. The program also provides a foundation for continued culinary arts studies at a four-year college and for chef certification through the American Culinary Federation (ACF).

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



Health

Degree and Certificate Programs

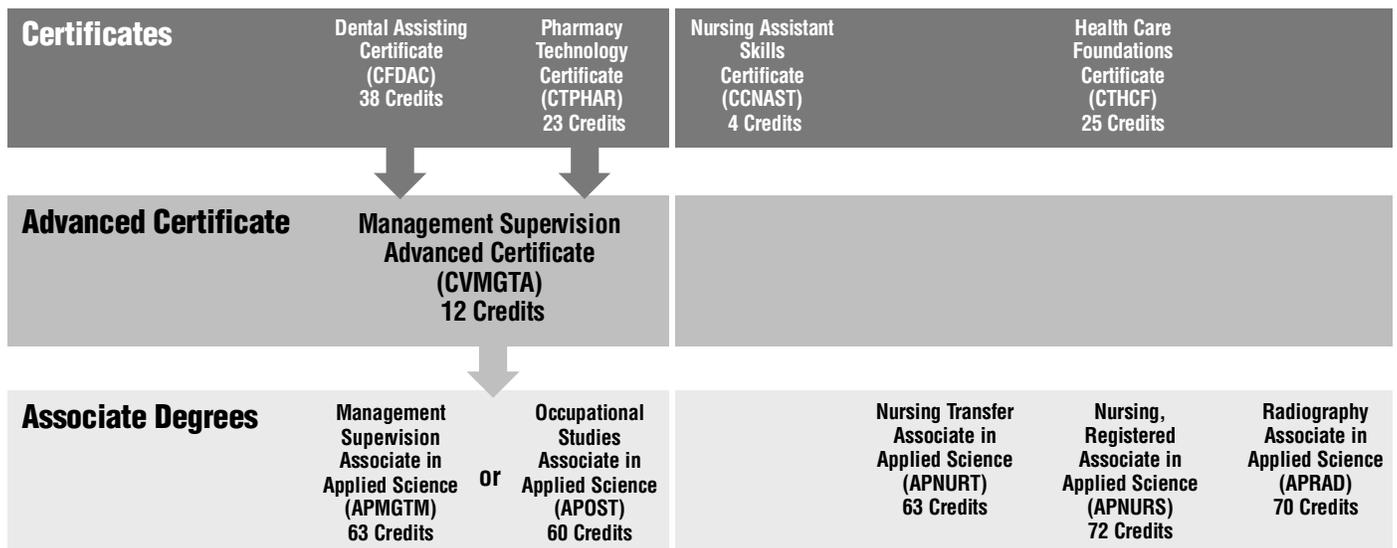
The Health programs currently offer four certificate options, one advanced certificate option, and five associate degree options. The certificate programs include: Nursing Assistant Skills; Dental Assisting; Pharmacy Technology; and Health Care Foundations. These programs are designed to meet the growing demand for highly skilled employees in health-related jobs. Within the Health fields of study, students can enter the workforce after earning a certificate, and upgrade their skills later by earning an advanced certificate or associate degree while working. Associate degrees include: Registered Nursing; Nursing Transfer; Radiography; Management Supervision; and Occupational Studies.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements



First Semester (15 Credits)

DEN 102	Managing Safe Practice in Dentistry	1
DEN 106	Biomedical Science for Dental Assistants	2
DEN 107	Oral Anatomy	2
DEN 108	Dental Radiography	1
DEN 109	Oral Hygiene	1
DEN 110	Basic Clinical Dental Assisting	4
DEN 112	Dental Materials	4

Second Semester (13 - 14 Credits)

DEN 119	Dental Nutrition	1
DEN 120	Oral Diagnosis Theory	1
DEN 128	Dental Radiography Practicum	1
DEN 129	Oral Pathology and Dental Therapeutics	2
DEN 130	Clinical Practice	1
DEN 131	Principles of Dental Specialties	4
Elective	COM 101, COM 102, ENG 100, ENG 107, ENG 111, ENG 226	3 - 4

Third Semester (10 Credits)

DEN 202	Advanced Clinical Practice	3
DEN 204	Advanced Functions	4
DEN 212	Dental Practice Management	3

Minimum Credits Required for the Program:38 Credits



Dental Assisting (CFDAC)

This program prepares students for dental assisting positions in a variety of settings such as private dental offices, dental schools, the military, and dental insurance offices. The program prepares students for both the Dental Assistant National Board examination and the Michigan State Board of Dentistry examination. As a Certified Dental Assistant, you assist in the treatment of patients and participate in all functions of dentistry. As a Registered Dental Assistant in the State of Michigan, you can perform specified intra-oral functions normally performed by a dentist. Successful completion of the required dental radiography courses also gives individuals Michigan State Board of Dentistry authorization to expose dental radiographs.

Students may enroll in this program in one of three pathways. Pathway I Option A is the format for the student who is not employed in a dental office. Pathway I Option B is the format for the student who is a new dental assistant employee with less than two years of experience in the dental office. Pathway II is the advanced standing option for the dental assistant with two or more years of experience as a dental assistant who has passed the Dental Assistant National Board (DANB) examination. These pathways are described in detail at <http://www.wccnet.edu/dental>

Applying for Admission to the Program

Application packets may be picked up from the WCC Office of Admissions, or downloaded from the WCC Web site. Applicants will be screened based on the following criteria:

- Submission of a completed application for admission to the Dental Assisting Program
- Date of application to the program
- Washtenaw County residency

Program Admission Requirements

For Pathways IA and B

Applicants must possess a valid high school diploma or GED to start the program. Applications will be accepted prior to high school graduation or GED completion.

- The following high school courses or WCC equivalents should be completed with a grade of "C" or better:
- One year of high school biology or BIO 101 (Concepts of Biology)
- One semester of high school word-processing, database, and spreadsheet applications or CIS 100 (Intro to Software Applications)
- Admission to the Dental Assisting program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Dental Assisting program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Dental Assisting program.
- Advanced-standing students must successfully pass the Dental Assisting National Board examination (DANB).

Continuing Eligibility Requirements

- Program courses are sequential and complemented with appropriate support courses. All courses must be completed with a grade of "C" or better in order to graduate from this program.
- A current CPR card is required prior to enrolling in DEN 130.
- All students must demonstrate proficiency in the English language prior to placement in clinical courses. Please refer to the admissions packet for details.

Nursing Assistant Skills Training (CCNASt)

Certificate of Completion

Major/Area Requirements		(4 Credits)
HSC 100	Basic Nursing Assistant Skills	4
Minimum Credits Required for the Program:		4 Credits

Nursing Assistant Skills Training (CCNASt)

This state certified students three-week program prepares students for employment in a variety of health care settings from nursing homes to hospitals where they will work as a certified nurse aide (CNA). CNA evaluation is mandated for employment in long-term care facilities. Upon completion of the program, individuals will be qualified for multiple job opportunities with good starting salaries. Positions frequently offer flexibility and variety, as well as a sense of self-satisfaction for "making a difference" in a person's health.

Program Admission Requirements:

Training takes place in the classroom, lab, and clinical settings within the community. One-hundred percent (100%) attendance is mandatory. There are no make-up days. Students are expected to have their textbook on the first day of class. Program admission requires a minimum age of 17 and documentation of a negative TB status. A criminal background clearance check is required which will be done in the agency/clinical. Entry assessment testing is required.

Health Care Foundations (CTHCF)

Certificate

Major/Area Requirements		(25 Credits)
CEM 057	Introductory Chemistry	3
CEM 058	Introductory Chemistry Lab	1
CIS 100	Introduction to Software Applications	3
ENG 111	Composition I	4
HSC 101	Healthcare Terminology	1
HSC 131	CPR/FPR and First Aid	1
MTH 097	Introductory Algebra	5
BIO 101 or	Concepts Of Biology	
BIO 102	Human Biology	4
COM 101 or	Fundamentals of Speaking	
COM 102	Interpersonal Communication	3
Minimum Credits Required for the Program:		25 Credits

Health Care Foundations (CTHCF)

This program will help students acquire basic knowledge and skills in algebra, biology, chemistry, communication, medical terminology, and computer applications. The certificate fulfills major pre-admission requirements for Nursing, Radiography, and general education requirements for Associate in Science and Associate in Applied Science degrees.

First Semester (15 Credits)

ENG 111	Composition I	4
NUR 122	Nursing as a Societal and Interpersonal Profession	4
PSY 100 or SOC 100	Introductory Psychology / Principles of Sociology	3
CEM 105 or CEM 111	Fundamentals of Chemistry / General Chemistry I	4

Second Semester (16 Credits)

BIO 111	Anatomy and Physiology	5
BIO 237	Microbiology	4
MTH 167	Math Applications for Health Science	3
NUR 130	Health Promotion & Risk Reduction	4

Third Semester (14 Credits)

HSC 147	Growth and Development	3
HSC 220	Pathophysiology	4
NUR 102	Fundamentals of Nursing	2
NUR 103C	Fundamentals of Nursing - Clinical	1
NUR 103L	Fundamentals of Nursing - Lab Practice	1
	Complete a second course in Psychology or Sociology	3

Fourth Semester (17 Credits)

CEM 140	Organic Biochemistry	4
COM 200	Family Communication	3
NUR 115	Pharmacology**	3
NUR 222	Health Assessment Throughout the Lifespan	4
PHL 244	Ethical and Legal Issues in Health Care	3

Minimum Credits Required for the Program: 62 Credits

Notes:

*Students must take two courses in the same discipline.

**May be taken in the first or second semester with advisor permission.

Nursing Transfer (APNURT)

This program prepares students for a smooth transition into the third and fourth years of the University of Michigan (UM) School of Nursing's Bachelor of Science in Nursing program. Individuals will receive a solid science foundation and begin taking nursing courses during the first two years at WCC. Students will not be eligible for registered nurse (RN) licensure until completion of the UM program.

Articulation

This program has an articulation agreement with the University of Michigan, School of Nursing for the Bachelor of Science in Nursing. See the Health Programs Counselor for more information on this agreement. Students who wish to transfer to nursing programs at other four-year colleges or universities should check with an advisor or counselor at that institution to ensure the transferability of courses.

Program Admission Requirements

- Fifteen (15) students are admitted each Fall semester to the Nursing Transfer Program.
- Students applying to the Nursing Transfer program must meet the admission requirements of both WCC and the UM School of Nursing.
- Students must have a minimum high school GPA of 3.4 and SAT scores above 1000 or an ACT composite score above 21. They must have earned a grade of at least a "B" in all high school science courses.
- Required high school work:
 Three units of English
 Three units of Math
 Two units of laboratory science, including chemistry and biology
 Four units of foreign language and/or social science and/or laboratory science
 Four units of other academic courses

Continuing Eligibility Requirements

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

This transfer program is designed for full-time students. WCC students must demonstrate the ability to carry a full-time course load by maintaining a minimum full-time enrollment of 12 credit hours with a 3.0 GPA in at least two terms in the 12 months prior to transfer to the U-M School of Nursing. Each of these two terms must include a transferable science course and one clinical course. In order to gain admittance to the U-M School of Nursing, students must have the following:

- 3.0 cumulative GPA in all prior post-secondary academic experiences
- 3.0 cumulative GPA at WCC
- Overall 3.0 GPA in all transferable science/clinical courses
- Associate in Applied Science degree from WCC

*See the Health Programs Counselor for more information on this agreement. Students who wish to transfer to nursing programs at other four-year colleges or universities should check with an advisor or counselor at that institution to ensure the transferability of courses.

First Semester (18 Credits)

BIO 111	Anatomy and Physiology*	5
ENG 107	Technical Writing**	3
HSC 101	Healthcare Terminology*	1
HSC 147	Growth and Development*	3
MTH 167	Math Applications for Health Science*	3
NUR 101	Introduction to Nursing	1
NUR 104	Nursing of the Older Adult	2

Second Semester (14 Credits)

BIO 147	Hospital Microbiology**	1
HSC 138	General and Therapeutic Nutrition*	2
NUR 102	Fundamentals of Nursing	2
NUR 103	Fundamentals of Nursing - Lab Theory	1
NUR 103C	Fundamentals of Nursing - Clinical	1
NUR 103L	Fundamentals of Nursing - Lab Practice	1
NUR 115	Pharmacology	3
COM 101 or COM 102 or COM 200	Fundamentals of Speaking* Interpersonal Communication Family Communication	3

Third Semester (14 Credits)

HSC 220	Pathophysiology*	4
NUR 123	Acute Care Nursing I	3
NUR 124	Acute Care Nursing I - Clinical Practice	2
NUR 131	Nursing of the Childbearing Family	3
NUR 132	Nursing of the Childbearing Family - Clinical Practice	2

Fourth Semester (13 Credits)

NUR 223	Acute Care Nursing II	3
NUR 224	Acute Care Nursing II - Clinical Practice	2
NUR 255	Mental Health Nursing	3
NUR 256	Mental Health Nursing - Clinical Practice	2
PSY 100	Introductory Psychology*	3

Continued on next page

Nursing, Registered (APNURS)

This program prepares students for the National Council Licensure Examination for Registered Nurses and for challenging and exciting jobs in all settings of health care, from the hospital to home care. You will gain proficiency in technical aspects of nursing care, such as medication administration, treatments and procedures, and use of medical technology, and you will receive personal satisfaction from your ability to make a difference in someone's life and health. Students will also get credits that transfer to area RN-BSN completion programs.

Applying for Admission to the Program:

A total of eighty (80) students are admitted each year. Admission to the program is based on:

- Completion and submission of an application for admission to the nursing program.
- Completion of program admission requirements (see below for specific courses)
- Cumulative GPA of required courses
- Overall cumulative high school GPA or college GPA if the student has completed 12 or more college credits; must be a minimum of 2.5
- Residency status (Washtenaw County residents are given priority)

Program Admission Requirements:

Applicants must have a minimum cumulative GPA of the required courses of chemistry, biology, and algebra of 2.5 or better. All courses must have a minimum grade of "C".

- One year of high school biology or BIO 101 (Concepts of Biology)
- One year of high school algebra or MTH 097 or minimum COMPASS Algebra score of 46
- One year of high school chemistry or CEM 057/058 Introductory Chemistry/Lab

Applicants must successfully pass the pre-admission math test with a minimum score of 80 percent

Admission to the Nursing program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Nursing program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Nursing program.

All students must demonstrate proficiency in the English language prior to placement in clinical courses. Please refer to admission packet for further details.

Nursing, Registered (APNURS) continued

Fifth Semester		(13 Credits)
NUR 231	Nursing of Children	3
NUR 232	Nursing of Children - Clinical Practice	2
NUR 261	Transition to the Registered Nurse Role	1
NUR 262	Transition to the Registered Nurse Role - Clinical Practice	3
NUR 263	Advanced Topics in Medical-Surgical Nursing	1
PHL 244	Ethical and Legal Issues in Health Care*	3
Total Credits Required for the Program:		72 Credits

Notes:

**Support courses may be taken prior to admission to the nursing sequence, but not later than the scheduled semester. Previous nursing or health care experience is recommended for enrollment in HSC 220 or PHL 244 prior to admission to the program.*

***If you are planning to pursue a BSN degree, it is strongly recommended that you take ENG 111 Composition I, in place of ENG 107; and BIO 237 Microbiology, in place of BIO 147. ENG 107 and BIO 147 will not transfer to a four-year university.*

Continuing Eligibility Requirements:

- Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.
- Program courses are sequential and complemented with appropriate support courses. All courses must be completed with a grade of "C-" or better if taken at WCC, or to receive transfer credit with a grade of 2.0 or higher, in order to graduate from this program.
- Students are required to adhere to rules of the Nursing Code of Ethics published in the Nursing Program Student Handbook.
- Students should be aware that the Michigan Board of Nursing may deny a license to an applicant who has been convicted of a crime or is addicted to drugs or alcohol.
- Students in the Nursing program will be required to purchase special uniforms and supplies throughout the duration of the program.
- Students are required to submit health records annually, while in the program.



First Semester	(11 Credits)
HSC 101 Healthcare Terminology*	1
PHT 100 Introduction to Pharmacy and Health Care Systems	4
PHT 101 Pharmacology for Pharmacy Technicians	4
PHT 103 Pharmaceutical Calculations	2

Second Semester	(12 Credits)
PHT 140 Pharmacy Prescription Processing	2
PHT 150 Pharmacy Operations and Compounding	3
PHT 198 Pharmacy Experience	4
CIS 100 or Introduction to Software Applications*	
CIS 110 Introduction to Computer Information Systems*	3

Minimum Credits Required for the Program: 23 Credits

Notes:

**May be taken prior to admission to the Pharmacy Technology program*



Pharmacy Technology (CTPHAR)

This program prepares students for jobs in hospitals, health care agencies, and retail outlets, where they will work under the supervision of a registered pharmacist and be expected to blend a high attention to detail with customer service. The program also gives students the opportunity to explore health care as a place for future career opportunities.

Applying for Admission to the Program

A limited number of students are admitted to the Pharmacy Technology program each year. Application packets may be picked up from the WCC Office of Admissions. Applicants will be screened based on the following criteria:

- Completion and submission of an application for admission to the Pharmacy Technology program
- Completion of all prerequisite courses
- Date of application to the program
- Residency status (Washtenaw County residents are given priority)

Program Admission Requirements

Applicants must be attending high school, possess a high school equivalency certificate, or be a high school graduate. Applicants must complete the following high school courses or equivalent WCC courses with a grade of "C" or better:

- One year of high school algebra or MTH 097 or MTH 165 or minimum COMPASS Algebra score of 46 or higher level math course
- One year of high school chemistry, or CEM 057 and CEM 058 (Introductory Chemistry/Laboratory), or one year of high school biology, or BIO 101 (Concepts of Biology) or higher level chemistry/biology course

Admission to the Pharmacy Technology program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Pharmacy Technology program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Pharmacy Technology program.

A police record check will be done on each student prior to program admission. Students will be excluded from the program for any felony conviction record and/or any controlled substance conviction.

Continuing Eligibility Requirements

Program courses are sequential and complemented with appropriate support courses.

- Students must complete all first-semester courses with a grade of "C" or better to progress to the second semester.
- Students must complete all courses with a grade of "C" or better in order to graduate from this program.
- Students must possess a valid high school diploma or GED by the end of the program and in order to sit for the National Pharmacy Technician Certification Exam, administered by the Pharmacy Technician Certification Board.
- Students must be at least 18 years of age to graduate from this program.
- Students who have a felony conviction record are not allowed to sit for the National Pharmacy Technician Certification Exam administered by the Pharmacy Technician Certification Board.

Additional requirements to be completed prior to the experience course PHT 198 include:

- Completion of a satisfactory physical examination documented on the WCC health form. This form contains verification of childhood immunizations, negative TB test, and evidence of Hepatitis B vaccination or a signed waiver. This physical examination must be completed within three months of the start of the clinical rotation and turned in to the program director four weeks before the start of the experience rotation.
- Proof of health insurance.
- Demonstration of proficiency in the English language prior to placement in the experience course. Please refer to the application packet for further details.

First Spring Semester (4 Credits)

BIO 109 Essentials of Human Anatomy and Physiology** 4

First Summer Semester (7 Credits)

MTH 165 Health Science Mathematics* 3

RAD 100 Introduction to Radiography 2

RAD 101 Methods in Patient Care 2

Second Fall Semester (13 Credits)

HSC 101 Healthcare Terminology* 1

RAD 110 Clinical Education 2

RAD 111 Fundamentals of Radiography 2

RAD 112 Radiographic Positioning I 3

RAD 113 Radiographic Processing 2

RAD 124 Principles of Radiographic Exposure 3

Second Winter Semester (13 Credits)

ENG 111 Composition I* 4

RAD 120 Clinical Education 2

RAD 123 Radiographic Positioning II 3

RAD 125 Radiographic Procedures and Related Anatomy 3

RAD 127 Principles of Radiographic Exposure Laboratory 1

Second Spring/Summer Semester (7 Credits)

COM 101 Fundamentals of Speaking* 3

RAD 150 Clinical Education 4

Third Fall Semester (15 Credits)

PHL 244 Ethical and Legal Issues in Health Care* 3

RAD 215 Radiography of the Skull 2

RAD 217 Clinical Education 3

RAD 218 Radiation Biology and Protection 4

SOC 100 Principles of Sociology* 3

Third Winter Semester (9 Credits)

RAD 135 Pathology for Radiographers 3

RAD 200 Physical Foundations of Radiography 3

RAD 225 Clinical Education 3

Third Spring/Summer Semester (2 Credits)

RAD 240 Clinical Education 2

Minimum Credits Required for the Program: 70 Credits

Notes:

*These courses may be taken before admission to the Radiography program.

**This course must be taken before being admitted to the program.

Radiography (APRAD)

This program prepares students for an entry-level position as a radiographer who operates medical imaging equipment and plays a vital role in healthcare delivery. This full-time, two year program offers a diverse curriculum that includes comprehensive classroom instruction in conjunction with individualized laboratory work and extensive clinical experience in local hospitals. The program also prepares you for the American Registry of Radiologic Technology certification examination.

Articulation:

This program has an articulation agreement with Eastern Michigan University, the College of Health and Human Services, for the Bachelor of Science in the Health Administration program. Transferring students should contact the Program Director for the Health Administration Program at EMU.

Applying for Admission to the Program:

A limited number of students are admitted to the Radiography program each year. All students enter the program during the summer term. Application packets may be picked up from the WCC Office of Admissions. Applicants will be screened based on the following criteria:

- Completion and submission of an application for admission to the Radiography program
- Completion of all prerequisite courses by January 1 (see below for specific courses)
- Residency status (Washtenaw County residents are given priority)
- Date of application to the program
- Completion of an anatomy and physiology course (BIO 109)

Program Admission Requirements:

Applicants must possess a valid high school diploma or GED.

Applicants must complete the following high school courses or equivalent WCC courses with a grade of "C" or better:

- One year of high school biology or BIO 101: Concepts of Biology
- One year of high school algebra or MTH 097A: Introductory Algebra or minimum COMPASS Algebra score of 46
- Admission to the Radiography program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Radiography program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Radiography program.

It is strongly advised that students complete the general education courses before entering the Radiography program.

Continuing Eligibility Requirements:

- Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.
- Students must pass a physical examination, taken at their own expense, not more than three months before enrolling in the first clinical education course.
- Students must maintain personal health coverage.
- Students must be certified in Basic Life Support to be eligible to enroll in clinical education courses which begin in the Fall semester. If they have not received certification through another agency, they can obtain it by completing HSC 131 (CPR/FPR and First Aid).
- Program courses are sequential and complemented with appropriate support courses. Students must complete all Radiography courses with a grade of "C-" or above.
- All students must demonstrate proficiency in the English language prior to placement in clinical courses. Please refer to the application packet for further details.

Industrial, Manufacturing and Automation Technology

Degree and Certificate Programs

Certificates in six areas can lead to an associate degree in Automation Technology. These certificates include: Fluid Power; Machine Tool Technology; Manufacturing and Industrial Computing; Numerical Control; Welding; and Industrial Electronics. A core of specialized automation technology courses can be taken after the initial certificate. These courses will further prepare students as highly-skilled employees ready to meet the demand of the current job market

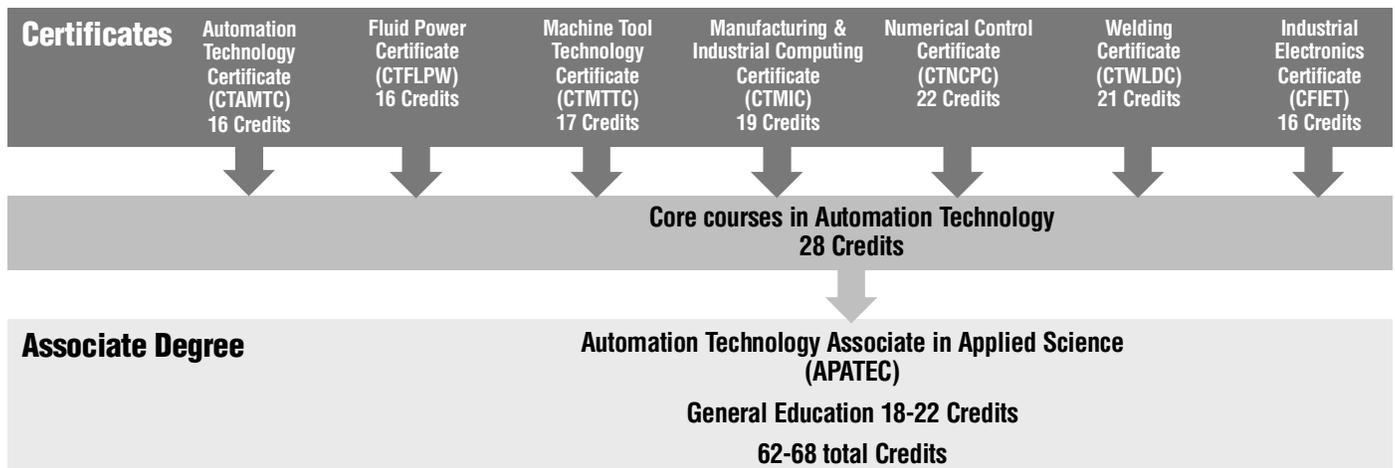
Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next

level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Major/Area Requirements		(16 Credits)
MTH 152	Technical Geometry and Trigonometry	4
PHY 110	Applied Physics	4
ROB 121	Robotics I	4
ROB 170	FIRST Robotics Competition	4

Minimum Credits Required for the Program: **16 Credits**

Automation Technology Certificate (CTAMTC)

This program prepares students with the knowledge, skills, and attitudes needed for further advancement into science, technology, and engineering careers. Students will also be prepared to participate in the For Inspiration and Recognition in Science and Technology (FIRST) regional competition and championship events. The capstone course for this program culminates in the hands-on building of a robot used in competition.

Fluid Power (CTFLPW)

Certificate

Major/Area Requirements		(14 Credits)
FLP 111	Fluid Power Fundamentals	4
FLP 214	Hydraulic Circuits and Controls	4
FLP 225	Fluid Power Motion Control	3
FLP 226	Pneumatics	3

Minimum Credits Required for the Program: **14 Credits**

Notes:

This certificate can also lead to an associate degree in Automation Technology.

Fluid Power (CTFLPW)

This program prepares students for entry level positions as a hydraulic technician. The program gives you an understanding of hydraulic and pneumatic system design including motion control, using electro-hydraulic proportional and servo valves. The student will be prepared to take the Hydraulic Specialist or Technician certification examination through the Fluid Power Society.



Major/Area Requirements (17 Credits)

ELE 111	Electrical Fundamentals	4
ELE 211	Basic Electronics	4
ELE 224	Introduction to PLC's	4
ELE 254	PLC Applications	5

Minimum Credits Required for the Program: 17 Credits

Industrial Electronics Technology (CFIET)

This program prepares you for entry-level jobs in any of the industrial electricity/electronics cluster of occupations. Students will develop skills in the installation, maintenance, and troubleshooting of industrial control systems with a focus on programmable logic controllers, electronic sensors, and electronic control circuits.

Program Admission Requirements:

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 or MTH 151 with a "C" or better to enroll in ELE 111. One year of high school algebra with a grade of "C" or better is recommended.

Machine Tool Technology (CTMTTC)

Certificate

Major/Area Requirements (17 Credits)

MTT 101	Blueprint Reading and Computerized Drawings	2
MTT 103	Introduction to Materials	3
MTT 111	Machine Shop Theory and Practice	4
MTT 203	Advanced Machine Tool Operations	4
NCT 112	Introduction to Computerized Machining (CNC)	4

Minimum Credits Required for the Program: 17 Credits

Notes:

This certificate can also lead to an associate degree in Automation Technology.



Machine Tool Technology (CTMTTC)

This program prepares students for manufacturing jobs where they will use advanced machine tool setups for the manufacture of non-production parts or prototype parts for industry. This program provides advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments. Students will learn machining operations through the production of parts, on modern conventional mills, lathes, and grinding equipment in WCC's extensive machine tool laboratory.

Manufacturing and Industrial Computing (CTMIC)

Certificate

Major/Area Requirements		(24 Credits)
ELE 111	Electrical Fundamentals	4
FLP 111	Fluid Power Fundamentals	4
MTT 101	Blueprint Reading and Computerized Drawings	2
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to Computerized Machining (CNC)	4
ROB 121	Robotics I	4
WAF 105	Welding for Art & Engineering	2

Minimum Credits Required for the Program: 24 Credits

Notes:

**This certificate can also lead to an associate degree in Automation Technology or Occupational Studies.*

Manufacturing and Industrial Computing (CTMIC)

This certificate program gives students an overview of technologies included in the typical manufacturing facility, with an emphasis on those using computers including Robotics, CAD, and CAM. Upon completion, students will have the skills to perform entry level jobs in the manufacturing plant.

Program Admission Requirements:

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a "C" or better to enroll in ELE 111. One year of high school algebra is recommended.

Numerical Control Programming (CTNCPC)

Certificate

Major/Area Requirements		(20 Credits)
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to Computerized Machining (CNC)	4
NCT 121	Manual Programming and NC Tool Operation	4
NCT 221	Advanced Manual Programming and NC Tool Operation	4
NCT 249	CAD/CAM CNC Programming	4

Minimum Credits Required for the Program: 20 Credits

Notes:

This certificate can also lead to an associate degree in Automation Technology or Occupational Studies.

Numerical Control Programming (CTNCPC)

This program prepares students for jobs as a numerical control operator or programmer. The program gives students skills in manual and computer assisted programming languages, using CAD/CAM software to program challenging and complex 2 and 3 axes CNC machine tool operations. Students will also become proficient in the interpretation of engineering drawings, visualization of machine operations, and the setup requirements of numerical controlled machine tools.

Welding (CTWLDC)

Certificate

Major/Area Requirements		(21 Credits)
WAF 105	Welding for Art & Engineering	2
WAF 106	Blueprint Reading for Welders	3
WAF 111	Welding I Oxy-Acetylene	4
WAF 112	Welding II Basic ARC	4
WAF 123	Welding III Advanced Oxy-Acetylene (OAW)	4
WAF 124	Welding IV Advanced ARC (SMAW)	4

Minimum Credits Required for the Program: 21 Credits

Welding (CTWLDC)

This program prepares students for entry-level jobs involving gas welding, brazing, and various combinations of arc welding processes, where they will work under the supervision of an experienced welding technician. The program also gives students a foundation for WCC's Advanced Certificate in Welding Mechanics.

General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Core Courses		(28 Credits)
ELE 111	Electrical Fundamentals	4
ELE 224	Introduction to PLC's	4
FLP 111	Fluid Power Fundamentals	4
ROB 121	Robotics I	4
ROB 212	Robotics II	4
ROB 222	Robotics Simulation	2
ROB 223	Robotics III	2
ROB 224	Robotics IV	4

Minimum Concentration/Option Credits Required for the Program: 16 Credits

Students need to complete the required courses in one of the following options.

Fluid Power Specialty (FPWR)		(16 Credits)
FLP 214	Hydraulic Circuits and Controls	4
FLP 225	Fluid Power Motion Control	3
FLP 226	Pneumatics	3
MTT 111	Machine Shop Theory and Practice	4
WAF 105	Welding for Art & Engineering	2

Industrial Electronics Specialty (IELC)		(16 Credits)
ELE 211	Basic Electronics	4
ELE 254	PLC Applications	5
FLP 226	Pneumatics	3
MTT 111	Machine Shop Theory and Practice	4

Machine Tool Technology Specialty (MTTE)		(17 Credits)
MTT 101	Blueprint Reading and Computerized Drawings	2
MTT 103	Introduction to Materials	3
MTT 111	Machine Shop Theory and Practice	4
MTT 203	Advanced Machine Tool Operations	4
NCT 112	Introduction to Computerized Machining (CNC)	4

Automation Technology (APATEC)

This program prepares students for entry-level positions as an automated equipment technician who assembles, installs, programs, troubleshoots, and maintains robotic and automated equipment. Students have a choice to follow any of six different specialty tracks which will prepare them for the various applications of automation. Each track features a variety of application level classes where the student performs lab-oriented practice for required skills. It is highly recommended that beginning students take at least one technical class during their first semester. See an advisor in the Industrial Technology department for assistance.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Manufacturing and Industrial Computing Specialty (MICO) (19 Credits)

FLP 214	Hydraulic Circuits and Controls	4
FLP 226	Pneumatics	3
MTT 101	Blueprint Reading and Computerized Drawings	2
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to Computerized Machining (CNC)	4
WAF 105	Welding for Art & Engineering	2

Numerical Control Specialty (NCTL) (22 Credits)

MTT 101	Blueprint Reading and Computerized Drawings	2
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to Computerized Machining (CNC)	4
NCT 121	Manual Programming and NC Tool Operation	4
NCT 221	Advanced Manual Programming and NC Tool Operation	4
NCT 249	CAD/CAM CNC Programming	4

Welding Specialty (WELD) (21 Credits)

WAF 105	Welding for Art & Engineering	2
WAF 106	Blueprint Reading for Welders	3
WAF 111	Welding I Oxy-Acetylene	4
WAF 112	Welding II Basic ARC	4
WAF 123	Welding III Advanced Oxy-Acetylene (OAW)	4
WAF 124	Welding IV Advanced ARC (SMAW)	4

Minimum Credits Required for the Program:

62 Credits



Music

Degree and Certificate Programs

The Music program is designed for the student who wants to develop skills in pre-professional music or music production/engineering. There are two certificate programs in Music: Music Performance in guitar, piano, or voice, and Music Production/Engineering. The latter certificate prepares people for jobs such as music sequencer, sound engineer, and music console operators for concerts and performances.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for

these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.

Certificates	Music Performance Certificate (CTMPER) 24 Credits	Music Production/Engineering Certificate (CTMPRO) 17 Credits
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Complete the required courses in the Guitar, Piano or Voice concentrations below.
Check course prerequisites to determine the sequence for taking courses.

Music Performance Concentrations

Guitar (GUIT) (25 Credits)

MUS 140	Music Theory I	3
MUS 237	Finger-Style Blues & Slide Guitar	3
MUS 239	Jazz Guitar I	3
MUS 240	Jazz Guitar II	3
MUS 271	Beginning Classical Guitar	3
MUS 272	Intermediate Classical Guitar	3
MUS 285	Self Management for Working Artists	3
Elective	Complete 4 credits from: MUS 103, MUS 104, MUS 111	4

Piano (PIAN) (25 Credits)

MUS 137	Gospel Piano and Choir Directing	3
MUS 140	Music Theory I	3
MUS 216	Blues and Jazz Piano I	3
MUS 217	Blues and Jazz Piano II	3
MUS 251	Classical Piano I	3
MUS 252	Classical Piano II	3
MUS 285	Self Management for Working Artists	3
Elective	Complete 4 credits from: MUS 103, MUS 104, MUS 111	4

Voice (VOIC) (24 Credits)

MUS 135	Chorus	1
MUS 204	Voice I	3
MUS 205	Voice II	3
MUS 280	Voice III - Classical Voice	3
MUS 281	Voice IV -Jazz and Improvisational Voice	3
MUS 285	Self Management for Working Artists	3
MUS 140 or MUS 142	Music Theory I Music Theory II	3
	Complete a minimum of 5 credits from: DRA 152, MUS 104, MUS 136, MUS 137, MUS 209	5 - 6

Minimum Credits Required for the Program: 24 Credits

Music Performance (CTMPER)

The Music Performance program offers serious music students an opportunity structured to prepare them to be working musicians specializing in guitar, piano, or voice. The programs are designed to develop students' competence in a variety of music performance, production, and promotion skills. The program provides knowledge and skills in such areas as instrument tuning and repair, scales and chords, and understanding the social context of music. Application of performance, delivery, and ensemble skills will be emphasized. An added feature of the program is the emphasis on developing the self-promotion skills that are critical to the success of a working musician. Program completers will be encouraged to be creative in fitting music into their lives, whether as working musicians or skilled amateurs.

Major/Area Requirements

(17 Credits)

MUS 162	Music Sequencing & Programming	3
MUS 170	Computer Applications in Music	3
MUS 175	Audio Recording Technology I	3
MUS 245	Music Producing and Arranging	2
MUS 248	Sound Reinforcement for Stage	3
MUS 275	Audio Recording Technology II	3

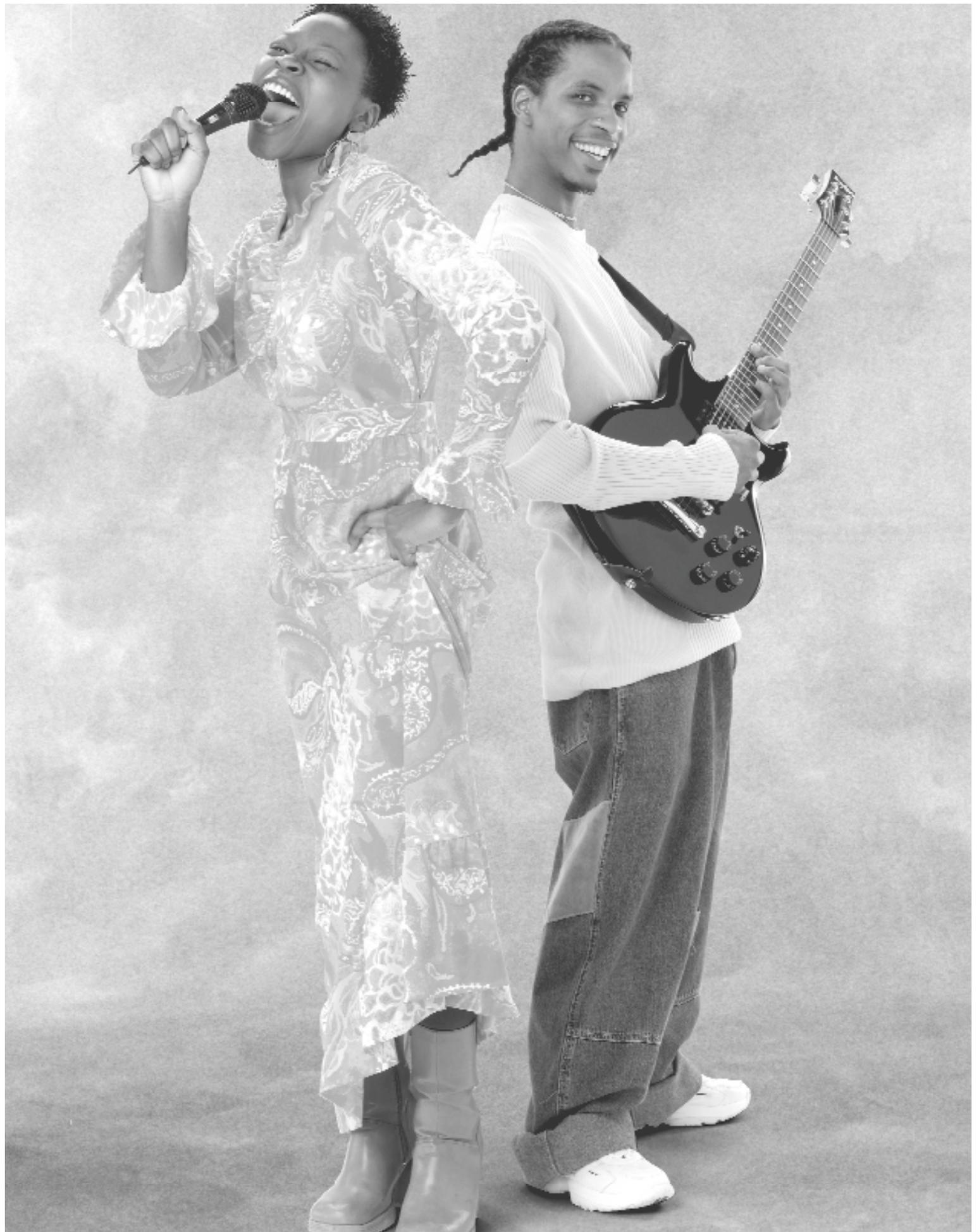
Minimum Credits Required for the Program:

17 Credits

Music Production/Engineering (CTMPRO)

This program is designed for students who want to develop skills in music production and engineering that can be applied to jobs in TV, radio, and music studios. It provides the student with the knowledge and skills necessary for employment in jobs such as a music sequencer or sound engineer, operating mixing consoles for a variety of events including band production, concerts, music festivals, and running studios. Students will develop skills in audio recording, computer applications, sound reinforcement, and sequencing and programming. While in the program, students will be affiliated with the International Alliance of Theatrical Stage Employees, and will assist WCC Media Services in producing events for the College.





Occupational and Related Studies

Degree and Certificate Programs

The Occupational Studies associate degree program allows students the flexibility to customize individualized educational programs in the specific career areas they desire. Many certificates and advanced certificates offered at WCC can lead to an associate degree in Occupational Studies.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for

these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Certificate	Apprentice Completion Certificate (CTAC) 24 Credits	Most certificates can lead to an Associate in Applied Science Degree in Occupational Studies.
Advanced Certificate		Most advanced certificates can lead to an Associate in Applied Science Degree in Occupational Studies.
Associate Degree	Journeyman Industrial Associate in Applied Science (APJPIIM) 60 Credits	Occupational Studies Associate in Applied Science (APOST) 60 Credits

Apprentice Completion (CTAC)

Certificate

Requirements (24 Credits)

Complete sponsored apprenticeship program in technical or trade-related coursework. 24-36

Notes: See a program advisor to determine the courses for this certificate.

Minimum Credits Required for the Program: 24 Credits

Apprentice Completion (CTAC)

This program gives skilled tradespersons who are sponsored by qualified organizations the opportunity to apply trade-related credits from their apprenticeship programs toward a WCC Certificate. Students must be sponsored by a qualified organization to enroll in this program.

Journeyman Industrial (APJPIM)

Associate in Applied Science Degree

General Education Requirements (18 credits)

Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Major/Area Requirements (42 credits)

Complete the Apprenticeship Completion Certificate (CTAC), or journeyman-approved coursework in a technical or trade-related area 24-36
Take additional credits as needed if total program credits are below 60. 18

Minimum Credits Required for the Program: 60 Credits

Journeyman Industrial (APJPIM)

Some employers require or prefer employees to have an associate degree as a condition for employment or for advancement. Students can earn an Associate in Applied Science Degree in Journeyman Industrial by completing the requirements listed.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

General Studies Program Requirements (60 Credits)

1. Complete the General Education Requirements for the Associate in Applied Science Degree:	
Writing	3-4
Speech	3
Math	3-4
Nat. Sci.	3-4
Soc. Sci.	3
Arts/Human.	3
2. Complete a minimum of 25 credits in an occupational/technical area	25
3. Complete the additional coursework as free electives to bring the total to 60 credits	17

Minimum Credits Required for the Program: 60 Credits

Notes:

**If you complete a certificate program of 20 credits or more (or a certificate and additional credits in the same discipline area to bring the total to 20 credits) you may request to have the certificate title substituted for "Occupational Studies" as the title of your degree program. This applies only to certificates that do not already lead to an AAS degree program.*

Occupational Studies (APOST)

This program allows students to earn an Associate in Applied Science degree by building on an occupational/technical certificate or individually selected occupational courses. This is a good option if an associate degree is required or preferred as a condition for employment or advancement in a field. The program also allows students to combine coursework from several occupational areas to prepare for a job that requires multi-disciplinary skills. If in completing this program, students earn an occupational certificate of 20 credits* or more that does not already lead to an associate degree program, they can request to have the certificate title substituted for "Occupational Studies" as the title of the degree program. Meet with a divisional counselor or faculty advisor for assistance in developing a program of study. A counselor can help determine career interests and educational goals, as well as provide transfer and career information.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



Technical Communication

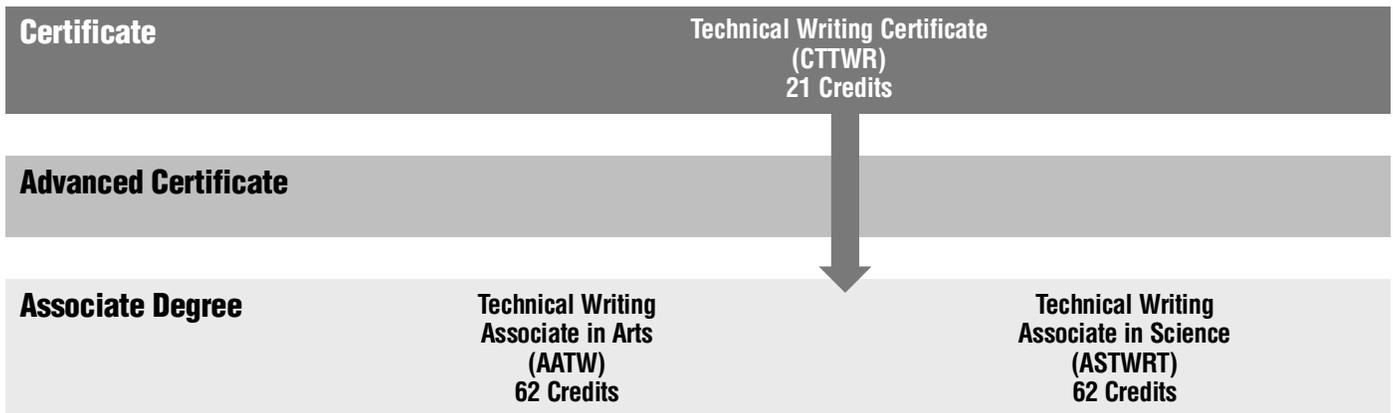
Career Degree and Certificate Programs

The Technical Communication programs prepare students for careers in technical communication in business, industry, and many other sectors. The College offers two programs in technical writing: a technical writing certificate, and a technical writing associate degree. Both Associate in Arts and Associate in Science degrees are available in Technical Communication, preparing students for baccalaureate degrees in liberal arts (Associate in Arts), or technical and scientific fields (Associate in Science). In addition, individuals who already have a baccalaureate degree can use the certificate to immediately seek a technical writing position.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance

in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment. The next level—an Associate degree—is available for some programs.



Technical Writing (CTTWR)

Certificate

Major/Area Requirements		(21 Credits)
BOS 257	Word Processing and Document Formatting II	3
ENG 185	English Grammar and Usage	3
ENG 208	Advanced Technical Writing I	3
ENG 209	Advanced Technical Writing II	4
ENG 245	Career Practices Seminar	2
GDT 105	Introduction to Mac Graphics	3
INP 150	Web Coding I	3

Minimum Credits Required for the Program: 21 Credits

Technical Writing (CTTWR)

This certificate program provides comprehensive instructions for students who wish to sharpen their skills in technical communication. As a fast-track program for career changers or a foundational program for first-time professionals, this program provides the knowledge and skills necessary writing end-user documentation such as printed manuals and online help systems. The student will develop skill in audience analysis, tutorial, procedure, and reference guide writing; project management, document design, technical editing, usability testing, and publishing. Designed to provide the student with practical and theoretical principles of technical writing, the program prepares students for employment in a wide variety of opportunities in technical communication. To this end, students will also learn how to conduct a formal job search and create professional portfolios to better compete for jobs in the field of technical writing. Those without previous college experience can use this certificate to seek work as interns and in co-op positions in technical writing while pursuing the Associate in Arts or Science Degrees in Technical Writing.

Program Admission Requirements:

ENG 107 or equivalent course coursework/experience, basic computer literacy, a general understanding of Windows OS and Office 2000, and experience using the Internet.



United Association Certificate Program

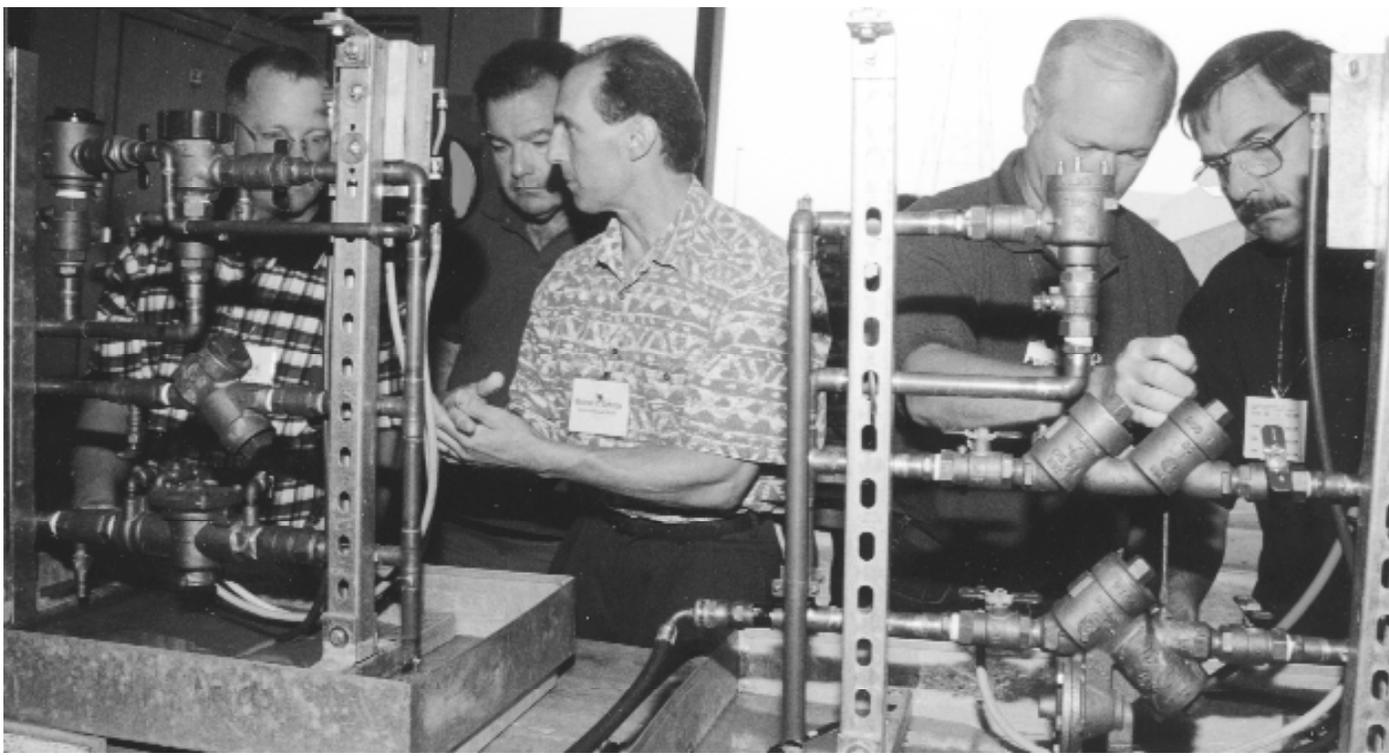
These programs are restricted to members of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada.



Certificate	Construction Supervision Certificate (CTCNS) 15 Credits
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Advanced Certificate

Associate Degree	Construction Supervision Associate in Applied Science Degree (APCNSP) 60 Credits	Construction Supervision Associate in Science Degree (ASCNSV) 68 Credits	Industrial Training Associate in Applied Science Degree (APITRN) 60 Credits	Industrial Training Associate in Science Degree (ASINDT) 68 Credits
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Construction Supervision (CTCNS)

Certificate

Major/Area Requirements		(15 Credits)
UAS 111	Introduction to Construction Supervision I	3
UAS 122	Construction Supervision II	3
UAS 211	Construction Supervision III	3
UAS 222	Project Management in the Construction Industry	3
UAS 226	Legal Aspects of Construction	3

Minimum Credits Required for the Program: 15 Credits

Construction Supervision (CTCNS)

This Construction Supervision Certificate program enables apprentices and journeymen to enter the job market with knowledge and skills in planning, organizing, and supervising construction projects. This certificate provides an option for those who want to attain a higher position in the construction field, and for those desiring to start their own companies.

Program Admission Requirements:

The program is only open to United Association of Plumbers Apprentices/Journeymen.

Construction Supervision (APCNSP)

Associate in Applied Science Degree

General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
APP 113 *	Math and Science for Plumbers and Pipefitters	3
SCI 102 *	Applied Science	3
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

**The math and science courses are included in the specialization.*

Major/Area Requirements		(15 credits)
UAS 111	Introduction to Construction Supervision I	3
UAS 122	Construction Supervision II	3
UAS 211	Construction Supervision III	3
UAS 222	Project Management in the Construction Industry	3
UAS 226	Legal Aspects of Construction	3

Minimum Concentration/Option Credits Required for the Program: 26

Complete a specialization in plumbing, pipefitting, HVAC, or sprinkler fitting. Students should apply for non-traditional credit evaluation of their apprenticeship experiences to meet the specialization requirement. See specializations on the following pages.

Minimum Credits Required for the Program: 60

Construction Supervision (APCNSP)

This program gives indentured apprentices and journeymen of the United Association of Plumbers and Pipefitters the opportunity to apply their work in a trade specialty toward an associate's degree in Construction Supervision. In addition to the courses in Construction Supervision, students will complete general education courses and receive non-traditional credit for their work experience in an area of specialization such as plumbing, pipefitting, HVAC, or sprinkler fitting.

Program Admission Requirements:

The program is only open to United Association of Plumbers Apprentices/Journeymen.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

General Education Requirements		(27 Credits)
Writing	ENG 107, ENG 111, ENG 226	6-7
Speech	Elective(s)	3
Math	Math 169 or higher	3-4
Nat. Sci.	Must contain a lab	3-4
Soc. Sci.	Elective(s)	6
Arts/Human.	Elective(s)	6

Major/Area Requirements		(15 credits)
UAS 111	Introduction to Construction Supervision I	3
UAS 122	Construction Supervision II	3
UAS 211	Construction Supervision III	3
UAS 222	Project Management in the Construction Industry	3
UAS 226	Legal Aspects of Construction	3

Minimum Concentration/Option Credits Required for the Program: **26**

Complete a specialization in plumbing, pipefitting, HVAC, or sprinkler fitting. Students should apply for non-traditional credit evaluation of their apprenticeship experiences to meet the specialization requirement.

Construction Supervision Options

HVAC Specialty (HVTC)		(26 Credits)
UAE 140	Introduction to HVACR Service	3
UAE 142	Soldering and Brazing	3
UAE 144	Refrigeration	2
UAE 146	Air Conditioning	2
UAE 148	Electrical Controls	2
UAE 150	DC Electronics	2
UAE 152	Advanced Electrical Controls and Pneumatic Controls	3
UAE 154	Advanced Air Conditioning and Refrigeration	3
UAE 156	Air and Water Balancing and Motor Alignment	3
UAE 158	Advanced HVACR Practices	3

Continued on next page

Construction Supervision (ASCNSV)

This program gives indentured apprentices and journeymen of the United Association of Plumbers and Pipefitters the opportunity to apply their work in a trade specialty toward an associate's degree in Construction Supervision. In addition to four courses in Construction Supervision, students will complete general education courses and receive non-traditional credit for their work experience in an area of specialization such as plumbing, pipefitting, HVAC, or sprinkler fitting.

Program Admission Requirements:

The program is only open to United Association of Plumbers Apprentices/Journeymen.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Pipefitter Specialty (PIPE)		(26 Credits)
UAF 102	Introduction to Arc Welding, Soldering, and Brazing	3
UAF 120	Introduction to Pipefitter Practices	3
UAF 122	Drawing Interpretation and Plan Reading	2
UAF 124	Oxy Fuel Cutting and Shielded Arc Welding	2
UAF 126	Hydronic Heating and Steam Systems	2
UAF 128	Refrigeration and Electrical Controls	2
UAF 130	Advanced SMAW Welding	3
UAF 132	Advanced Pipefitter Topics	3
UAF 134	Controls and Instrumentation	3
UAF 136	GTAW Welding	3



Plumber Specialty (PLUM)		(26 Credits)
UAP 100	Introduction to Plumbing Practices	3
UAP 102	Introduction to Arc Welding, Soldering, and Brazing	3
UAP 104	Drawing Interpretation and Plan Reading	2
UAP 106	Oxy Fuel Cutting and Shielded Arc Welding	2
UAP 108	Water Supply and Drainage	2
UAP 110	Customer Service Techniques	2
UAP 112	Plumbing Fixtures and Appliances	3
UAP 114	Plumbing Codes and Regulations	3
UAP 116	Medical Gas and Backflow Prevention Techniques	3
UAP 118	Advanced Plumbing Practices	3



Sprinkler Fitter Specialty (SPRF)		(26 Credits)
UAR 160	Introduction to Sprinkler Fitter Practices	3
UAR 162	Basic Drawing and Introduction to Automatic Sprinklers	3
UAR 164	Reading Automatic Sprinkler Piping Drawings	2
UAR 166	Installation of Sprinkler Systems	2
UAR 168	Architectural Working Drawings and Blueprint Reading for Sprinkler Fitters	2
UAR 170	Sprinkler Water Supply and The Automatic Sprinkler	2
UAR 172	Types of Fire Protection Systems and Alarms	3
UAR 174	Special Application Sprinkler Systems and Hydraulics	3
UAR 176	Human Relations	3
UAR 178	Technical Writing	3



Minimum Credits Required for the Program: 68



UNITED ASSOCIATION PROGRAM

Industrial Training (APITRN)

Associate in Applied Science Degree

General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
APP 113 *	Math and Science for Plumbers and Pipefitters	3
SCI 102 *	Applied Science	3
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

*The math and science courses are included in the specialization.

Major/Area Requirements (15 credits)

Students must complete 15 credits from the following: UAT 111, UAT 121, UAT 131, UAT 141, UAT 151, UAT 161, UAT 171, UAT 201, UAT 202, UAT 203, UAT 204, UAT 205

Minimum Concentration/Option Credits Required for the Program: 26 Credits

Complete a specialization in plumbing, pipefitting, HVAC, or sprinkler fitting. Students should apply for non-traditional credit evaluation of their apprenticeship experiences to meet the specialization requirement. See specializations on the following page.

Minimum Credits Required for the Program: 60

Industrial Training (APITRN)

This program gives indentured apprentices and journeymen of the United Association of Plumbers and Pipefitters the opportunity to apply their work as certified apprentice instructors toward an associate's degree in Industrial Training. In addition to the fifteen credits awarded for completion of five summer apprentice training sessions, students will complete a minimum of 18 credits in general education courses and receive 30 non-traditional credits for experience in an area of specialization such as plumbing, pipefitting, HVAC, or sprinkler fitting.

Program Admission Requirements:

Open only to United Association of Plumbers Apprentices/Journeymen

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Industrial Training (ASINDT)

Associate in Science Degree

General Education Requirements		(27 Credits)
Writing	ENG 107, ENG 111, ENG 226	6-7
Speech	Elective(s)	3
Math	Math 169 or higher	3-4
Nat. Sci.	Must contain a lab	3-4
Soc. Sci.	Elective(s)	6
Arts/Human.	Elective(s)	6

Major/Area Requirements (15 credits)

Students must complete 15 credits from the following: UAT 111, UAT 121, UAT 131, UAT 141, UAT 151, UAT 161, UAT 171, UAT 201, UAT 202, UAT 203, UAT 204, UAT 205

Minimum Concentration/Option Credits Required for the Program: 26

Complete a specialization in plumbing, pipefitting, HVAC, or sprinkler fitting. Students should apply for non-traditional credit evaluation of their apprenticeship experiences to meet the specialization requirement.

Continued on next page

Industrial Training (ASINDT)

This program gives indentured apprentices and journeymen of the United Association of Plumbers and Pipefitters the opportunity to apply their work as certified apprentice instructors toward an associate in science degree in Industrial Training. Students will complete the general education courses, five summer apprentice training sessions, and receive non-traditional credits for experience in an area of specialization such as plumbing, pipefitting, HVAC, or sprinkler fitting.

Articulation:

Ferris State University and National Labor College

Continued on next page

Industrial Training Options

HVAC Specialty (HVTC) (26 Credits)

UAE 140	Introduction to HVACR Service	3
UAE 142	Soldering and Brazing	3
UAE 144	Refrigeration	2
UAE 146	Air Conditioning	2
UAE 148	Electrical Controls	2
UAE 150	DC Electronics	2
UAE 152	Advanced Electrical Controls and Pneumatic Controls	3
UAE 154	Advanced Air Conditioning and Refrigeration	3
UAE 156	Air and Water Balancing and Motor Alignment	3
UAE 158	Advanced HVACR Practices	3

Pipefitter Specialty (PIPE) (26 Credits)

UAF 102	Introduction to Arc Welding, Soldering, and Brazing	3
UAF 120	Introduction to Pipefitter Practices	3
UAF 122	Drawing Interpretation and Plan Reading	2
UAF 124	Oxy Fuel Cutting and Shielded Arc Welding	2
UAF 126	Hydronic Heating and Steam Systems	2
UAF 128	Refrigeration and Electrical Controls	2
UAF 130	Advanced SMAW Welding	3
UAF 132	Advanced Pipefitter Topics	3
UAF 134	Controls and Instrumentation	3
UAF 136	GTAW Welding	3

Plumber Specialty (PLUM) (26 Credits)

UAP 100	Introduction to Plumbing Practices	3
UAP 102	Introduction to Arc Welding, Soldering, and Brazing	3
UAP 104	Drawing Interpretation and Plan Reading	2
UAP 106	Oxy Fuel Cutting and Shielded Arc Welding	2
UAP 108	Water Supply and Drainage	2
UAP 110	Customer Service Techniques	2
UAP 112	Plumbing Fixtures and Appliances	3
UAP 114	Plumbing Codes and Regulations	3
UAP 116	Medical Gas and Backflow Prevention Techniques	3
UAP 118	Advanced Plumbing Practices	3

Sprinkler Fitter Specialty (SPRF) (26 Credits)

UAR 160	Introduction to Sprinkler Fitter Practices	3
UAR 162	Basic Drawing and Introduction to Automatic Sprinklers	3
UAR 164	Reading Automatic Sprinkler Piping Drawings	2
UAR 166	Installation of Sprinkler Systems	2
UAR 168	Architectural Working Drawings and Blueprint Reading for Sprinkler Fitters	2
UAR 170	Sprinkler Water Supply and The Automatic Sprinkler	2
UAR 172	Types of Fire Protection Systems and Alarms	3
UAR 174	Special Application Sprinkler Systems and Hydraulics	3
UAR 176	Human Relations	3
UAR 178	Technical Writing	3

Program Admission

Requirements:

Open only to United Association of Plumbers Apprentices/Journeymen

Continuing Eligibility

Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



Minimum Credits Required for the Program:

68

Visual Arts Technology

Degree and Certificate Programs

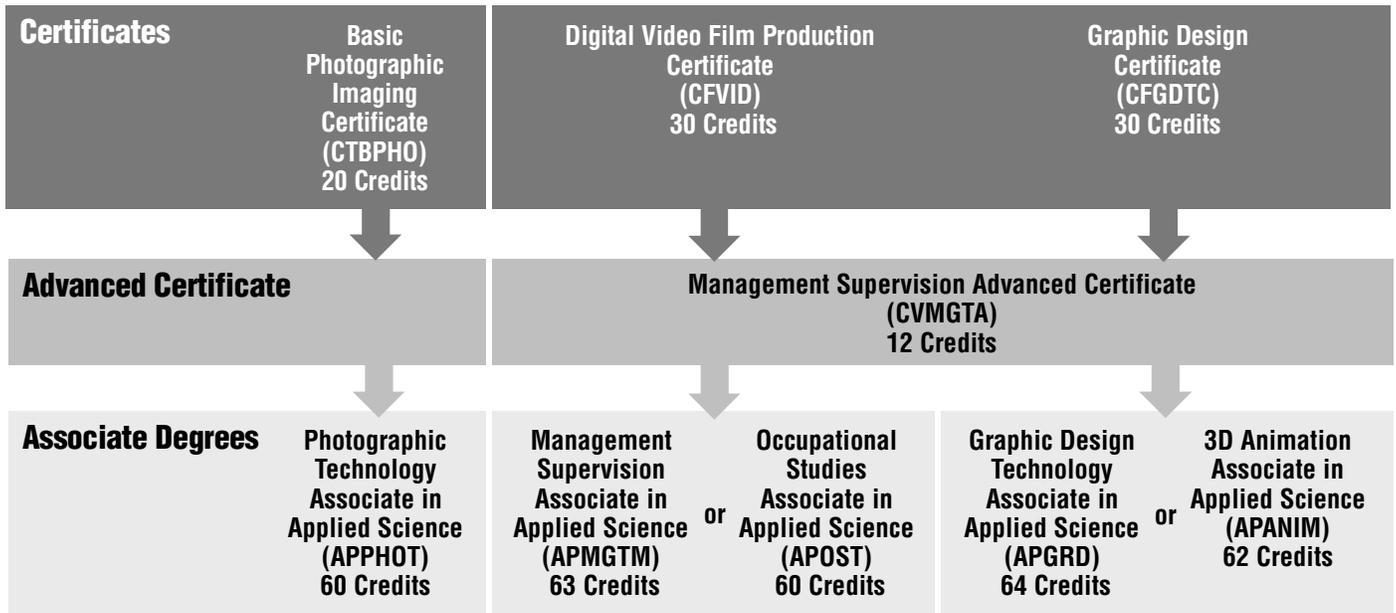
The Visual Arts programs assist students in developing specialized skills in graphic design, video, or photography. The student can elect from several available associate degree options in Visual Arts. The programs have two levels of certification which lead to an associate degree. Students can enter the Visual Arts workforce after completing a certificate, and can later upgrade their skills by pursuing an advanced certificate, or one of the associate degrees.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Basic Photographic Imaging (CTBPHO)

Certificate

Major/Area Requirements		(20 Credits)
PHO 111	Photography I	4
PHO 117	Introduction to the Studio	4
PHO 127	Digital Photo Imaging I	4
PHO 228	Digital Photo Imaging II	4
PHO 122 or	Darkroom Techniques	
PHO 129	Black and White Digital Imaging	4
Minimum Credits Required for the Program:		20 Credits

Basic Photographic Imaging (CTBPHO)

This program prepares students for entry-level positions in the photographic industry and is a stepping-stone to the Associate Degree in Photographic Technology. Foundation areas of study include: basic camera operation and composition skills; film and digital exposure and processing methods; studio lighting; and printing and presentation techniques.

Digital Video Film Production (CFVID)

Certificate

Major/Area Requirements		(30 Credits)
ENG 115	Scriptwriting for Media	3
GDT 140	Photoshop Graphics	4
GDT 150	Design for the Internet	4
VID 101	Video Production I	3
VID 102	Video Production II	3
VID 110	Digital Video Editing I	3
VID 112	Digital Video Editing II	4
	Complete two courses: VID 174, VID 276, VID 280	6-8
Minimum Credits Required for the Program:		30 Credits

Digital Video Film Production (CFVID)

This program prepares students for entry-level media production positions in organizations where they will create digitized video productions for Web and other presentation forms that may be used for informational, documentary, instructional, commercial, artistic, or other purposes. The program provides instruction in all facets of video production from program design to hands-on recording through the editing process. Students also will gain skills in the use of computer software applications.

Program Admission Requirements:

A high school Macintosh-based course, or GDT 105 with a "C-" or better, or instructor permission is required to enroll in GDT software courses.

Major/Area Requirements		(30 Credits)
GDT 100	Typography I	4
GDT 112	Graphic Communication I	4
GDT 127	QuarkXPress for Print Publishing	4
GDT 139	Illustrator Graphics	4
GDT 140	Photoshop Graphics	4
GDT 220	Publication Design	4
INP 140	Building a Web site	3
INP 176	Web Animation I	3

Minimum Credits Required for the Program: 30 Credits

Notes:

**Sixteen (16) credits of GDT software and computer studio classes in one semester is an extremely heavy load. Students may need more than two semesters to complete the program.*

Graphic Design (CFGDTC)

This program provides students with entry-level skills in graphic design and allows students to upgrade or expand their present skills. Students will focus on typography and the foundations of visual communication design for both print and on-screen media, and build skills in the most widely used graphic design software applications. This program provides credits towards the Associate in Applied Science Degree in Graphic Design Technology.

Program Admission Requirements:

A high school Macintosh based course or GDT 105 with a "C-" or better is required to enroll in GDT software courses.



General Education Requirements		(18 Credits)
ENG 107 or	Technical Writing	
ENG 111	Composition I	3-4
COM 101	Fundamentals of Speaking	3
MTH 151 or	Technical Algebra	
MTH 163	Business Mathematics	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
GDT 101	History of Graphic Design	3

Major/Area Requirements		(46 Credits)
GDT 100	Typography I	4
GDT 112	Graphic Communication I	4
GDT 127	QuarkXPress for Print Publishing	4
GDT 139	Illustrator Graphics	4
GDT 140	Photoshop Graphics	4
GDT 220	Publication Design	4
GDT 239	Imaging and Illustration	4
GDT 252	Advanced Digital Studio	4
GDT 270	Web site Design	4
GDT 290	Professional Practices	4
INP 140	Building a Web site	3
INP 176	Web Animation I	3

Minimum Credits Required for the Program: 64 Credits

Graphic Design (APGRD)

This program prepares students for a career as a graphic designer. Graphic designers work with writers, publishers, photographers, printers, and other specialists in the field of visual communication design to communicate, inform, instruct, or sell. Individuals may work on publications, advertising, the Internet, interactive media, exhibit graphics, signage, corporate identity, or packaging. The program focuses on developing skills in basic design theory, concept development, typography, the major graphic design software, and knowledge of production techniques for print and electronic media as exhibited in a portfolio. Creative and artistic ability is required for careers in graphic design, as well as originality and capacity for experimentation in visual problem solving. Students also need an aptitude for developing strong skills with desktop computers and graphics software programs.

Program Admission Requirements: A high school Macintosh-based course, or GDT 105 with a "C-" or better, or instructor permission is required to enroll in GDT computer-based courses.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

General Education Requirements

ENG 107 or	Technical Writing	
ENG 111	Composition I	3-4
COM 101	Fundamentals of Speaking	3
MTH 152	Technical Geometry and Trigonometry	4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

(19 Credits)

Major/Area Requirements

ANI 145	Concept Development for Animation	2
ANI 150	3D Animation I: Modeling	4
ANI 155	Textures and Studio Lighting for Animation	4
ANI 230	Motion and Sound	2
ANI 250	3D Animation II	4
ANI 260	3D Animation III	4
ART 108	Three - Dimensional Design	4
ART 111	Basic Drawing I	4
GDT 140	Photoshop Graphics	4
INP 176	Web Animation I	3
INP 276	Web Animation II	4
VID 276	Advanced Video Graphics I	3
VID 280	DVD Authoring	3

(45 Credits)

Minimum Credits Required for the Program:

64 Credits

3D Animation (APANIM)

The Digital Animation program prepares students for entry-level positions in digital 3D modeling and animation for use in video, CD-ROM and DVD presentations, broadcast graphics, video game design, kiosks, print (still views), and the Web. Emphasis is on visual perception of 3D form and shape, volume/weight, surface mapping and lighting, basic 3D animation and motion graphic composition for video and internet ready applications.

Program Admission Requirements:

A high school Macintosh-based course, or GDT 105 with a "C" or better, or instructor permission is required to enroll in GDT computer-based courses.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



General Education Requirements		(18 Credits)
Writing	Elective(s)*	3-4
Speech	Elective(s)**	3
Math	Elective(s)***	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)****	3

Major/Area Requirements		(42 Credits)
PHO 103	History of Photography	3
PHO 111	Photography I	4
PHO 117	Introduction to the Studio	3
PHO 127	Digital Photo Imaging I	4
PHO 228	Digital Photo Imaging II	4
PHO 230	Portfolio Projects	3
PHO 231	Portfolio Seminar	4
PHO 122 or	Darkroom Techniques	
PHO 129	Black and White Digital Imaging	4
PHO 211 or	Large Format Photography	
PHO 220	Advanced Studio Techniques	3
	Complete an additional 9-12 credits of PHO electives (100 level and above)	9-12

Minimum Credits Required for the Program: 60 Credits

Notes:

- * *ENG 100 or ENG 111 is recommended*
- ** *COM 101 or COM 102 is recommended*
- *** *MTH 151, MTH 152, MTH 160, or MTH 169 is recommended*
- **** *fulfilled upon completion of major/area requirement PHO 103*

Photographic Technology (APPHOT)

This program provides a firm foundation in silver-based and digital photographic technologies. Through a combination of required basic courses and specialized elective courses, the student tailors the program to his or her particular interest in the photographic field. The program prepares the student to work behind the camera, in the darkroom, and on the computer. Students shoot with large, medium, and small format cameras in both color and black and white. Graduates of the program find job opportunities in commercial studios, amateur and professional photo labs, and photo-journalism. Students also complete the program to use photography as a means of personal expression, and as preparation for transferring to four-year photography programs.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Welding, Fabrication and HVAC

Degree and Certificate Programs

The College has one of the leading Welding programs in the country, with award-winning student work at the state and national levels. There are two levels of certification leading to an associate degree in Welding or Management Supervision. The welding program produces highly-skilled people ready for immediate entry into the workforce.

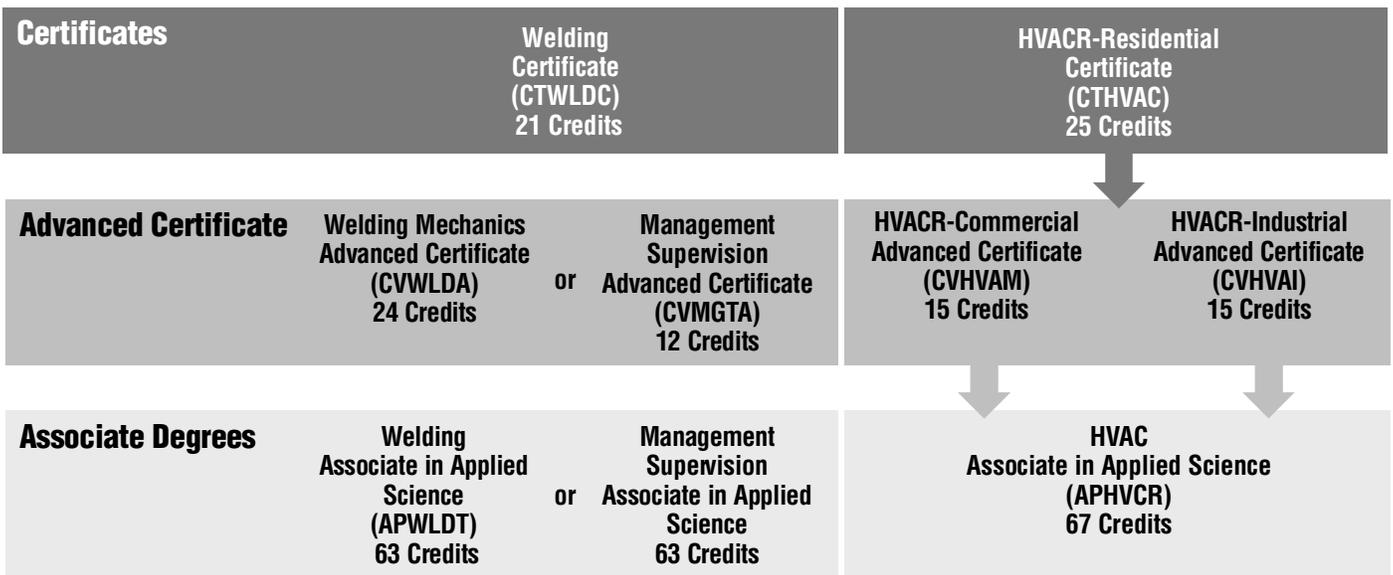
Students can also take advantage of a comprehensive series of programs in the field of heating, ventilation, and air conditioning. Beginning with a certificate in residential HVAC, students can add advanced certification in commercial or industrial HVAC. These certificates provide a solid foundation for an associate in applied science degree in HVAC.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or to advance in their existing careers. The first level is the certificate, which can vary from nine to thirty credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level—an Associate in Applied Science—is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate, and General Education requirements.



Welding (CTWLDC)

Certificate

Major/Area Requirements		(21 Credits)
WAF 105	Welding for Art & Engineering	2
WAF 106	Blueprint Reading for Welders	3
WAF 111	Welding I Oxy-Acetylene	4
WAF 112	Welding II Basic ARC	4
WAF 123	Welding III Advanced Oxy-Acetylene (OAW)	4
WAF 124	Welding IV Advanced ARC (SMAW)	4

Minimum Credits Required for the Program: 21 Credits

Welding (CTWLDC)

This program prepares students for entry-level jobs involving gas welding, brazing, and various combinations of arc welding processes, where they will work under the supervision of an experienced welding technician. The program also gives students a foundation for WCC's Advanced Certificate in Welding Mechanics.

Welding Mechanics (CVWLDA)

Advanced Certificate

Major/Area Requirements		(24 Credits)
WAF 200	Layout Theory Welding	3
WAF 210	Welding Metallurgy	3
WAF 215	Welding V Advanced GTAW & GMAW	4
WAF 226	Specialized Welding Procedures	4
WAF 227	Basic Fabrication	3
WAF 229	Shape Cutting Operations	3
WAF 289	MIG Welding	4

Minimum Credits Required for the Program: 24 Credits

Welding Mechanics (CVWLDA)

This program prepares students for jobs as a welding maintenance mechanic where they weld metal parts together according to layouts, blueprints, or work orders using gas welding or brazing and any combination of arc-welding processes. The credits in this program also may be applied toward an Associate in Applied Science Degree in Welding.

Program Admission Requirements: Successful completion of the Welding Certificate (CTWLDC).



General Education Requirements		(18 Credits)
Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)*	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

*MTH 107 is recommended.

Major/Area Requirements		(45 Credits)
	Complete the Welding Certificate	(21 Credits)
WAF 105	Welding for Art & Engineering	2
WAF 106	Blueprint Reading for Welders	3
WAF 111	Welding I Oxy-Acetylene	4
WAF 112	Welding II Basic ARC	4
WAF 123	Welding III Advanced Oxy-Acetylene (OAW)	4
WAF 124	Welding IV Advanced ARC (SMAW)	4

	Complete the Welding Mechanics Advanced Certificate	(24 Credits)
WAF 200	Layout Theory Welding	3
WAF 210	Welding Metallurgy	3
WAF 215	Welding V Advanced GTAW & GMAW	4
WAF 226	Specialized Welding Procedures	4
WAF 227	Basic Fabrication	3
WAF 229	Shape Cutting Operations	3
WAF 289	MIG Welding	4

Minimum Credits Required for the Program: 63 Credits

Welding (APWLDT)

Some employers require or prefer employees to have an associate degree as a condition for employment or for advancement. Students can earn an AAS in Welding by completing the requirements listed below.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Heating, Ventilation, Air Conditioning, and Refrigeration - Residential (CTHVAC)

Certificate

Required Courses (25 Credits)

HVA 101	Heating, Ventilating, and Air Conditioning I	4
HVA 102	Sheet Metal Fabrication	4
HVA 103	Heating, Ventilation, and Air Conditioning II	4
HVA 105	Heating, Ventilation, and Air Conditioning III	4
HVA 107	Heating, Ventilation, and Air Conditioning IV	4
HVA 108	Residential HVAC Codes and Competency Exams	3
WAF 104	Soldering and Brazing	2

Minimum Credits Required for the Program: 25 Credits

Heating, Ventilation, Air Conditioning, and Refrigeration - Residential (CTHVAC)

This program prepares students for entry-level jobs in HVAC contracting companies, HVAC servicing companies, hospitals, schools and other public institutions, and apprenticeships in large manufacturing plants and supply houses. In these commercial, residential, or institutional settings you will combine your diagnostic and repair skills with customer relations skills to service heating, ventilation, and air conditioning equipment. This program also helps prepare students for the third class refrigeration licensure examination.

Heating, Ventilation, Air Conditioning, and Refrigeration - Commercial (CVHVAM)

Advanced Certificate

Core Courses (6 Credits)

HVA 201	Energy Audits	3
HVA 202	Air System Layout and Design	3

Major/Area Requirements (9 Credits)

HVA 203	Refrigeration Systems	3
HVA 205	Hydronic Systems	3
HVA 207	Codes and Industry Standards with Commercial ICE	3

Minimum Credits Required for the Program: 15 Credits

Heating, Ventilation, Air Conditioning, and Refrigeration - Commercial (CVHVAM)

This program is a capstone to HVAC-Residential Certification, and is designed for students who wish to develop skills in HVACR mechanics or installation. It prepares the student for industry-recognized certification (C/IS) for entry-level employment in commercial heating, ventilation and air conditioning. Additional theory and hands-on experience will increase students knowledge base concerning HVACR systems at the commercial level. The student will develop knowledge and skills in sizing, layout, installation, maintenance, and trouble shooting HVACR equipment found in small office buildings, schools, supermarkets, and other light commercial settings.

Program Admission Requirements: Students must complete the Heating, Ventilation, Air Conditioning, and Refrigeration Residential program (CTHVAC).

Heating, Ventilation, Air Conditioning, and Refrigeration (APHVCR)

Associate in Applied Science Degree

General Education Requirements (20 Credits)

Writing	Elective(s)	3-4
Speech	Elective(s)	3
Math	Elective(s)	4
Nat. Sci.	Elective(s)	4
Soc. Sci.	Elective(s)	3
Arts/Human.	Elective(s)	3

Major/Area Requirements (40 Credits)

Complete the Heating, Ventilation, Air
and Refrigeration - Residential Certificate (25 Credits)

HVA 101	Heating, Ventilating, and Air Conditioning I	4
HVA 102	Sheet Metal Fabrication	4
HVA 103	Heating, Ventilation, and Air Conditioning II	4
HVA 105	Heating, Ventilation, and Air Conditioning III	4
HVA 107	Heating, Ventilation, and Air Conditioning IV	4
HVA 108	Residential HVAC Codes and Competency Exams	3
WAF 104	Soldering & Brazing	2

Complete the Heating, Ventilation, Air Conditioning
and Refrigeration- Commercial Advanced Certificate
HVA 201, HVA 202, HVA 203, HVA 205, HVA 207 15

or

Complete the Heating, Ventilation, Air Conditioning
and Refrigeration - Industrial Advanced Certificate
HVA 201, HVA 202, HVA 204, HVA 206, HVA 208 15

Minimum Credits Required for the Program: 60 Credits

Heating, Ventilation, Air Conditioning and Refrigeration (APHVCR)

This program is a capstone to both the Heating, Ventilation, Air Conditioning and Refrigeration - Industrial and the Heating, Ventilation, Air Conditioning and Refrigeration - Commercial Advanced Certificates. It provides a rigorous heating, ventilation, air-conditioning and refrigeration (HVACR) background with solid preparation for entry-level management positions or transfer to four-year programs offering bachelor degrees in HVACR, technology management, and other technically oriented fields. This program also provides opportunities to obtain advanced certifications which are recognized throughout the heating, ventilation and air-conditioning industry.

Heating, Ventilation, Air Conditioning, and Refrigeration - Industrial (CVHVAI)

Advanced Certificate

Core Courses

HVA 201	Energy Audits	3
HVA 202	Air System Layout and Design	3

(6 Credits)

Major/Area Requirements

HVA 204	Central Heating Plants	3
HVA 206	Central Cooling Plants	3
HVA 208	Codes and Industry Standards with Industrial ICE	3

(9 Credits)

Minimum Credits Required for the Program:

15 Credits

Heating, Ventilation, Air Conditioning, and Refrigeration - Industrial (CVHVAI)

This program is a capstone to HVAC-Residential Certification, and is designed for students who wish to develop skills in HVACR mechanics or installation. It prepares the student for industry-recognized certification (Commercial Industry Competency Exam) for entry-level employment in industrial heating, ventilation and air conditioning. This program is designed to provide the student with theoretical and practical experiences in HVACR at the industrial level. Through intensive hands-on experiences, the student will develop knowledge and skills in sizing, layout, installation, maintenance, and trouble shooting HAVCR equipment found in large buildings, industrial complexes, power plants, and other industrial settings.

Program Admission Requirements:

Students must complete the Heating, Ventilation, Air Conditioning and Refrigeration Residential Certificate (CTHVAC).



University Transfer Programs

University transfer programs are designed to parallel the first two years of study at a four-year college or university. Some of these programs are very general, with many electives that provide the flexibility needed to meet the requirements of a variety of bachelor's degree programs. Other programs have defined requirements that are intended to transfer to specific bachelor degree programs. Most of the programs carry either the Associate in Arts (A.A.) Degree, or the Associate in Science (A.S.) Degree, the two primary transfer degrees. The following transfer programs are offered at WCC:

- Business (AABAS)
- Computer Information Systems Transfer (AACIST)
- Construction Management (AACMG)
- Criminal Justice (AACJ)
- Education, Elementary (AAELEM)
- Education, Secondary (AASECO)
- Human Services (AAHUST)
- International Studies (AAINS)
- Journalism (AAJOUR)
- Liberal Arts Transfer (AALAT)
- Math and Science (ASMSAS)
 - Biology/Pre-medicine Concentration (BMED)
 - Chemistry/Pre-medicine Concentration (CMED)
 - Computer Science Concentration (COMS)
 - Mathematics Concentration (MATH)
 - Physics/Pre-Engineering Concentration (PHYS)
- Technical Writing
 - Associate in Arts (AATW)
 - Associate in Science (ASTWRT)

Before beginning any transfer program, a student should consult with an academic advisor or counselor to obtain a program articulation agreement, or a transfer guide. Early in the program, the student should contact an undergraduate advisor at the transfer college for specific admission and curriculum requirements and, if available, an unofficial transfer-credit evaluation.

Copies of articulation agreements and transfer guides are available in the Counseling Office on the second floor of the Student Center Building. Computers with access to the Internet Web sites of four-year colleges and universities also are available there.

MACRAO Agreement

Many of the programs in this section meet the requirements of the Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) Agreement for transferring general education courses between participating Michigan colleges and universities. If a program meets MACRAO requirements, it will be noted in the program description.

To use the MACRAO agreement, students must have the Student Records Office certify their transcript for MACRAO completion before sending it to the colleges to which they are transferring. Not all four-year colleges and universities participate in MACRAO, and some that do participate have limitations or exceptions to the agreement. A detailed explanation of the MACRAO Agreement and a list of participating colleges can be found on page 64 of this Bulletin.

Articulation Agreements and Transfer Guides

Some transfer programs are based on articulation agreements with other colleges. If a program has an articulation agreement, it will be noted in the program description. Copies of articulation agreements, which provide additional information including admission requirements and the sequence for taking courses at both colleges, are available in the Counseling Office on the second floor of the Student Center Building.

Transfer guides list WCC courses that transfer to specific bachelor degree programs at colleges and universities in Michigan. These guides are provided by the four-year colleges and do not take into consideration the general education and other graduation requirements at WCC. Students who plan to earn associate degrees should work with a counselor or advisor to select courses from their transfer guides that match the requirements at WCC. The Counseling Office has copies of transfer guides for the major four-year institutions in Michigan.



General Education Requirements		(30 Credits)
ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
MTH 181 or	Mathematical Analysis I	
MTH 197	Linear Algebra	4
Nat. Sci.	Elective(s)*	4-5
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Arts/Human.	Elective(s)**	6

Major/Area Requirements		(24 Credits)
ACC 111	Principles of Accounting I	3
ACC 122	Principles of Accounting II	3
BMG 140	Introduction to Business	3
BMG 207	Business Communication	3
BMG 265	Business Statistics	3
ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3
BMG 106 or	Legal Basics in Business	
BMG 111	Business Law I	3

Required Support Courses		(7 Credits)
CIS 110	Introduction to Computer Information Systems	3
	Complete one or two courses as free electives to bring the program total to a minimum of 60 credits.***	4-6

Minimum Credits Required for the Program: 60 Credits

Notes:
 *Students transferring to a 4-yr institution should choose a lab-based course.
 **Students transferring to EMU should choose a multi-cultural course (ENG 181 or ENG 214) to meet the MACRAO plus four requirements. In addition, a course in logic or ethics (PHL 205 or PHL 250) is strongly recommended.
 ***See an advisor to choose courses that transfer to and meet the requirements of the program and college to which you are transferring.

Note:
 University of Michigan School of Business does not accept Business or Accounting courses from community colleges. If you wish to transfer to a business major at UM, please see a counselor.

Business (AABAS)

This program prepares you for transfer to a Bachelor's of Business Administration degree program at a four-year college or university, where you will further improve your communication and interpersonal skills while developing a specialty in accounting, economics, finance, management, or some other aspect of business. The program was specifically designed to transfer to Eastern Michigan University. Check with an advisor for information on transferring to other colleges. See the footnotes for transferring to the University of Michigan.

Articulation:

- This program has an articulation agreement with Eastern Michigan University, College of Business, for the Bachelor of Business Administration Degree. Copies of the articulation agreement are available in the Counseling Office.
- Meets MACRAO plus EMU's four additional requirements. Students must have their transcripts certified for MACRAO completion by the WCC Student Records Office.
- A minimum cumulative GPA of 2.5 is required for admission to EMU's College of Business. All courses must be completed with a minimum grade of "C" (2.0) to transfer. Contact the College of Business Undergraduate Advising Office at EMU early to have transfer credits reviewed and unofficially evaluated. (734-487-2344 or email amelia.chan@emich.edu.)

Program Admission Requirements:

- Students must have a minimum COMPASS Algebra score of 66 or complete MTH 169 with a "C" or better to enroll in MTH 181. Two years of high school algebra (Algebra I and Algebra II) are recommended.
- Students should have a working knowledge of applications software or enroll in CIS 100 prior to taking CIS 110.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

General Education Requirements (30 Credits)

ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
MTH 181 or	Mathematical Analysis I	
MTH 197	Linear Algebra	4
Nat. Sci.	Electives*	4
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Arts/Human.	Electives**	6

Major/Area Requirements (32 Credits)

ACC 111	Principles of Accounting I	3
ACC 122	Principles of Accounting II	3
BMG 207	Business Communication	3
CIS 110	Introduction to Computer Information Systems	3
CPS 171	Introduction to Programming with C++	4
CPS 271	Object Features of C++	4
ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3
CIS 238 or	PC Assembly Language***	
CPS 272	Data Structures with C++	3-4
	Complete 3 credits as an open elective.****	3

Minimum Credits Required for the Program: 62 Credits

Notes:

*Students transferring to EMU or another 4-yr institution should choose a lab-based science course.

**Students transferring to EMU should choose a multi-cultural course to meet the MACRAO plus four requirements.

***Credit is awarded for EMUs IS 315, if student successfully passes CPS 272 and passes a validation examination at EMU.

****Students transferring to EMU are strongly encouraged to take BMG 140 (it is required for admission to the College of Business).

Computer Information Systems Transfer (AACIST)

This program prepares students to transfer to a bachelor's degree program in computer information systems at a four-year college or university, where students will continue developing the skills needed for a career in areas such as systems analyst, programmer, software engineer, database specialist, and information systems management administrator. The program was specifically designed to transfer to Eastern Michigan University.

Articulation:

- This program has an articulation agreement with Eastern Michigan University, College of Business for the Bachelor of Business Administration in Computer Information Systems. Copies of the articulation agreement are available in the Counseling Office.
- Meets MACRAO plus EMU's additional four requirements. Students must have their transcripts certified for MACRAO completion by the WCC Student Records Office.
- A minimum cumulative GPA of 2.5 is required for admission to EMU's College of Business. All courses must be completed with a minimum grade of "C" 2.0 to transfer. Contact the College of Business, Undergraduate Advising Office at EMU early to have transfer credits reviewed and unofficially evaluated. (734-487-2344 or email amelia.chan@emich.edu.)

Program Admission Requirements:

- Students must have a minimum COMPASS Algebra score of 66 or complete MTH 169 with a "C" or better to enroll in MTH 181. Two years of high school algebra (Algebra I and Algebra II) are recommended.
- Students should have a working knowledge of applications software or enroll in CIS 100 prior to taking CIS 110.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Criminal Justice (AACJ)

Associate in Arts Degree

General Education Requirements

(29 Credits)

Writing	Elective(s)	6-7
COM 101 or	Fundamentals of Speaking	
COM 102	Interpersonal Communication	3
MTH 160	Basic Statistics	4
Nat. Sci.	Elective(s)*	4-5
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Arts/Human.	Elective(s)	6

Major/Area Requirements

(36 Credits)

CJT 100	Introduction to Criminal Justice	3
CJT 111	Police/Community Relations	3
CJT 120	Criminal Justice Ethics	3
CJT 160	Criminal Justice Constitutional Law	3
CJT 208	Criminal Evidence and Procedure	3
CJT 209	Criminal Law	3
CJT 223	Juvenile Justice	3
CJT 224	Criminal Investigation	3
CJT 225	Seminar in Criminal Justice	3
	Complete one additional course in Psychology (PSY)	3
	Complete two courses in Sociology (SOC)	6

Minimum Credits Required for the Program:

65 Credits

Notes:

*Transfer students should select lab-based science course

Criminal Justice (AACJ)

This program prepares you for jobs in police work, probation and parole, and juvenile criminal justice. It also gives students the required academic background to enter the Washtenaw Police Academy, the Law Enforcement Certification program run by Washtenaw Community College, as well as credits that transfer into Eastern Michigan University's Criminology and Criminal Justice program.

Articulation:

This program has an articulation agreement with Eastern Michigan University, College of Arts and Sciences, for a BA or BS in Criminology and Criminal Justice.

Program Admission Requirements:

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a "C" or better to enroll in MTH 160. One year of HS algebra is recommended.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



First Semester		(16 Credits)
COM 101	Fundamentals of Speaking	3
ENG 111	Composition I	4
GEO 101	World Regional Geography	3
PLS 112	Introduction to American Government	3
MUS 140 or MUS 180	Music Theory I* Music Appreciation	3
Second Semester		(16 Credits)
ENG 226	Composition II	3
GLG 202	Earth Science for Elementary Teachers	3
MTH 148	Functional Mathematics for Elementary Teachers I	4
PSY 100	Introductory Psychology	3
	Complete one course from the following: ENG 181, ENG 214, or ENG 242	3
Third Semester		(15 Credits)
ENG 240	Children's Literature	3
PSY 251	Education of Exceptional Children	3
CIS 100 or CIS 110	Introduction to Software Applications Introduction to Computer Information Systems	3
	Complete a minimum of 6 credits in your major or minor area (e.g. language arts, math, science, social studies, etc.)***	6
Fourth Semester		(15 Credits)
HST 201	United States History to 1877	3
MTH 149	Functional Math for Elementary School Teachers II	4
PHY 100	Physics for Elementary Teachers	4
PSY 220	Human Development and Learning	4

Minimum Credits Required for the Program: 62 Credits

Students may dual enroll in FETE 201 at EMU concurrently with enrollment in PSY 220 at WCC.

Notes:

*For EMU select MUS 140; for CMU select MUS 180.

***See an advisor to select a course that will meet the requirements of the college to which you are transferring.

Elementary Education (AAELEM)

This program prepares students to transfer into an elementary education program at a four-year college or university. The first two years of instruction in a bachelor's degree program in elementary education is covered. The program includes the general education courses used for most elementary education programs in Michigan, that prepare students for the State-mandated basic skills tests. Requirements may vary among colleges so they should obtain the current curriculum from the college to which you are transferring and talk to an undergraduate advisor early in their studies. Curriculum and admission requirements are available on most colleges' Web sites.

Articulation:

This program meets MACRAO requirements, in addition to Eastern Michigan University's four additional requirements. Students must have their transcripts certified for MACRAO completion by the WCC Student Records Office.

Program Admission Requirements:

Students must have a COMPASS Algebra score of 46 or complete MTH 097 with a "C" or better to enroll in MTH 148. At least one year of high school algebra is recommended.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Admission requirements for bachelor's degree teacher education programs may vary among colleges. Most require a minimum grade point average of 2.0 for courses to transfer as well as a minimum of 56 to 60 college credits completed and successful completion of the state-mandated basic skills test before applying for admission to the program.

First Semester (16 Credits)

COM 101	Fundamentals of Speaking	3
ENG 111	Composition I	4
PLS 112	Introduction to American Government	3
ENG 181 or ENG 214 or ENG 242	African American Literature Literature of the Non-Western World Multicultural Literature for Youth	3
	Complete one course from: CIS 100, CIS 110, or CPS 120	3

Second Semester (16 Credits)

ENG 226	Composition II	3
PSY 100	Introductory Psychology	3
	Complete one course from: ENG 160, ENG 170, ENG 211, ENG 212, ENG 213, ENG 222, ENG 223, ENG 224, SPN 111, SPN 122, FRN 111, FRN 122, GRM 111, GRM 122	3-5
	Complete one course from: MTH 160, MTH 181, MTH 182, MTH 191, or MTH 197	4-5
	Complete a minimum of 3 credits in a major or minor area.*	3

Third Semester (17 Credits)

PSY 251	Education of Exceptional Children	3
	Complete one course from: BIO 101, BIO 102, CEM 105, CEM 111, GLG 100, GLG 114, PHY 105, or PHY 111	4
	Complete one course from: HST 121, HST 122, HST 123, HST 201, or HST 202	3
	Complete a minimum of 7 credits in a major or minor area.*	7

Fourth Semester (11 Credits)

PSY 220	Human Development and Learning	4
	Complete a minimum of 7 credits in a major or minor area.*	7

Students may dual enroll in FETE 201 at EMU concurrently with enrollment in PSY 220 at WCC.

Minimum Credits Required for the Program: 60 Credits

Notes:

*This program is articulated with EMU. Students who are transferring should check the EMU Web site or see a WCC counselor for an articulation guide.

Secondary Education (AASECO)

This program prepares students to transfer into a bachelor's degree program in secondary education at a four-year college or university. The program covers the first two years of instruction including the general education courses, used by most secondary education programs in Michigan, that prepare students for the State-mandated basic skills tests. Requirements may vary among colleges so you should obtain the current curriculum from the college to which you are transferring and talk to an undergraduate advisor early in their studies. Curriculum and admission requirements are available on most colleges' Web sites.

Articulation:

This program meets MACRAO plus EMU's additional four requirements. To use MACRAO, students must have their transcripts certified for MACRAO completion by the WCC Student Records Office.

Program Admission Requirements:

Students must have a COMPASS score of 46 or successfully complete MTH 097 with a grade of "C" or better to enroll in MTH 160. At least one year of high school algebra is recommended.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Admission requirements for bachelor's degree teacher education programs may vary among colleges. Most require a minimum grade point average of 2.0 for courses to transfer as well as a minimum of 56 to 60 college credits completed and successful completion of the state-mandated basic skills test before applying for admission to the program.

General Education Requirements (30 Credits)

ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
MTH 160	Basic Statistics	4
BIO 101 or	Concepts Of Biology*	
BIO 102	Human Biology	4
PSY 100	Introductory Psychology	3
SOC 100	Principles of Sociology	3
	Arts/Human. Elective(s)**	6

Major/Area Requirements (28 Credits)

HSW 100	Introduction to Human Services	3
HSW 150	Helping Approaches for Groups	3
HSW 200	Intro to Interviewing and Assessment Techniques	3
HSW 230	Field Internship and Seminar I	3
PSY 206	Life Span Developmental Psychology	4
PSY 210	Behavior Modification	3
PSY 257	Abnormal Psychology	3
SOC 205	Race & Ethnic Relations	3
SOC 225	Family Social Work	3
Optional:	HSW 232 Field Internship and Seminar II***	0-3

Required Support Courses (6 Credits)

CIS 100	Introduction to Software Applications	3
	Complete one course from: COM 102, ENG 250, or PLS 112#	3

Minimum Credits Required for the Program: 64 Credits

Notes:

*If Transferring to Madonna University, select BIO 101.

**Choose one cross-cultural elective: ART 143, ART 150, ENG 181, or ENG 214.

Choose one course (not already completed as a cross-cultural elective): ART 130, 143, 150, ENG 160, 170, 181, 200, 211, 212, 213, 222, 223, 224, HUM 101, 102, 145, MUS 140, 180, PHL 101, 102, 205, 250, GRM 111, 122, and any FRN or SPN course 3 credits or above.

Note: If transferring to EMU, select ENG 181

If transferring to Madonna, select ART 150 and HUM 145

***This additional internship is recommended especially for students who plan on going directly into the workplace and for transfer students who need or want additional field experience before committing to a bachelor's degree program. Please see your program advisor for more information.

#EMU requires COM 102 or ENG 250; Madonna University requires PLS 112

Human Services (AAHUST)

This program prepares students for a job as a substance abuse, hospice, case, psychiatric, or social services aide in settings such as schools, rehabilitation centers, and mental health clinics or as a staff member in a community/neighborhood center.

The program provides skills students will need to work on a one-to-one basis or in groups to help people cope with problems. The program also prepares you to transfer to a bachelor's degree program where students will continue developing skills for a career in the field of social work. The program transfers to Eastern Michigan University and Madonna University. Specific course requirements for EMU and Madonna are listed in the footnotes. For more details, copies of the articulation agreements may be obtained from the counseling office or a program advisor.

Articulation:

This program has articulation agreements with the following institutions:

- Eastern Michigan University, College of Health and Human Services, Bachelor of Arts or Science in Social Work. Students should meet with an EMU Department of Social Work advisor before applying for admission to EMU's program.
- Madonna University, College of Social Sciences, BSW in Social Work
- Meets MACRAO plus EMU's and Madonna's additional requirements. Students must have their transcripts certified for MACRAO completion by the WCC Student Records Office.

Applying for Admission to the Program:

The faculty and administration reserve the right to admit and retain only those students who, in their judgment, possess academic and personal suitability for the Human Services Program. Suitability criteria are listed below and also can be found in the Human Services Student Handbook.

Applications to the program must be made during the semester that students are enrolled in HSW 100 (Introduction to Human Services). Interested students who are enrolled in the course will be invited to submit a written request for an admission interview.

Program Admission Requirements:

Applicants must have the following minimum COMPASS scores or complete the equivalent courses:

- COMPASS Algebra score of 46 or MTH 097 with a "C" or better
- College Level COMPASS scores in reading and writing.

Applicants must enroll in HSW 100 and complete the course with a grade of "C" or better.

Applicants must meet the following suitability criteria:

- Has a cumulative GPA of 2.0 in all WCC courses
- Demonstrates honesty in dealings with other students and faculty
- Demonstrates behavior conforming to the National Organization for Human Service Education's "Ethical Standards of Human Service Professionals" (printed in the program handbook)
- Presents in an appropriate and professional manner in the interview
- Demonstrates evidence of being able to relate to clients in a helpful manner
- Applicants must submit a letter of recommendation from a non-family member who knows them well such as a minister, employer, or teacher.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Faculty will review students' eligibility for the program on an ongoing basis.

1. Students must maintain satisfactory academic class performance, as evidenced by a minimum cumulative GPA of 2.0.
2. Students must earn a "C" or better in all HSW courses.
3. To enroll in the Human Services field internships, students must have completed HSW 100, HSW 150, and HSW 200 with a "C" or better.
4. Students must maintain at least an 80% rate of attendance in class and in an internship placement.
5. Students must honor any agreement entered into with an agency serving as an internship site.
6. Students must maintain ethical behavior as defined in the National Organization for Human Service Education's "Ethical Standards of Human Services Professionals".
7. Students should be aware that internship sites might conduct background checks on applicants to determine if they have been convicted of a crime or are addicted to drugs or alcohol.

General Education Requirements		(30 Credits)
ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
Math.*	MTH 160, 169, or higher	4
Nat. Sci.	Transfer students should select a lab course	4
PLS 112	Introduction to American Government	3
Soc. Sci.	Elective(s)	3
Arts/Human.**	Elective(s)	6

Major/Area Requirements		(34 Credits)
ANT 201	Introduction to Cultural Anthropology	3
ART 150	Monuments from Around the World	3
ENG 213	World Literature I	3
HUM 145	Comparative Religions	3
PLS 211	Introduction to Comparative Government	3
GEO 100 or	World Regional Geography	
GEO 103	Cultural Geography	3
	Complete four semesters of French or Spanish	16

Minimum Credits Required for the Program: 64 Credits

Notes:

**Students transferring to EMU should see a counselor to select an appropriate math course. UM transfer students should choose MTH 182 or higher to complete requirements for the Mathematics & Symbolic Analysis distribution area.*

***Choose one course that meets the multi-cultural requirement at EMU (ART 143, ENG 181, ENG 214)*

International Studies (AAINS)

This program prepares students to transfer to a four-year college or university where they will continue to prepare for a career in international relations or another field with an international dimension. The program gives students a foundation in foreign language and cultural studies while providing the flexibility to meet general education requirements for most four-year colleges.

Articulation:

This program meets the MACRAO transfer agreement plus EMU's four additional requirements. Students must have their transcripts certified for MACRAO completion by the WCC Student Records Office.

Program Admission Requirements:

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a grade of "C" or better to enroll in a math course for the AA degree. At least one year of high school algebra is recommended.

Program Admission Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Journalism (AAJOUR)

Associate in Arts Degree

General Education Requirements (28 Credits)

ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
Math	Elective(s)	3-4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	6
Arts/Human.	Elective(s)	6

Major/Area Requirements (32 Credits)

COM 130	Introduction to Mass Communication	3
ENG 101	Journalism I	3
ENG 216	Newswriting and Reporting	3
ENG 217	Feature Writing and Research	3
ENG 265	Journalism Internship	3
GDT 105 or	Introduction to Mac Graphics	
PHO 111	Photography I	4
GDT 127 or	QuarkXPress for Print Publishing	
PHO 227	Photojournalism	3

Elect courses in Social Science and Arts & Humanities to bring the total credits to a minimum of 60. 10

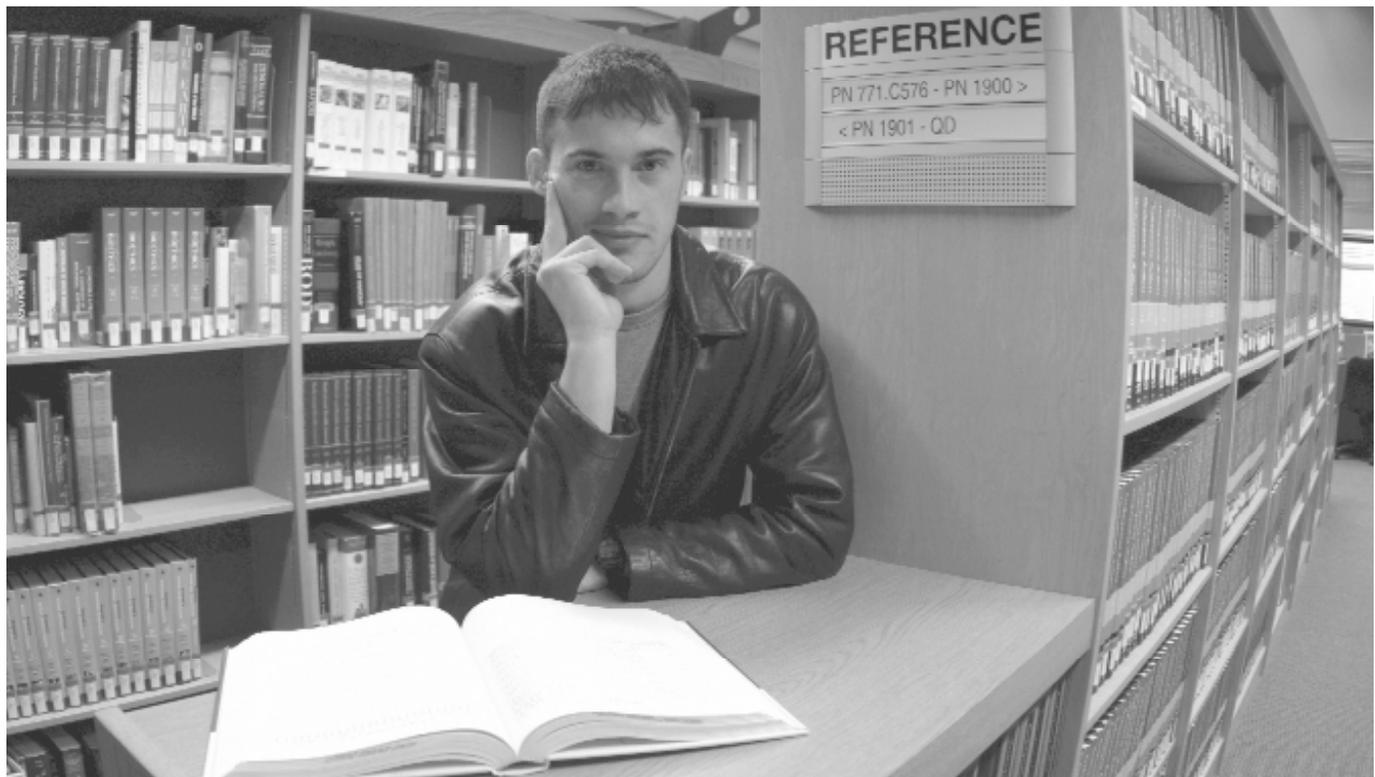
Minimum Credits Required for the Program: 60 Credits

Journalism (AAJOUR)

This program prepares students to transfer to a four-year institution and major in journalism. Four specialty courses provide a solid background in journalism-related content. Students in the program will gain invaluable experience in aspects of a career in journalism by participating in internships at The Voice, or on a variety of other print publications through WCC's Public Relations and Marketing Office.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



Liberal Arts Transfer (AALAT)

Associate in Arts Degree

General Education Requirements

(29 Credits)

ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
MTH 160 or MTH 169 or MTH 181	Basic Statistics Intermediate Algebra Mathematical Analysis I	4
Nat. Sci.	Elective(s)	3-4
Soc. Sci.	Elective(s)	6
Arts/Human.	Elective(s)	6

Major/Area Requirements

(31 Credits)

Complete a minimum of 16 credits to bring the total credits to 60.	16
Complete 15 credits from the following disciplines: ANT, ART, COM, DAN, ECO, ENG, FRN, GEO, GRM, HST, HUM, MUS, PLS, PSY, SOC, and SPN	15

Minimum Credits Required for the Program:

60 Credits

Liberal Arts Transfer (AALAT)

This program allows students to design a program of study to meet individual needs, and is a good option for students who are undecided about a major, or simply want to explore various areas in the arts and social sciences. This program allows for customization of coursework to meet the requirements of the transfer college or university. A counselor will assist in developing a program of study that meets all of the College's graduation requirements. A counselor can also help students determine interests, and career and educational goals, as well as provide transfer and career information.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.



General Education Requirements		(31 Credits)
ENG 111	Composition I	4
ENG 107* or	Technical Writing	
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
MTH 191	Calculus I	5
BIO 101** or	Concepts Of Biology	
PHY 111	General Physics I	4
PSY 100	Introductory Psychology	3
PLS 112	Introduction to American Government	3
Arts/Human.	Elective(s)	6

*The Chemistry/Pre-Medicine and Physics concentrations require ENG 107; all other concentrations require ENG 226.

**The Biology/Pre-Medicine concentration requires BIO 101 & 103; the Mathematics concentration can use either the BIO or PHY sequence; all other concentrations require PHY 211 & 222.

Required Support Courses		(12 Credits)
CPS 171	Introduction to Programming with C++	4
MTH 192	Calculus II	4
BIO 103 or	General Biology II	
PHY 122	General Physics II	4

Minimum Concentration/Option Credits Required for the Program: 24 Credits

Complete the requirements for one of the following concentrations. The same course may not be used to meet both a concentration requirement and other program requirements above. Please consult an advisor to select appropriate electives.

Math and Science Concentrations

Biology/Pre-Medicine (BMED)		(24 Credits)
CEM 111	General Chemistry I	4
CEM 122	General Chemistry II	4
CEM 211	Organic Chemistry I	4
CEM 222	Organic Chemistry II	4
	BIO 227 Biology of Animals or	
	BIO 228 Biology of Plants	4
Elective	BIO 102, BIO 111, BIO 208, BIO 215, BIO 216, BIO 227, BIO 228, BIO 237	4

Continued on next page

Math and Science (ASMSAS)

This program prepares students to transfer to a four-year college or university complete a bachelor's degree in biology, chemistry, computer science, math, or physics. The program will give students a solid foundation in math and science. Students should obtain program requirements and transfer equivalencies from the college to which they are transferring.

Articulation:

This program will fulfill MACRAO requirements if, in addition to the courses completed to meet General Education requirements, students complete one additional course in Arts & Humanities and two additional courses in Social & Behavioral Science. The concentrations in Computer Science and Mathematics include elective credit hours that can be used for this purpose. To use MACRAO, students must have their transcripts certified for MACRAO completion by the WCC Student Records Office.

Program Admission Requirements:

- Students must have a minimum COMPASS Trigonometry score of 46 or complete (MTH 176 and MTH 178) or MTH 180 with a grade of "C" or better to begin the math sequence. Two years of high school algebra and one year of high school pre-calculus are recommended to prepare for this program.
- The chemistry, physics, and computer science concentrations require one semester of high school physics or PHY 105 or PHY 111 with a "C" or better to enroll in PHY 211.
- A high school computer course or CIS 100 is required to enroll in CIS 110.
- The biology, chemistry, and physics concentrations require one year of high school chemistry or CEM 057 to enroll in CEM 111.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

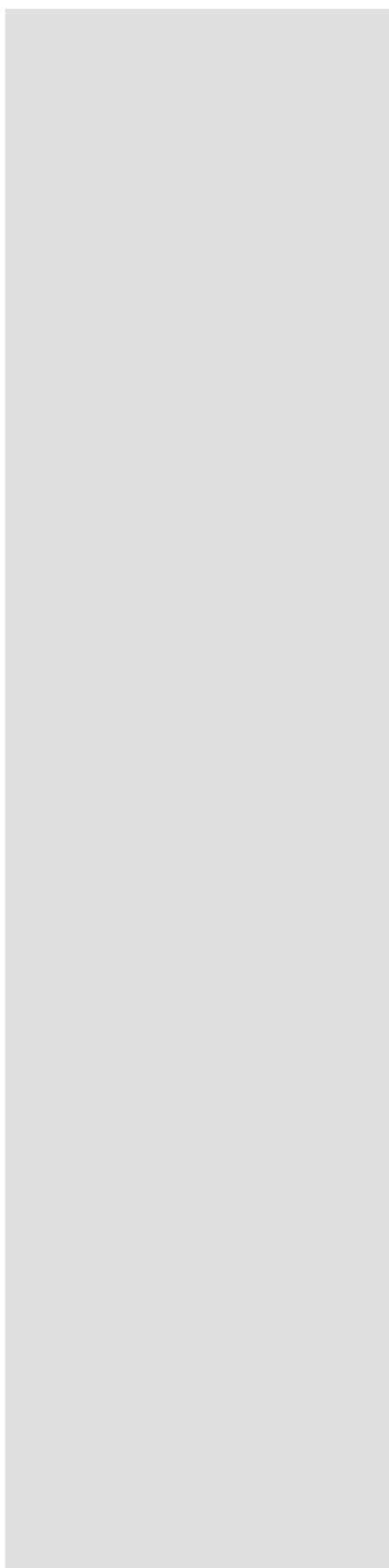
Chemistry/Pre-Medicine (CMED)		(24 Credits)
CEM 111	General Chemistry I	4
CEM 122	General Chemistry II	4
CEM 211	Organic Chemistry I	4
CEM 222	Organic Chemistry II	4
MTH 197	Linear Algebra	4
MTH 293	Calculus III	4

Computer Science (COMS)		(25 Credits)
CIS 238	PC Assembly Language	3
CPS 271	Object Features of C++	4
CPS 272	Data Structures with C++	4
MTH 197	Linear Algebra	4
MTH 293	Calculus III	4
Elective	take an additional six credits	6

Mathematics (MATH)		(25 Credits)
MTH 160	Basic Statistics	4
MTH 197	Linear Algebra	4
MTH 293	Calculus III	4
MTH 295	Differential Equations	4
Elective	take an additional nine credits	9

Physics/Pre-Engineering (PENG)		(26 Credits)
CEM 111	General Chemistry I	4
MTH 197	Linear Algebra	4
MTH 293	Calculus III	4
MTH 295	Differential Equations	4
PHY 211	Analytical Physics I	5
PHY 222	Analytical Physics II	5

Minimum Credits Required for the Program: 67 Credits



General Education Requirements (30 Credits)

ENG 111	Composition I	4
ENG 226	Composition II	3
COM 101	Fundamentals of Speaking	3
MTH 160 or	Basic Statistics	
MTH 169	Intermediate Algebra	4
Nat. Sci.	Elective(s)*	4
Soc. Sci.	Elective(s)*	6
Arts/Human.	Elective(s)*	6

Major/Area Requirements (32 Credits)

BOS 257	Word Processing and Document Formatting II	3
ENG 107	Technical Writing	3
ENG 185	English Grammar and Usage	3
ENG 208	Advanced Technical Writing I	3
ENG 209	Advanced Technical Writing II	4
ENG 245	Career Practices Seminar	2
GDT 105	Introduction to Mac Graphics	3
INP 150	Web Coding I	3
	Restricted Electives**	8-9

Minimum Credits Required for the Program: 62 Credits

Notes:

**If your course(s) exceeds the recommended credit hours, you will need to reduce the number of credits in the restricted electives. Students who plan to transfer to a 4-year university are encouraged to meet with the Technical Writing Program Advisor to select appropriate general education courses.*

***Students must meet with the Technical Writing Program Advisor to select appropriate elective courses.*

Technical Writing (AATW)

This program prepares students for entry-level staff positions and freelance writing opportunities in the field of technical writing. Students sharpen their writing skills, explore the technical writing process in detail, write manuals and online help systems, and obtain hands-on experience using the leading tools of the technical writing trade.

Program Admission Requirements:

Students must have basic computer knowledge, a general understanding of the Windows OS and Office 2000, and experience using the Internet or complete CIS 100 before entering the program.

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a "C" or better before enrolling in MTH 160 or MTH 169. One year of high school algebra with a "C" or better is recommended.

Continuing Eligibility Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

General Education Requirements (30 Credits)

ENG 107	Technical Writing	3
ENG 111	Composition I	4
COM 101	Fundamentals of Speaking	3
MTH 160 or	Basic Statistics	4
MTH 169	Intermediate Algebra	4
Nat. Sci.	Elective(s)	4
Soc. Sci.	Elective(s)	6
Arts/Human.	Elective(s)	6

Major/Area Requirements (32 Credits)

BOS 257	Word Processing and Document Formatting II	3
ENG 185	English Grammar and Usage	3
ENG 208	Advanced Technical Writing I	3
ENG 209	Advanced Technical Writing II	4
ENG 245	Career Practices Seminar	2
GDT 105	Introduction to Mac Graphics	3
INP 150	Web Coding I	3
	Restricted Electives*	11-12

Minimum Credits Required for the Program: 62 Credits

Notes:

*Students must meet with the Technical Writing Program Advisor to select appropriate elective courses.

Technical Writing (ASTWRT)

This program prepares students for entry-level staff positions and freelance writing opportunities in the field of technical writing, particularly in the area of medical and scientific writing. Students sharpen their writing skills, explore the technical writing process in detail, write manuals and online help systems, and obtain hands-on experience using the leading tools of the technical writing trade.

Program Admission Requirements:

Students must have basic computer knowledge, a general understanding of the Windows OS and Office 2000, and experience using the Internet or complete CIS 100 before entering the program.

Students must have a minimum COMPASS Algebra score of 46 or complete MTH 097 with a "C" or better before enrolling in MTH 160 or MTH 169. One year of high school algebra with a "C" or better is recommended.

Continuing Eligibility

Requirements:

Students must demonstrate basic computer literacy skills by successfully passing the Computer and Information Literacy Test. The test may be taken at any point during the program, but must be completed before graduating.

Curriculum Organization

CURRICULUM ORGANIZATION CHART

Business and Computer Technologies Division

Business Department

Disciplines:
Accounting (ACC)
Business Management (BMG)
Real Estate (RES)
Tax (TAX)

Business Office Systems Department

Disciplines:
Business Office Systems (BOS)

Computer Instruction Department

Disciplines:
Computer Information Systems (CIS)
Computer Networking (CNT)
Computer Science (CPS)
Computer Systems Security (CSS)

Drafting Department

Disciplines:
Architectural Drafting (ARC)
Computer Aided Drafting (CAD)
Mechanical Engineering Technology (MET)

Electricity/Electronics Department

Disciplines:
Electrical & Computer Engineering (ECE)
Electricity/Electronics (ELE)
Computer Networking (CNT)
Computer Systems Technology (CST)

Internet Professional Department

Disciplines:
Internet Professional (INP)

Visual Arts Technology Department

Disciplines:
Graphic Design Technology (GDT)
Photography (PHO)
Video (VID)

Health and Applied Technologies Division

Allied Health Department

Disciplines:
Dental Assisting (DEN)
Pharmacy Technology (PHT)
Radiography (RAD)

Automotive Services Department

Disciplines:
Automotive Body Repair (ABR)
Automotive Services (ASV)
Auto Restoration Fabrication (ARF)
Power Equipment Technology (PET)

Culinary/Hospitality Management Department

Disciplines:
Culinary Arts (CUL)

Industrial Technology Department

Disciplines:
Fluid Power (FLP)
Machine Tool Technology (MTT)
Numerical Control (NCT)
Robotics (ROB)

Nursing & Health Science Department

Disciplines:
Health Science (HSC)
Nursing (NUR)

Welding & Fabrication Department

Disciplines:
Welding & Fabrication (WAF)
Heating, Ventilating, Air Conditioning, and Refrigeration (HVA)

Humanities and Social Science Division

Academic Skills Department

Disciplines:
Academic Skills (ACS)

Educational Development

Disciplines:
Reading (REA)

English/Writing Department

Disciplines:
English/Writing (ENG)

Foreign Language Department

Disciplines:
French (FRN)
German (GRM)
Spanish (SPN)

GED Program

Humanities Department

Disciplines:
Art (ART)
Communications (COM)
Humanities (HUM)
Philosophy (PHL)

Performing Arts Department

Disciplines:
Dance (DAN)
Drama (DRA)
Music (MUS)
Yoga (YOG)

Social Science Department

Disciplines:
Anthropology (ANT)
Economics (ECO)
Geography (GEO)
History (HST)
Political Science (PLS)

Math, Natural, and Behavioral Sciences Division

Behavioral Sciences Department

Disciplines:
Child Care Professional (CCP)
Education (EDU)
Human Services Worker (HSW)
Psychology (PSY)
Sociology (SOC)

Life Sciences Department

Disciplines:
Biology (BIO)
Physical Education Activities (PEA)

Mathematics Department

Disciplines:
Mathematics (MTH)

Physical Sciences Department

Disciplines:
Astronomy (AST)
Chemistry (CEM)
Geology (GLG)
Physics (PHY)
Science (SCI)

Public Service Careers Department

Disciplines:
Criminal Justice (CJT)

Office of the Vice President for Instruction

United Association

Disciplines:
Apprenticeship Plumbers (APP)
United Association Pipefitters (UAF)
United Association Plumbers (UAP)
United Association Service Technicians (UAE)
United Association Sprinkler Fitters (UAR)
United Association Supervision (UAS)
United Association Training (UAT)

Construction Institute

Disciplines:
Construction (CON)
Construction Management (CMG)
Facility Management (FMA)

Continuing Education/Community Services Division

Disciplines:
Apprenticeship

Course Descriptions



Course Descriptions

Explanation of Terms

All credit courses offered by Washtenaw Community College are listed in this section of the Bulletin. Courses are arranged alphabetically by the name of the discipline.

For each course entry, the discipline code, course number, and the course title are listed in the first line, along with the number of credit hours awarded for the course. The next lines contain information about any prerequisites or co-requisites associated with the course, as well as the number and type of contact hours (time spent in lecture, lab, or clinical settings) required for the course. After this information, the content of the course is summarized in a few sentences. Explanations of specific terms used in course entries are provided below.

College Level Entrance Scores

All 100 and 200 level courses (except when specified otherwise) require the minimum College Level Entrance Scores in reading and writing, or completion of the equivalent developmental courses with a grade of “C”, “P” (pass), or “S” (satisfactory). College Level Entrance scores do not appear in course descriptions. Any prerequisites listed with courses (other than for reading and writing) are in addition to the College Level Entrance Scores. The minimum College Level Entrance Scores are as follows:

Reading

COMPASS Reading score = 82 or ACS 108 with a “C” or better; concurrent enrollment is allowed; other accepted test scores: ASSET Reading score = 43, or ACT Reading score = 19, or SAT Reading = 460.

Writing

COMPASS Writing score = 81 or ENG 091 with a “C” or better; other accepted test scores: ASSET Writing score = 46, or ACT Writing score = 20, or SAT Writing = 480.

Math

Prerequisite COMPASS Math scores are established individually for math courses as well as some other courses. If a math prerequisite is required, it will be listed as a Level I or Level II prerequisite.

No Basic Skills Prerequisites

Some courses do not require students to have a minimum COMPASS Reading, Writing, or Math score. These courses are noted with the phrase, “No Basic Skills prerequisite” as a Level I prerequisite.

Consent Required

If this phrase appears in a course entry, the student must have the instructor's signature to register for the course, in addition to any prerequisites that are listed. Instructor consent is a requirement for all co-op, field experience, internship,

practicum, on-the-job training, and individualized study courses. If a course is listed with a mandatory consent required statement, the registration system does not check the student's prerequisite when enrolling for courses. It is solely the responsibility of the instructor to check the prerequisites. However, if consent is optional, the registration system will check the student's prerequisite upon enrolling.

Co-requisites

Co-requisite courses must be taken during the same semester as the listed course. A registration will not be processed if there is a co-requisite course for which the student is not registered.

Level I Prerequisites

Level I prerequisites are preparatory courses or placement tests that must be successfully completed before students are allowed to enroll in a course. These prerequisites courses must be taken before the selected course, and passed with the minimum grade listed, or a “D-” if no minimum is listed. Students who have not fulfilled Level I prerequisites for a course will not be allowed to enroll in that course. These prerequisites are enforced by the registration system. College level entrance scores are Level I prerequisites for 100 and 200 level courses, unless stated otherwise.

When “may enroll concurrently” appears next to a prerequisite, students will be allowed to register for the course if they register for the prerequisite course at the same time. However, it is always preferable to complete prerequisite courses first.

Level II Prerequisites

Level II prerequisites are courses, placement tests, or conditions which are required before enrolling in a course. These prerequisites are not enforced by the registration system, but will be checked by the instructor on the first day of class. If students cannot demonstrate to the instructor that they have met the Level II prerequisites, they can be asked to drop the course. Level II prerequisites which require completion of specific courses should be passed with the minimum grade listed, or a “D-” if no minimum is listed.

Co-op, On-the-Job Training, and Individualized Study Courses

Many programs offer Co-op Education I and II (with course numbers of 174 and 274). Registration for a cooperative education course requires attendance at a co-op orientation and students must obtain faculty permission.

Other individualized courses are Study Problems (with a course number of 189) and On-the-Job Training (with a course number of 199). These courses offer specialized instruction and/or training. Special registration requirements exist for these courses; please see an advisor or counselor before registering.

Auto Body Repair

ABR

ABR 111 Auto Body I: Repair Fundamentals **4 credits**
15 lecture, 105 lab, 0 clinical, 0 other, 120 total contact hours

This course involves repairing damaged body panels, studying the working properties of automobile sheet metal, analyzing typical damage conditions, and understanding accepted repair procedures. Included is an introduction to basic welding skills used in auto body repair.

ABR 112 Auto Body II: Refinishing Fundamentals **4 credits**
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Methods and procedures used with automobile refinishing materials are covered in this course. Also included is information on using conventional finishes such as acrylic lacquers and enamels as well as modern basecoat/clearcoat, urethane, and tri-coat finishes.

ABR 113 Applied Body Welding and Estimation **4 credits**
Level I Prerequisites: ABR 111
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course introduces the basics of welding skills used in auto body repair. It also reviews the use of flat-rate manuals to determine parts and labor costs in estimating damaged automobiles with an emphasis on procedures used to establish complete and accurate prices in the preparation of estimates.

ABR 123 Auto Body Repair Applications **4 credits**
Level I Prerequisites: ABR 111
0 lecture, 120 lab, 0 clinical, 0 other, 120 total contact hours

This is a continuation of ABR 111. Lab work includes actual repairs to automobiles to develop basic bumping skills. Emphasis is placed on quality and excellent work habits. Included is the proper use of hydraulic equipment during the repair of collision damage.

ABR 124 Auto Refinishing Applications **4 credits**
Level I Prerequisites: ABR 112
15 lecture, 105 lab, 0 clinical, 0 other, 120 total contact hours

This is a continuation of ABR 112. Lab assignments on actual automobiles provide an opportunity to improve skills in matching high metallic colors using modern spot repair and color blending techniques, as well as overall refinishing. Emphasis is placed on solving paint problems and the proper detailing necessary to achieve repairs that meet trade standards.

ABR 126 Fundamentals of Frame and Body Alignment **2 credits**
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course provides an opportunity to work with common types of body frame damage and the equipment used to make repairs. Laboratory assignments include use of frame gauges and portable body-frame straightening equipment to make a diagnosis and set up corrective hook-ups.

ABR 130 Custom Painting **4 credits**
Level II Prerequisites: ABR 112
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course provides students with an understanding of the art of custom painting. Students work with the tools and techniques used in the field. The course covers the use of special effect colors such as pearls and candies. Students use air brushes, pinstripe brushes, and lettering brushes. Murals, graphics, and etching are also covered. Lab assignments on vehicles will provide an opportunity to improve skills.

ABR 134 Auto Graphics **2 credits**

Level I Prerequisites: ABR 112 and ABR 130
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This class is a continuation of methods and procedures used in automotive custom painting. Lab assignments on actual cars provide an opportunity to develop skills in graphic application, color design coordination, special effect colors, and layout transfer.

ABR 174 ABR Co-op Education I **1-3 credits**
Level I Prerequisites: ABR 112 and ABR 113; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated position in the field of auto body repair. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences. Students with equivalent experience may contact the instructor for permission to waive the prerequisite.

ABR 219 Advanced Auto Body I: Major Repair **4 credits**
Level I Prerequisites: ABR 123 and ABR 124
15 lecture, 105 lab, 0 clinical, 0 other, 120 total contact hours

This course covers the use of hydraulic jacking equipment to repair damaged sheet metal and body shells. Advanced welding techniques and fine tuning MIG/TIG welders for use on aluminum panels are included. Lab work includes set-up of typical push or pull operations and straightening procedures used on collision damage.

ABR 224 Advanced Auto Body II: Auto Refinishing Fundamentals **4 credits**
Level I Prerequisites: ABR 123 and ABR 124
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course provides students with the skills to use paint repair applications on collision damaged vehicles. Included is theory of paint blending, and planning and set-up of single and multi-stage blend repairs. Emphasis is on basecoat/clearcoat finishes and tri-coat finishes. Students learn the characteristics of color and how to apply knowledge of color movement and tint to obtain blendable color matches. Lab assignments include set-up of paint mixing stations and plotting solid and metallic colors.

ABR 226 Advanced Auto Body III: Frame/Unibody Alignment **4 credits**
Level I Prerequisites: ABR 224
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course covers the repair of structurally damaged conventional framed, unitized automobiles and light trucks. Included is a detailed study of body and frame construction, diagnostic procedures, repair techniques and structural parts replacement using conventional and computerized laser measuring equipment.

ABR 229 Advanced Auto Body IV: Major Repair Applications **4 credits**
Level I Prerequisites: ABR 219
40 lecture, 80 lab, 0 clinical, 0 other, 120 total contact hours

This course provides a detailed study of the automobile body that includes the use of hydraulic jacks, suspension and alignment tools, auto-electric equipment, and heating and air conditioning tools. Electrical theory, alignment and suspension theory, and application knowledge of air conditioning theory are covered. Lab assignments include full or partial panel replacement including the replacement of structural stationary glass. Work is done on collision damaged vehicles provided by the school or students' own vehicles.

ABR 251 Custom Cars and Concepts I 3 credits

Level I Prerequisites: ABR 111, ARF 115, ASV 141, MTT 102, and WAF 100 minimum grade “C”; or consent required
Corequisites: ABR 252
 15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course is the first in a four part series that merge classroom activities with real world experience in the field of customizing. Students plan, analyze, and design unique masterpieces worthy of a magazine cover and feature article publication. Students become fully involved in the budgeting of time, money, and acquisition of materials needed to complete different phases of the project. Emphasis is placed on establishing relationships with manufacturers and suppliers while polishing automotive collision repair and finishing technician skills.

ABR 252 Custom Cars and Concepts II 3 credits

Level I Prerequisites: ABR 111, ARF 115, ASV 141, MTT 102, and WAF 100 minimum grade “C”; or consent required
Corequisites: ABR 251
 15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course is the second of a four part series. Students design and develop project plans and formalize design activities including chassis, exterior and interior. Students will demonstrate their proficiency in the analysis of structural and non-structural body components.

ABR 253 Custom Cars and Concepts III 3 credits

Level I Prerequisites: ABR 251 and ABR 252 minimum grade “B”; or consent required
Corequisites: ABR 254
 15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course is the third in a four part series. Students build and test the project, including mechanical and electrical components, and painting and refinishing.

ABR 254 Custom Cars and Concepts IV 3 credits

Level I Prerequisites: ABR 251 and ABR 252 minimum grade “B”; or consent required
Corequisites: ABR 253
 15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is the final course in a four part series. Students test the completed custom car project. In addition, students prepare the project for show including scheduling and coordinating activities related to the design of displays and choice of venues. Students review and reconcile their budgeting of time, money, and acquisition of materials that are needed to complete the different phases of a project.

ABR 255 Car Show Participation 6 credits

Level I Prerequisites: ABR 251, ABR 252, ABR 253, and ABR 254
 10 lecture, 0 lab, 0 clinical, 0 other, 10 total contact hours

This course is the capstone experience of the Custom Cars and Concepts program. Students participate in all phases of the process of showing a project vehicle at a car show. All aspects of designing displays and selecting venues will be included in the course. This course builds on students’ abilities to plan, analyze, design, develop, build, and test custom cars.

ABR 274 ABR Co-op Education II 1-3 credits

Level I Prerequisites: ABR 174; consent required
 0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Accounting

ACC

ACC 100 Fundamentals of Accounting I 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 or MTH 090 minimum grade “C”
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to the theory and practice of modern double-entry accounting systems and procedures. Emphasis is placed on journalizing and posting, adjusting and closing books and the preparation of financial statements for both service and merchandising businesses. The class is designed for the non-accounting major. This course is not designed for transfer to four-year colleges. This course was previously ACC 091.

ACC 101 Fundamentals of Accounting II 3 credits

Level I Prerequisites: ACC 100
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

A continuation of ACC 100, which includes notes, inventories, depreciation, accruals, and end of the year procedures with financial statements. The course addresses partnerships, corporations, statement analysis and interpretation, and is designed for non-accounting majors. This course is not designed for transfer to four-year colleges. This course was previously ACC 092.

ACC 111 Principles of Accounting I 3 credits

Level I Prerequisites: (MTH 163, MTH 169, or MTH 181 minimum grade “C”) or COMPASS Algebra = 46
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an introductory course in accounting principles and theory with emphasis on the accounting cycle, receivables and payables, depreciation, inventories, payroll, deferrals and accruals, systems and controls. It is required of all Accounting majors and Business Administration transfer students.

ACC 122 Principles of Accounting II 3 credits

Level I Prerequisites: ACC 111
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

A continuation of Principles of Accounting, ACC 111, covering partnerships, corporations, statement of cash flows, financial analysis, and an introduction to managerial accounting. It is required of all Accounting majors and Business Administration transfer students. Students with experience equivalent to ACC 111 may contact the instructor for permission to waive the prerequisite.

ACC 131 Computer Applications in Accounting 3 credits

Level I Prerequisites: ACC 100 or ACC 111, both courses may enroll concurrently
 15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

Accounting applications (spreadsheet, general ledger, accounts receivable, accounts payable, depreciation, and payroll) are presented and mastered on the microcomputer in such a manner that no prior knowledge of microcomputers is required. This course does not teach computer programming, but it is intended to train students to become intelligent users of accounting software on the microcomputer.

ACC 174 ACC Co-op Education I 1-3 credits

Level I Prerequisites: Two courses in ACC discipline; consent required
 0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

ACC 213 Intermediate Accounting 3 credits

Level I Prerequisites: ACC 122
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of the study of generally accepted accounting principles as they pertain to the valuation and classification of current assets, plant assets, intangible assets, and current liabilities. Students with experience equivalent to ACC 122 may contact the instructor for permission to waive the prerequisite.

ACC 225 Managerial Cost Accounting 3 credits

Level I Prerequisites: ACC 122
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Principles and procedures for measuring and controlling costs are discussed as well as cost-volume profit relationships, job order accounting, budgets, standard costs, relevant costs, and process accounting. This course is required of Accounting majors and is offered in the winter semester only. Students with experience equivalent to ACC 122 may contact the instructor for permission to waive the prerequisite.

ACC 274 ACC Co-op Education II 1-3 credits

Level I Prerequisites: ACC 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

This is the second of two co-op courses in which students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

Academic Skills**ACS****ACS 100 Introduction to Online Learning 1 credit**

Level I Prerequisites: No Basic Skills prerequisite
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

Introduction to Online learning is an orientation course designed to enable students to participate in Web-based instruction. The course covers the use of a course management system including logging in, navigating, online testing, and communication tools. Basic computer literacy topics will also be covered. This course is designed primarily for off campus students as their first WCC course. Successful participation in the course will fulfill the computer literacy requirement. Students will also be required to submit a writing sample for evaluation.

ACS 101 Student Success Seminar 1 credit

Level I Prerequisites: COMPASS Reading = 51, ASSET Reading = 35, or REA 050 may enroll concurrently
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This is a college survival, college success course. It is recommended for all WCC students, particularly those entering college for the first time, returning after an absence, or interested in improving class performance. Topics include an introduction to the library (LRC), student support services, and good study habits (reading, writing, outlining, note taking, test-taking, and time management). Career and academic goal-setting also are addressed.

ACS 107 College Study Skills and Speed Reading 4 credits

Level I Prerequisites: COMPASS Reading = 68-77 or REA 070 pass with "S" grade
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to assist students with improving their study skills and with developing rapid reading techniques. Instructional units include all the essentials for academic success: learning styles, time management, vocabulary development, textbook reading, note-taking skills, computer literacy, skimming and scanning skills, speed reading, and test-taking skills. Students who have not successfully completed ACS 107 may repeat it once.

ACS 108 Problem Analysis and Critical Thinking 3 credits

Level I Prerequisites: COMPASS Reading = 78-81 or ACS 107 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for advanced learners who wish to improve their performance in all academically demanding courses (including math, science, and technology). Analytical, problem-solving and critical thinking skills are enhanced through a variety of instructional units (analogies, serial order, spatial diagrams, etc.), and 15th grade-level textbook selections are used for analysis. For other reading courses, look under Reading (REA).

ACS 109 Advanced Vocabulary 3 credits

Level I Prerequisites: COMPASS Reading = 68-77, ACS 107, or ACS 108 (may enroll concurrently with either ACS course)
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for advanced learners who wish to increase their knowledge and use of college-level vocabulary. Major areas of emphasis include the study of word derivations, context clues, dictionary skills, and vocabulary acquisition skills. For other reading courses, look under Reading (REA).

ACS 110 Speed Reading 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Designed to improve reading rates, this course may double students' reading speeds (at a minimum) with no loss in comprehension. Students also learn a variety of techniques that enable them to vary their reading speed according to the material and their specific purpose.

ACS 121 Career Planning Seminar 2 credits

Level I Prerequisites: (COMPASS Reading = 51 or REA 050) and (COMPASS Writing = 40 or ENG 051)
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is designed for persons undecided about a career goal or program of study, or interested in making a career change. Students complete a self-assessment of interests, work values, skills and abilities through exercises and vocational inventories. Students will also learn how to research careers, become more knowledgeable of careers, career alternatives, and employment trends through the use of course materials, classroom activities, and in-class guest speakers. Other topics include: decision making skills, self-esteem, and work attitude.

ACS 122 Career Decision Making 1 credit

Level I Prerequisites: (COMPASS Reading = 70 or REA 070) and (COMPASS Writing = 60 or ENG 091 may enroll concurrently)
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This short course is designed for students who are undecided about career and life goals. Two day-long class sessions are held, usually on consecutive weekends, followed by outside assignments that students complete at their own pace. Through exercises, activities, and career tests, students clarify their goals, interests, values, and learn decision making skills. Students also research occupations.

Animation

ANI

ANI 145 Concept Development for Animation 2 credits

Level I Prerequisites: ANI 150 may enroll concurrently
20 lecture, 0 lab, 0 clinical, 10 other, 30 total contact hours

This course is an introduction to the conceptualization process that precedes the creation of an animation. Students will participate in all phases of developing an idea for animation: research, plan, ideation, storyboarding, and logic.

ANI 150 3D Animation I: Modeling 4 credits

Level I Prerequisites: ANI 145 may enroll concurrently
60 lecture, 0 lab, 0 clinical, 30 other, 90 total contact hours

This course introduces students to creating digital 3D forms for animation. Various techniques (wire frame, compound primitives and NURBS) are used to construct 3D forms. Using industry-standard software, students develop 3D modeling/animation skills while learning the technical vocabulary needed for the 3D modeling/animation industry. Students create and apply textures and lighting to digital 3D forms, investigate camera positioning/point of view, and perform simple rotational animation.

ANI 155 Textures and Studio Lighting for Animation 4 credits

30 lecture, 0 lab, 0 clinical, 60 other, 90 total contact hours

Using traditional studio techniques and Adobe Photoshop, students will learn to enhance form through use of lighting effects, cast shadows, highlights, and reflections.

ANI 230 Motion and Sound 2 credits

Level I Prerequisites: ANI 250 may enroll concurrently
20 lecture, 0 lab, 0 clinical, 10 other, 30 total contact hours

This course focuses on the knowledge and skills needed to produce motion and sound for animations. Characteristics of space and movement will be studied, as well as concepts and techniques related to the generation and use of sound.

ANI 250 3D Animation II 4 credits

Level I Prerequisites: ANI 230 may enroll concurrently
60 lecture, 0 lab, 0 clinical, 30 other, 90 total contact hours

This course builds on the 3D modeling course, with emphasis on building and rendering more complex digital 3D forms. More types of motion are introduced, including camera “fly-throughs,” lighting motion and object motion. Animations will be output for video format.

ANI 260 3D Animation III 4 credits

Level I Prerequisites: ANI 250
60 lecture, 0 lab, 0 clinical, 30 other, 90 total contact hours

This course is a continuation of ANI 250, extending and integrating 3D software. Topics include organic animation, bones, scene construction, and rendering to final output.

Anthropology

ANT

ANT 201 Introduction to Cultural Anthropology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course explores the way our species lives and has lived. It begins with the hunting and gathering level of cultural development and ends with the origin of the state. Contemporary peasants are also studied.

ANT 202 Introduction to Physical Anthropology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the emergence of the human species using materials from primate studies, archaeological findings and early humankind.

ANT 205 Introduction to Archaeology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a survey of anthropological archaeology. Topics covered include: the history and the present nature of the discipline, an examination of archaeological methods and the techniques employed to research the material record of human behavior, a review of core anthropological theories used to explain human evolution (hominization) and socio-cultural change (domestication, social complexity and inequality) will be covered. Archaeological sites will be used throughout the course to illustrate archaeological research practices and elucidate the process of social change.

Architectonics

ARC

ARC 000 Architectural Studio 0 credit

0 lecture, 30 lab, 0 clinical, 0 other, 30 total contact hours

This is a studio-based course that supports Architectural Drawing I, II, III, and IV. Students will receive individualized direction and critique of their projects. Students will work at their own pace and have access to computers, technical references, and equipment that are essential to achieving the outcomes to the listed drawing courses. Students enrolled in ARC 111, 122, 213, or 224 must enroll in ARC 000 concurrently.

ARC 100 Specifications 1 credit

Level II Prerequisites: ARC 117; or consent required
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

An introduction is provided to building construction specifications, stressing the organization and preparation of specifications for construction contracts.

ARC 101 Graphic Communication for the Construction Industry 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for anyone entering the architectural and construction field. The student will learn how to read a set of residential and light framed building prints. Starting with the floor plan, the student will work their way through the various levels of a building by reading the foundation, roofing, elevations, and section details that are created to accurately describe the design and construction of the building. Graphic communication by sketching is featured.

ARC 102 Architectural CAD 2 credits

Level II Prerequisites: ARC 117
30 lecture, 15 lab, 0 clinical, 0 other, 45 total contact hours

This is a course in which the student learns the basic techniques to use CAD for design and communication in the architectural design and construction planning disciplines. The student produces construction documents and architectural designs, including 3-D digital modeling. Featured in this course are AutoCAD and Architectural Desktop.

ARC 109 Surveying Layout I 3 credits

Level I Prerequisites: ARC 101 minimum grade "C", may enroll concurrently; or consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This lecture and field course addresses the introductory knowledge and skills pertaining to land survey procedure. Practical skills in acquiring, procuring data and interpreting drawings with related documentation are covered. These skills are the basic foundation skills that are required to work as a crew member on a surveying team.

ARC 111 Architectural Drawing I 3 credits

Level I Prerequisites: (COMPASS Pre-Algebra = 24 or MTH 039), COMPASS Reading = 36, and COMPASS Writing = 40

Corequisites: ARC 000

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to residential planning and design. It emphasizes the accurate and detail methods of creating complete construction drawings and documents. Students will be exposed to light frame construction methods and materials. Students are expected to research current construction code requirements and materials, as it pertains to their assignments, using the Internet and traditional research methods.

ARC 117 Construction Materials 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

A survey is provided of typical types of materials used in building construction. Emphasis is placed on the properties, selection and building techniques appropriate for a wide range of materials. Included are woods, metals, plastics, clay, gypsum, glass and aggregate materials.

ARC 118 History and Theory of Architecture I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, various architectural structures are presented and analyzed for the period of antiquity to 1870, the Gothic era. Emphasis is placed on fundamental themes underlying modern architectural form. Written essays and oral presentations are used to assess learner acquisition of knowledge of architectural history.

ARC 120 Mechanical and Electrical Systems for Buildings 3 credits

Level II Prerequisites: ARC 111

30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

The drafting of mechanical and electrical systems in buildings from prepared design data is emphasized. This is a laboratory course with lectures related to the laboratory. Students must have drafting instruments.

ARC 122 Architectural Drawing II 3 credits

Level I Prerequisites: (COMPASS Pre-Algebra = 24 or MTH 039), COMPASS Reading = 36, and COMPASS Writing = 40

Level II Prerequisites: ARC 111 minimum grade "C"

Corequisites: ARC 000

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a continuation of residential planning and design. The specific focus of this course is the design and development of construction drawings and documents for a custom/luxury home with two stories. Students will be exposed to various light frame construction methods and materials. Students are expected to research current construction code requirements and materials, as it pertains to their assignments, using the Internet and traditional research methods.

ARC 143 Surveying Layout II 3 credits

Level I Prerequisites: ARC 109 minimum grade "C", may enroll concurrently; or consent required
15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

This lecture and field based course addresses basic mathematical computation skills required to verify data consistent with the appropriate level of technical applied geometry as used in the field of surveying. Students will be able to compare land data, as generated by electronic surveying equipment, to other related surveying documents to assess accuracy of surveying measurements. Sketching of site plans will also be addressed in this course.

ARC 150 Presentation Drawings and Models 4 credits

30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

The emphasis in this course includes manual skills to make perspective drawings for pictorial presentation, scale models showing site conditions with topography, simple methods for rendering drawings, shades and shadows on architectural drawings, and photographs of models for simulated comparison of proposed building to proposed building site.

ARC 170 Cabinetry and Millwork Design 3 credits

Level I Prerequisites: CON 170 minimum grade "C", COMPASS Pre-Algebra = 24, COMPASS Reading = 36, and COMPASS Writing = 40

15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is an introductory course in design elements and processes for cabinetry and millwork systems. It will include CAD-based software that will assist in developing the skills and knowledge for completers of the certificate program. Students will create computer-based renderings of interior elevations which require cabinetry, built-ins, stairs and casework, and interior trim.

ARC 174 ARC Co-op Education I 1-3 credits

Level I Prerequisites: ARC 111 and ARC 117; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, the student sets up work assignments and learning objectives to connect classroom learning with career-related work experience. Instructor consent is required to register for this course.

ARC 209 Surveying Layout III 3 credits

Level I Prerequisites: ARC 143 minimum grade "C", may enroll concurrently; or consent required

15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

This lecture and field based course address intermediate knowledge and skills pertaining to land surveying and is a continuation of the practical applications of surveying. Specifically addressed in this course are differential leveling, spirit leveling, base line staking, repetition angles, grid method leveling, and contour interpolations. A variety of sites will be utilized for the surveys.

ARC 210 Structure in Architecture 2 credits

Level I Prerequisites: ARC 122 and (PHY 105 or PHY 111)

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This class provides an introduction to the use of structural systems (steel, timber, and reinforced concrete, etc.). Design fundamentals of simple structural components are emphasized.

ARC 213 Architectural Drawing III 3 credits

Level I Prerequisites: ARC 122 minimum grade “C”
Corequisites: ARC 000
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on the preparation of architectural presentation drawings from diagrammatic sketches, pictures, surveys, and conference notes for a light industrial construction project. The finished structure will be of masonry construction. A finished portfolio is required and students are expected to utilize CAD to aid in the production of their presentation and construction drawings.

ARC 218 3D Presentation/CAD 3 credits

Level I Prerequisites: ARC 102, high school CAD, or work experience
Level II Prerequisites: ARC 122
 30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

In this course students develop computer skills to produce perspective drawings for pictorial presentation, 3D solid modeling, and raster image insertion for site conditions and topography. Simple computer methods for rendering views, shades and shadows on architectural drawings are covered. Visual Reality/ Renderize Live, 3D Studio, or equivalent software is used.

ARC 219 Architectural Engineering and Construction CAD 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Lectures, demonstrations, research and primarily guided lab practice introduce the latest techniques that CAD systems employ to assist in the preparation of presentation, construction and detail drawings. Software featured includes base packages and 3R party applications as available. Features microstation, AutoCAD or DataCAD or any combination.

ARC 224 Architectural Drawing IV 3 credits

Level I Prerequisites: ARC 213 minimum grade “C”
Corequisites: ARC 000
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on the preparation of architectural presentation drawings from sketches, pictures, surveys, and conference notes for a mercantile office project. This commercial building will be of masonry, glass and steel columned structure four stories in height. Students are expected to utilize CAD and the Internet to aid in the production of their work. All design will comply with current Michigan Building Code and the ADA.

ARC 227 Estimating Construction Costs 3 credits

Level I Prerequisites: ARC 101 minimum grade “C-”, may enroll concurrently
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an introduction to the field of estimating construction costs for building construction projects and includes advanced topics such as computer estimating software selection and researching methods and techniques employed by construction estimators. Analysis of quantitative survey methods of estimating materials, labor, equipment, overhead, and profit are included and discussed.

ARC 228 Construction Estimating and Specifications 4 credits

Level I Prerequisites: ARC 101 minimum grade “C”
Level II Prerequisites: ARC 102 minimum grade “C”
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is an introduction to building construction and estimating. Students will learn how to read and prepare specification for construction contracts. Students will learn to perform complete and accurate construction cost estimates that include both commercial and residential construction projects. The student will also learn how to make quantity take-off, factor in overhead, equipment and labor cost. Emphasis will be placed on detailed accuracy of estimates and organization of prepared specifications. Basic word processing and spreadsheet software will be utilized to complete assigned projects.

ARC 243 Surveying Layout IV 3 credits

Level I Prerequisites: ARC 209 minimum grade “C”, may enroll concurrently; or consent required
 15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

This course utilizes hands on approach, combining GIS level data analysis and utilization as well as the latest computerized software approaches to site planning, measurement gathering, and preparation techniques. Learning objectives include introduction to advanced equipment, synthesis of skills developed and problem solving for every day construction problems. Team based projects and vignettes form the basis for problem solving. Work will be presented and critiqued by professionals. AutoDesk software is featured.

ARC 274 ARC Co-op Education II 1-3 credits

Level I Prerequisites: ARC 174; consent required
 0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and the employer, students determine work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Auto Restoration & Fabrication

ARF

ARF 112 Classic Engines 4 credits

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course is for the automobile restoration enthusiast and prospective professional who wants to learn how to rebuild a vintage engine. The focus is on engines pre-dating emission control and electronic engine management technology. Engine tear-down, cleaning, inspection, measuring, sourcing, specifying, and obtaining quality machining services, inspection of replacement parts, and reassembly is emphasized. A variety of engine designs and materials are compared and contrasted. This course was previously ASV 112.

ARF 115 Classic Auto Restoration I 4 credits

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course covers vehicle construction, as well as working properties of automotive sheet metal. Emphasis is on removal, replacement, and alignment procedures for bolted on trim, hardware, and body panels (exterior and interior). Types of welded joints used to repair or replace damaged panels are included with an emphasis on lead filling and metal finishing without the use of filler material. Reconditioning of metal parts through sand blasting and media blasting techniques will be studied. This course was previously ABR 115.

ARF 117 Classic Auto Restoration II 4 credits

Level I Prerequisites: ARF 115
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This is a continuation of ARF 115. Lab work on vehicles being completely restored takes place. Complete exploration of the restoration process is made on individual as well as group and class projects. The use of manuals, literature, and the internet to locate replacement parts and panels as well as cost estimation is taught. Emphasis is on quality and workmanship. This course was previously ABR 117.

ARF 215 Classic Auto Restoration III 4 credits

Level I Prerequisites: ARF 115 and ARF 117
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course focuses on restoration of interior and exterior trim and hardware including headliners, dash panels, seats, carpet, glass, hood ornaments, body side moldings, and bumpers. Students gain the skills to assemble a classic car properly with emphasis on details and quality. This course was previously ABR 215.

ARF 217 Classic Auto Restoration IV 4 credits

Level I Prerequisites: ARF 215
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course focuses on advanced skills in automotive welding techniques. Students learn advanced skills in shaping metal to form the parts to replace original damaged parts on classic cars. Advanced projects are completed on the student's own vehicle or one provided by the school. This course was previously ABR 217.

Art**ART****ART 101 Drawing and Painting 3 credits**

Level I Prerequisites: No Basic Skills prerequisite
15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

This class is a user-friendly introduction to art for students with no previous studio experience. Instruction is provided in the fundamentals of color and composition. This course is not intended to take the place of ART 111 or ART 114.

ART 102 Color 4 credits

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Color is not what it seems to be. Through a series of experiments using colored papers, students will investigate the elusive behavior of color. Students will develop sensitivity to color so that it can be used effectively in every area.

ART 105 Drawing in Europe 3 credits

Level I Prerequisites: consent required
20 lecture, 40 lab, 0 clinical, 0 other, 60 total contact hours

Students study drawing as a means of documentation and personal expression. Through in-studio and on-location drawing assignments, students address the various fundamentals of art and issues relevant to the art of drawing. This course serves as a basis for those who wish to develop their ability to articulate ideas in visual terms. Set in a European city, this course capitalizes on the influences of its art, architecture, landscape and culture in the design of the course objectives, field trip, and class assignments.

ART 108 Three - Dimensional Design 4 credits

Level I Prerequisites: No Basic Skills prerequisite
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This studio class will use a variety of three-dimensional materials and methods to explore the question: What makes good design? Stressing practice before theory, the student will carve, articulate, and construct designs that reveal and embody the principles that underlie good design.

ART 111 Basic Drawing I 4 credits

Level I Prerequisites: No Basic Skills prerequisite
15 lecture, 75 lab, 0 clinical, 0 other, 90 total contact hours

This course is an introduction to the central problems and issues of free-hand drawing. Accurate representational drawing is emphasized through a series of projects concentrating on simple objects. The course is recommended for students who plan to continue in art at WCC or to transfer to another college or university.

ART 112 Basic Design I 4 credits

Level I Prerequisites: No Basic Skills prerequisite
60 lecture, 30 lab, 0 clinical, 0 other, 90 total contact hours

This studio course uses a broad range of exercises and materials to involve the student in two- and three-dimensional design experiences. Its objective is to develop careful seeing and analytical thinking that can be applied to all areas of the visual arts. This course is recommended for students who are planning to continue in art at WCC or to transfer to another college or university.

ART 114 Painting I 4 credits

Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 90 lab, 0 clinical, 0 other, 90 total contact hours

An analytical approach to the fundamental problems and issues of painting, with emphasis on composition and the articulation of volume in space.

ART 120 Portrait Painting and Life Drawing 4 credits

Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 90 lab, 0 clinical, 0 other, 90 total contact hours

Working from live models, students study anatomy, techniques in drawing, pastel painting and visual expression, multi-media, philosophy, and envisioning. It is preferred, although not required, that students have some art background. Interest is critical.

ART 121 Ceramics I 4 credits

30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This studio class will guide the student through a series of projects in clay. The student will develop a comprehension of the different aspects of the ceramic process. The student will also develop a specific set of skills for manipulating and firing clay. The pieces created will demonstrate the different processes and stages by which a piece of clay becomes a piece of ceramic art.

ART 122 Basic Drawing II 4 credits

Level I Prerequisites: ART 111, No Basic Skills prerequisite
0 lecture, 90 lab, 0 clinical, 0 other, 90 total contact hours

Complex problems of drawing are explored with greater emphasis placed on individual solutions. Several new media are introduced.

ART 125 Painting II 4 credits

Level I Prerequisites: ART 114, No Basic Skills prerequisite
90 lecture, 0 lab, 0 clinical, 0 other, 90 total contact hours

Further exploration of the fundamental problems and issues of painting, with greater emphasis on individual development.

ART 130 Art Appreciation 3 credits

Level I Prerequisites: pass Computer Literacy Test
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an inquiry into various media and periods of the visual arts focusing on the Arts of the Western World. Instruction will cover at least two-thirds of the periods and media. Periods covered may include: Prehistoric, Egypt, Mesopotamia, Greece, Rome, Medieval, Renaissance, 18th, 19th, and 20th Centuries. Media covered may include: photography, graphic arts, painting, sculpture, and architecture.

ART 140 Life Drawing 4 credits

Level I Prerequisites: No Basic Skills prerequisite
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This class will provide instruction in basic approaches to drawing the nude. We will begin with quick gesture drawing, and move gradually toward longer poses. Emphasis is on analyzing the figure in terms of its simple, solid, underlying forms.

ART 143 Art and Culture of Afro - America 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course prepares students to participate in and appreciate the arts (visual, dance, music, film, poetry, literature) of African and Afro-American people. Perspectives and definitions that differ from Western values and standards are presented. The anthropological approach is used to recognize the importance of history in understanding the present. Multi-media methods, skill development and aesthetic competence are emphasized.

ART 150 Monuments and Cultures 3 credits

Level I Prerequisites: pass Computer Literacy Test
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an inquiry into various architectural monuments from around the world, focusing on the significance of the monument for a particular civilization, religion, or culture. Secular as well as sacred monuments will be analyzed, including palaces, homes, national monuments, tombs, temples, and pilgrimage sites. Emphasis is placed on the exploration of diverse ideas and concepts of the world in comparison with personal sets of values.

Astronomy

AST

AST 100 Introductory Astronomy 1 credit

15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

An introduction to objects seen in the sky, with some opportunity for direct observation when weather permits. Astronomy is presented as a hobby as well as a basic science. No prior knowledge of astronomy is required.

AST 111 General Astronomy 3 credits

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is a survey course of the solar system and the universe designed for both transfer and vocational students. No previous mathematics or science is required. Topics include: the sun, moon and planets; Ptolemaic and Copernican systems; seasonal changes in the sky and modern ideas growing from early beliefs in astrology.

Automotive Service

ASV

ASV 120 Engine Performance Recertification 1 credit

Level II Prerequisites: Michigan Certification in Engine Performance
16 lecture, 0 lab, 0 clinical, 0 other, 16 total contact hours

This course is for mechanics who want to maintain their current Michigan certification in the engine performance area. Recertification is granted if class is passed. Students must have Michigan Certification in Engine Performance to enroll in this course.

ASV 141 Automotive Mechanics I 4 credits

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Students perform preventative maintenance procedures, under car inspections, basic engine repairs, and basic brake inspections. Instruction stresses hands-on work and lays a foundation for advanced ASV courses.

ASV 142 Automotive Mechanics II 4 credits

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Students perform suspension and steering system service, drive shaft service, basic and advanced electrical system testing and repair, and basic fuel system testing and repair. Instruction stresses hands-on work and lays a foundation for advanced ASV courses.

ASV 143 Automotive Mechanics III 4 credits

Level I Prerequisites: ASV 141
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course covers the fundamentals of testing and repair of fuel-injection, emission controls, OBDII, basic on-car engine repairs, and cylinder head gasket repair. Students with experience equivalent to ASV 141 may contact the instructor for permission to waive the prerequisite.

ASV 144 Automotive Mechanics IV 4 credits

Level I Prerequisites: ASV 141
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Students perform drivetrain system service including clutches, manual transmissions, axles and differentials, 4-/all-wheel drives, and automatic transmissions. Students with experience equivalent to ASV 141 may contact the instructor for permission to waive the prerequisite.

ASV 156 Electrical Systems Recertification 1 credit

Level II Prerequisites: Michigan Certification in Electrical Systems
16 lecture, 0 lab, 0 clinical, 0 other, 16 total contact hours

This course is for automotive mechanics who wish to renew their State of Michigan Certification in Electrical Systems. Recertification is granted by the state for passing the course. Students must already be certified in this area to register for the course. This course is graded as pass/no pass.

ASV 174 ASV Co-op Education I 1-3 credits

Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course students gain skills from a new experience in an approved, compensated position in the field of automotive service technology. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

ASV 177 Recertification in Brakes **1 credit**
15 lecture, 15 lab, 0 clinical, 0 other, 30 total contact hours

This course prepares students for the State of Michigan Mechanics Recertification Exam in Brakes. This course is graded as pass/no pass.

ASV 241 Engine Repair **2 credits**
Level I Prerequisites: ASV 142, field experience, or consent required
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

Students develop skills and knowledge for understanding and repairing automobile engines. Using texts, tools, manuals, and automobiles in a laboratory setting, students perform service and repair on modern automobile engines. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams

ASV 242 Automatic Transmissions **2 credits**
Level I Prerequisites: ASV 144, field experience, or consent required
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

An application of hydraulic fundamentals to automatic transmission operation is provided in this course. Diagnosis of transmission, hydraulic, and electrical systems is featured. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams.

ASV 243 Manual Drive Trains and Axles **2 credits**
Level I Prerequisites: ASV 144, field experience, or consent required
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is a course in the operating principles and repair procedures of manual driveline systems. Units of study include such areas as final drive systems, clutches, transmissions, and transaxles. Both front and rear-wheel drive systems as well as four-wheel drive units are studied. Diagnosis and repair procedures on actual vehicles are stressed. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams.

ASV 244 Suspension and Steering **2 credits**
Level I Prerequisites: ASV 142, field experience, or consent required
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

Students learn the theory of wheel alignment and develop skills needed to diagnose and align all foreign and domestic cars. Using state-of-the-art balancers, students understand and perform wheel balance equal to the level accepted by the industry. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams.

ASV 245 Brakes **2 credits**
Level I Prerequisites: ASV 143, field experience, or consent required
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

In this course students develop skills in diagnosing and repairing brake systems on a variety of working vehicles. Concentration is on factory techniques and accepted field practice. Instruction includes machining of drums and rotors, hydraulic system service, mechanical system inspection and service, and diagnosis and repair of anti-lock brake systems. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams.

ASV 246 Electrical Circuits **2 credits**
Level I Prerequisites: ASV 141 and ASV 142, field experience, or consent required
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This class involves the theory and application of automotive electronic circuits and accessories. It includes the construction and servicing of lighting systems, gauges, warning devices, windshield wipers, and solid state devices. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams.

ASV 247 Heating and Air Conditioning **2 credits**
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

Climate control systems are explained in depth including theory of refrigeration, servicing procedures, and diagnosis techniques. Compressor service and distribution systems are studied. Laboratory experience is given in testing and servicing a variety of systems and problems. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams.

ASV 248 Engine Performance **2 credits**
Level I Prerequisites: ASV 142 and ASV 143, field experience, or consent required
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to provide the student with skills in troubleshooting and repairing drivability problems with automobile computerized engine management systems (fuel, ignition, and emissions). Actual vehicles are used to demonstrate the use of computerized and digital diagnostic equipment. The course provides the knowledge to prepare for the State of Michigan's mechanic certification and the Automotive Service Excellence (ASE) Exams.

ASV 274 ASV Co-op Education II **1-3 credits**
Level I Prerequisites: ASV 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Biology

BIO

BIO 101 Concepts Of Biology **4 credits**
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Basic principles and concepts of biology are surveyed in lecture and laboratory with emphasis on biological processes as well as practical applications. If followed by BIO 103, this course provides a comprehensive year sequence for biology majors. Taken alone, it serves as a good introduction to biology for non-science students.

BIO 102 Human Biology **4 credits**
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers the basic structure and function of the human body, as well as human interactions with the larger biological community, including issues of health and disease, food use and labeling, and environmental pollution. Comparisons to other organisms highlight the ways in which we adapt to our world. Includes a laboratory portion involving the use of models, dissection, demonstrations, and actual medical equipment.

BIO 103 General Biology II**4 credits**

Level I Prerequisites: BIO 101 and (CEM 105 or CEM 111) minimum grade "C-" all courses; or consent required
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

The emphasis in this course is on analyzing the processes and mechanisms involved in biological systems including the cell, genetics, organisms and ecology/evolution. Topics are covered from an experimental point of view. This course, with BIO 101, provides a comprehensive survey of biological concepts and shows the interrelationship of topics covered from the molecular to the population level. This course is required for the Biology/Pre-Medicine program. Students who have taken one year of high school chemistry with a minimum grade of C may contact the instructor for permission to waive the chemistry prerequisite.

BIO 107 Introduction to Field Biology**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to the biology of the outdoors for the beginning student. Subjects such as trees and shrubs, wild flowers, insects, various animals, pond and stream life, and different Michigan terrestrial and aquatic communities will be covered. An outdoor journal and other similar activities will be stressed.

BIO 109 Essentials of Human Anatomy and Physiology**4 credits**

Level I Prerequisites: (high school biology, BIO 101, or BIO 102) minimum grade "C"

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course is designed to provide an introduction to the essential elements of human anatomy and physiology. It is intended for students entering programs in allied health, including radiography, medical coding and orthotics and prosthetics. This course is not appropriate for pre-nursing students.

BIO 111 Anatomy and Physiology**5 credits**

Level I Prerequisites: high school chemistry or (CEM 057 and CEM 058) and (BIO 101, BIO 102, or high school biology) minimum grade "C" all BIO, CEM, and high school requirements
60 lecture, 45 lab, 0 clinical, 0 other, 105 total contact hours

This course provides students with an intensive, in-depth introduction to the structure and function of all human body systems, with examples of both normal and disease conditions relevant to health professionals. The emphasis on basic physiological principles also provides students with a good base for more advanced courses. The laboratory provides dissections and experiments.

BIO 147 Hospital Microbiology**1 credit**

15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This class provides a survey of the morphology, physiology and immunology of pathogenic organisms with emphasis on infection, aseptic, and sterilizing procedures.

BIO 174 Biology Co-op I**1-3 credits**

Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Co-op courses provide students with worksite skills and experiences in an approved, compensated position related to their chosen field of study. Together, with an instructor, an employer, and the Workplace Learning Center, the student determines work assignments and learning objectives to connect learning with career-related work experience. Co-op experiences are coordinated by the Workplace Learning Center in conjunction with WCC faculty and cooperating employers. Registration for cooperative education requires attendance at a co-op orientation and the instructor's prior approval.

BIO 200 Current Topics in Biology**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students learn the basic aspects of scientific investigation, its strengths, and its limitations. Students apply their knowledge to critical assessment of current topics in biology, including such areas as medicine, ecology, genetics, industry, agriculture, and space biology. The course focuses on topics preselected by the instructor but also includes topics selected by students in the class.

BIO 208 Genetics**4 credits**

Level I Prerequisites: (BIO 101 or BIO 102) and (CEM 105 or CEM 111) minimum grade "C-" all BIO and CEM requirements
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Introduction to the basic principles of genetics and their application to viruses, bacteria, plants and animals, including humans. Classical and molecular genetics are covered, with emphasis on experimental and statistical evidence from which genetic mechanisms are deduced. Laboratory experiments demonstrate genetic principles. Students who have taken one year of high school chemistry with a grade of C or better may have the prerequisite waived.

BIO 215 Cell and Molecular Biology**4 credits**

Level I Prerequisites: BIO 101 and CEM 111 minimum grade "C-"

Level II Prerequisites: consent required

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Introduction to the chemistry and physiology of living cells, including cell metabolism, growth, and division, membrane permeability and excitability, movement and contractile elements, gene expression and protein synthesis. Properties common to all living things will be emphasized, as well as the importance of those properties in the human organism. Students will get hands on experience with techniques which demonstrate how cells are constructed and function.

BIO 220 Human Genetics**3 credits**

Level I Prerequisites: BIO 101 minimum grade "C-"; consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers basic principles of heredity and their relationship to humans. Included are the genetic basis of sexual dimorphism, classical pedigree studies, medical genetics, modern molecular genetics, genetic engineering, and human population dynamics.

BIO 227 Biology of Animals**4 credits**

Level I Prerequisites: BIO 101 minimum grade "C"; or consent required
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Lecture, field, and laboratory investigation provide an intensive study of the classification, evolutionary relationship, structure, and function of the major animal groups. Included are the sponges, jellyfish, worms, mollusks, insects, arthropods, starfish and other echinoderms, fish, amphibians, reptiles, birds and mammals. Students with experience equivalent to BIO 101 may contact the instructor for permission to waive the prerequisite. The title of this course was previously Zoology.

BIO 228 Biology of Plants**4 credits**

Level I Prerequisites: BIO 101 minimum grade "C"; or consent required
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

In this class, field and laboratory investigations provide detailed study of plant structure and function. It is for students with a general interest in plants or to provide a basis for further work in botany or other programs. Students with experience equivalent to BIO 101 may contact the instructor for permission to waive the prerequisite. The title of the course was previously Botany.

BIO 237 Microbiology **4 credits**
 Level I Prerequisites: BIO 101 minimum grade “C-”; or consent required
 45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Micro-organisms and their activities are studied in lecture and laboratory. Students with experience equivalent to BIO 101 may contact the instructor for permission to waive the prerequisite.

BIO 258 Field Study of Trees and Shrubs **1 credit**
 0 lecture, 15 lab, 0 clinical, 0 other, 15 total contact hours

Trees, shrubs, and vines are studied and identified in this course. The natural history of these plants is also introduced, including reproduction strategies, environmental interactions, and relevance to humans.

BIO 259 Field Study of Common Plants **1 credit**
 15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

Non-woody higher plants are studied with emphasis on identification.

BIO 267 Winter Field Study **1 credit**
 0 lecture, 15 lab, 0 clinical, 0 other, 15 total contact hours

This course is a study of life out-of-doors in winter. Topics such as plant and animal identification, observation, adaptations, and interrelationships are discussed. This class is especially for students with no previous background in biology and/or students who enjoy being outdoors and are curious about nature.

Business Management

BMG

BMG 100 Investments **1 credit**
 15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course is designed to acquaint students with the basics of financial investments. Topics include: stocks, bonds, mutual funds, investment banking, financial statement analysis, the stock market, and other phases of financial investments and services.

BMG 101 The Business of Your Career **3 credits**
 Level II Prerequisites: INP 099 or equivalent experience
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students examine the nature of business and the types of skills and attitudes needed for success. Students will acquire basic business skills and develop a plan for self-improvement. Students will also develop a plan for pursuing a career that recognizes the need to continually manage their life's work as a business. This course is intended for those students who have little practical business experience and would like to enhance their understanding of basic business concepts.

BMG 106 Legal Basics in Business **3 credits**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for those students wishing to learn about legal issues that arise in business. In one course, students learn to apply fundamental legal principles and rules in order to “redflag” situations of potential legal liability and make suggestions for reducing legal risks, particularly as they apply to legal issues concerning the student's chosen trade or profession. Students learn to use legal resources readily available in the community and explore the nature of the relationship between business ethics and law. Students are expected to make use of computer technologies to learn in both an individual and collaborative environment. This course is appropriate for those students pursuing a trade or occupational career as well as those seeking to transfer.

BMG 109 Entrepreneurship I - The Essentials **3 credits**
 Level II Prerequisites: (CIS 099 or INP 099) with “P” grade and (BMG 101 or equivalent work experience)
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students examine the nature of a small business and the factors that contribute to the success of a business. Students are expected to work independently as well as in groups. Students should possess basic skills in computer literacy that would include the ability to use a word processing program, as well as to use the Internet, to send and receive e-mail and locate information on the Web. Students who lack significant previous work experience should take BMG 101: The Business of Your Career, before taking this course.

BMG 110 Credit Management **3 credits**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an introductory course in consumer and commercial credit practices, techniques, and regulations for most manufacturing and service industries. Students are shown how to develop credit policies and analyze pertinent credit data, collections, controls, and effects of bankruptcy.

BMG 111 Business Law I **3 credits**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course involves text and case study of the general laws applicable to business, covering the nature of law, courts and court procedures, contracts, real and personal property, wills, trusts, and negotiable instruments. This course is the first of two courses in business law and is appropriate for students intending to transfer. This course, when taken with BMG 122, Business Law II, provides an in-depth study of legal issues affecting business. Students are expected to make use of computer technologies to learn in both individual and collaborative environments using the Internet.

BMG 122 Business Law II **3 credits**
 Level I Prerequisites: BMG 111
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course involves text and case studies of agency relationships (including employment), formation and operation of partnerships, formation and operation of corporations, security laws, sales agreements, consumer rights, secured transactions, bankruptcy, computer law and international law. This course, when taken with BMG 111, Business Law I, provides an in-depth study of legal issues affecting business. Students are expected to make use of computer technologies to learn in both an individual and collaborative environment using the Internet.

BMG 130 Investment Strategies **3 credits**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a course designed to help existing or potential investors keep abreast of investment opportunities in today's changing financial world. This course presents current information on stock and bond markets, commodities, and real estate. Students are taught the mechanics of investing and how to analyze risk and return, financial statements, annual reports, financial services reports, mutual funds, and relate to the current tax structure. Students learn to read The Wall Street Journal and utilize the information to evaluate investments.

BMG 140 Introduction to Business **3 credits**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers functions, objectives, problems, organization, and management of modern business. Also covered are the free-enterprise system of business-economic activity and the impact of the consumer and governmental forces upon the system. Students develop insight into the vital role of the administrative function in our economy as a whole and in the operation of a single business unit. A practical orientation is offered in the career opportunities available in business and industry.

BMG 150 Labor-Management Relations 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course acquaints students with factors affecting the labor-management relationships, develops insights into the growth, objectives and methods of organized labor and the significant managerial problems involved in dealing with labor. Analysis is done of the legal and institutional framework for collective bargaining; the nature, content and problem areas of the collective bargaining process and other labor relations problems.

BMG 155 Business on the Internet 3 credits
Level II Prerequisites: INP 099 or equivalent experience
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students examine how e-business is being conducted and managed, its major opportunities, limitations, issues, risks, and the special role that customer data plays in the development of e-business models. The course includes hands-on experience with online technologies similar to those used in e-business. This course is of interest to those seeking entry-level positions in the field of Web development as well as business managers and professionals.

BMG 160 Principles of Sales 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Basic selling techniques are taught and practiced through textbook learning, video demonstrations and practical role-play activities. Emphasis is placed on "how to sell" in the business work environment. Skills learned are appropriate for a variety of sales positions and can be utilized in any industry. Students learn to be effective and sell by building telephone prospecting skills, preparing customer presentation calls, handling customer objectives, and closing a sale. Business etiquette and understanding the basics in commercial contracts are also addressed.

BMG 174 BMG Co-op Education I 1-3 credits
Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

BMG 200 Human Relations in Business 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course acquaints students with administrative principles and practices emphasizing the human relations aspect of management responsibility as it affects employee attitudes, morale, and productivity. Major emphasis is on relationships among individuals and/or small groups, with problem-oriented sessions used to realistically relate the course materials to the human relations aspect of modern business-industrial enterprise.

BMG 201 Entrepreneurship II - Market Planning 3 credits
Level I Prerequisites: BMG 109 minimum grade "C-" or equivalent business experience, may enroll concurrently
Level II Prerequisites: (CIS 099 or INP 099) with "P" grade
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students learn how to identify a target market that provides a continuous competitive advantage to the small business owner by performing market research. Students will complete a plan of marketing which includes an evaluation of profit potential. This course was previously BMG 292.

BMG 207 Business Communication 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Oral, written, and non-verbal skills are developed for effective internal and external communications in business. Emphasis is placed on organization, style, clarity, accuracy, and conciseness as students prepare reports, routine correspondence, resumes, and formal business presentations.

BMG 208 Principles of Management 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to the concepts and theories of management. Emphasis is on the functions of management: planning, organizing, staffing, directing, and controlling, (including motivation, decision-making and communication).

BMG 209 Entrepreneurship III - Business Planning 3 credits
Level I Prerequisites: BMG 201 minimum grade "C-", may enroll concurrently
Level II Prerequisites: (CIS 099 or INP 099) with "P" grade
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students learn to plan for start-up and operation of a small business where market potential has already been assessed. Students learn to analyze cash flows and profits to improve business performance. Students will complete a business plan that can be used internally or shared with external parties such as investors.

BMG 210 Money, Banking and Financial Institutions 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a course in the functions of finance. The course offers a definition of money including its characteristics and component parts. It identifies how the money supply expands and contracts based upon the inter-workings of the financial system. Also discussed is the effect of national and international financial practices on the consumer and business. Other topics include a comparison of the different types and purposes of various financial institutions, the Federal Reserve system, National Fiscal Policy, and how various monetary controls influence the supply of money; credit availability; forecasting interest rates; how to calculate investment yields and security prices; and stock market reactions based upon inflation and changes in the money supply. Banking and lending practices for business and consumers are emphasized and correlated to credit policies and examples of documentation forms. This course is recommended for business students.

BMG 215 Planning an E-Commerce Business 3 credits
Level I Prerequisites: BMG 155 and INP 290 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students create an e-commerce business Web site using readily available commercial software packages in order to market a small item to graduating students of WCC. In the process, students prepare a competitive analysis of an e-commerce business plan suitable for presentation to decision makers. This includes an examination of the strategies used by management to develop and implement an e-commerce site, the process involved in planning and maintaining the Web site, attracting and maintaining customers, and measuring success. Students with equivalent work experience may contact the instructor to waive the prerequisites.

BMG 220 Principles of Finance 3 credits

Level I Prerequisites: ACC 101 or ACC 122
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course surveys the basic concepts of finance that provide the foundation for successful real world financial management practices. Emphasis is on financial tools required to operate a business. Included is the role of the economy and its effect on interest rates, commercial banking practices, commercial credit, cash management, lending practices, financial statement analysis, time value of money, forecasting, budgeting, capital budgeting, sources of financing, lease vs. purchase, leverage, inventory controls, valuation of rates of return, investment banking, international finance, and bankruptcy. The course is intended to prepare students for advance studies in finance and practical application of financial principles.

BMG 230 Introduction to Supervision 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This supervision course introduces the roles and functions of the first-line manager and develops practical, operational management skills in the functional areas of planning, organizing, leading, and controlling.

BMG 240 Human Resources Management 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class covers basic human resources activities that must be managed in any organization. It covers employment techniques, wages and hours, job evaluation, training, employee performance reviews, collective bargaining, employment counseling and collateral benefits such as pensions and fringe benefits. It is recommended that students have a knowledge of the basic principles of management obtained through previous coursework or work experience.

BMG 250 Principles of Marketing 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a study of our market-directed system with emphasis on the managerial level. Primary emphasis is on marketing strategy, planning in relationship to product, place, promotion and price. The concepts of economic fundamentals, marketing arithmetic, service and international marketing are incorporated.

BMG 265 Business Statistics 3 credits

Level I Prerequisites: CIS 110 and (COMPASS College Algebra = 46 or MTH 181) minimum grade "C" both courses
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces the concepts of statistics and their applications to business decisions. Topics include elements of probability, random samples, descriptive statistics, sampling distributions, point and interval estimation, hypothesis testing, and regression and correlation analysis. Emphasis is on collection and analysis of data needed to evaluate reported results of statistical studies and making sound business decisions.

BMG 272 Problem Solving 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course examines problem solving techniques and methods used in today's work place. Students gain experience in using both critical and creative thinking approaches to problem solving in both individual and team settings.

BMG 273 Managing Operations 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to the fundamental processes of managing and controlling a variety of operations. It includes concepts in operations management that are recognized as important factors in business such as work processes, project management, scheduling and inventory management, quality tools, managing human resources on projects and in teams, and customer management. It is recommended that students have basic supervision knowledge obtained from previous coursework or work experience.

BMG 274 BMG Co-op Education II 1-3 credits

Level I Prerequisites: BMG 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

BMG 279 Performance Management 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to provide the student with the human performance skills needed to develop people in an environment that recognizes that they are an organization's most valuable resource. Through the use of skill building exercises and case analysis, the learner will develop knowledge and skills to plan, monitor, measure, motivate, improve and reward performance.

BMG 291 Project Management 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the final course in the Management Supervision program. Topics include financial analysis, forecasting, aggregate planning, and the process of project planning and implementation. Using project management software students are able to plan and track projects that meet an organization's operational, human resource, and costs needs. In addition, students learn to communicate and collaborate with team members on projects across an organization.

Business Office Systems BOS

BOS 101A Introduction to Keyboarding 1 credit

Level I Prerequisites: No Basic Skills prerequisite
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course is the first in a series of three keyboarding courses. Students learn to keyboard (type) by touch and develop speed, accuracy, and proper techniques on the alphabetic keys. Students are evaluated and may be placed in BOS 101B or BOS 101C based upon the results of a keyboarding skills assessment test. This course is offered in a self-paced lab.

BOS 101B Intermediate Keyboarding 1 credit

Level I Prerequisites: No Basic Skills prerequisite
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course is the second in a series of three keyboarding courses. It is designed for students who have completed BOS 101A or who can touch type at least 20 wpm. Students increase speed and accuracy and learn number and symbol keys. Students are evaluated and may be placed in 101A or 101C based upon the results of a keyboarding skills assessment test. This course is offered in a self-paced lab.

BOS 101C Advanced Keyboarding 1 credit

Level I Prerequisites: No Basic Skills prerequisite
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course is the third in a series of three keyboarding courses. It is designed for students who have completed BOS 101B or who can touch type at least 30 wpm. Students increase their speed and accuracy. The students are evaluated and may be placed in 101A or 101B depending on the results of a keyboarding skills assessment test. This course is offered in a self-paced lab.

BOS 107 Office Administration I 4 credits

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course, students perform a variety of general office duties including the processing of office mail, the handling of telephone and faxing service, and filing rules and procedures. Proofreading and editing skills are covered. In addition, students learn job-hunting procedures and prepare for employment in the clerical field through an understanding of the changing business world.

BOS 130 Office Financial Applications 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The ten-key computer pad as well as Excel and electronic business calculators are used to solve a variety of business problems, including payroll, with serious attention given to efficient operation, verifying techniques, and programming. Emphasis on the use of business mathematics makes this course useful for both business and personal applications.

BOS 157 Word Processing and Document Formatting I 3 credits

Level I Prerequisites: (COMPASS Reading = 70 or REA 070) and (COMPASS Writing = 81 or ENG 091), both courses may enroll concurrently

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course teaches word processing and document formatting using Microsoft Word. Skills include formatting and editing documents; using grammar and thesaurus functions; applying character, paragraph, and section formatting; preparing headers and footers; using file management procedures; preparing labels and envelopes; and formatting columns. The application of word processing concepts and functions to current business environments is stressed. Students should be familiar with Windows and have keyboarding skills of at least 25 wpm.

BOS 174 BOS Co-op Education I 1-3 credits

Level I Prerequisites: Eight credits in BOS discipline, minimum 2.0 GPA; consent required

0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor, the employer, and the co-op placement office, students determine work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two-co-op courses.

BOS 182 Database Software Applications 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course teaches database concepts and applications using Microsoft Access. Skills and concepts include creating databases; creating and customizing tables and forms; creating, formatting, and enhancing reports; querying and maintaining databases; publishing reports to the Web; enhancing forms; and filtering data. Applying database concepts and functions to business environments is stressed. Students should be familiar with Windows and have keyboarding skills of at least 25 wpm.

BOS 183 Spreadsheet Software Applications 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course teaches spreadsheet concepts and applications using Microsoft Excel. Skills and concepts include creating, formatting and editing a worksheet; entering formulas and using Excel functions; preparing charts; creating templates, workbooks, and Web pages; creating and using macros; sorting and filtering worksheet databases; and creating data maps and pivot tables. Applying spreadsheet concepts and functions to business environments is stressed. Students should be familiar with Windows and have keyboarding skills of at least 25 wpm.

BOS 206 Scheduling and Internet Office Applications 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course provides an introduction to the operational and technical aspects of microcomputer communications using Microsoft Outlook and Netscape Communicator. Topics covered include sending and receiving e-mail; electronic scheduling, organizing appointments, meetings, and events; maintaining an address book; and using the Internet for common business tasks. Students should be familiar with Windows and have keyboarding skills of at least 25 wpm.

BOS 207 Presentation Software Applications 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course teaches presentation software concepts and applications using Microsoft PowerPoint. Skills and concepts include creating, editing, formatting, and enhancing presentations; using outline view and clip art to create a slide show; using embedded visuals to enhance a slide show; enhancing a presentation with interactive OLE files; and creating Web pages. Applying presentation software concepts and functions to business environments is stressed. Students should be familiar with Windows and have keyboarding skills of at least 25 wpm.

BOS 208 Desktop Publishing for the Office 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a hands-on approach to developing skills in the use of Microsoft Publisher desktop publishing software to create office flyers, newsletters, brochures, bulletins, and related materials. Students use templates and styles and import material created from other software programs. Creating Web documents and posting them to a Web site is covered. Students import images from a scanner and a digital camera and are introduced to image-editing techniques. Good layout techniques are applied to produce documents that communicate effectively in business environments. Students must be familiar with Windows and have keyboarding skills of at least 25 wpm.

BOS 210 Medical Transcription 3 credits

Level I Prerequisites: HSC 101

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This medical transcription course is for students who have some proficiency in keyboarding and medical terminology. Emphasis is placed on the correct use of medical terms; the correct application of writing rules including capitalization, word usage, and punctuation; the efficient use of hardware including a computer, printer, and transcription machine; the formatting of typical medical documents; the use of medical resources; and the knowledge of current employment opportunities in medical transcription.

BOS 223 Medical Office Procedures **3 credits**
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course covers administrative assistant responsibilities in a traditional and computerized medical office or hospital including appointments, patient records, telephone procedures, and credit and collection procedures. Medical insurance is studied as well as legal considerations in a medical office. Students complete forms for Blue Cross/Blue Shield, Medicare, Medicaid, Workers' Compensation, CHAMPUS, and major insurance carriers using the proper coding system. Students should be familiar with Windows and have keyboarding skills of at least 30 wpm.

BOS 224 Medical Office Insurance and Billing **4 credits**
Level I Prerequisites: HSC 101 minimum grade "C-"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is for those interested in a career in the medical office as a medical assistant or insurance biller/coder. The course covers the fundamentals of health insurance, including plan options, carrier requirements, state and federal regulations, selecting relevant information from source documents, accurately completing claim forms, and coding diagnoses and procedures. The learner will practice completing claim forms for Medicare/Medicaid, Blue Cross/Blue Shield, and commercial carriers.

BOS 225 Integrated Office Applications **3 credits**
Level I Prerequisites: BOS 257
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to provide practical study and advanced training in Microsoft Office. Emphasis is given to advanced office practice in repetitive correspondence, letter merging, general office and presentation forms, statistical documents, filing and sorting databases, electronic mail, and telecommunication. Application of advanced Microsoft Office concepts and functions to business environments is stressed. Students must be familiar with Windows and have keyboarding skills of at least 30 wpm.

BOS 250 Office Administration II **4 credits**
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course for the Administrative Assistant programs covers many functions that have been influenced by technology. Emphasis is placed on the expanding duties of an administrative assistant including time management, business composition, human relations skills, and information retrieval for the business office. Continued importance is placed on verbal, nonverbal, and written communications. Office ergonomics, etiquette, and protocol are other topics covered, and a variety of specialized office documents are prepared. Students should be familiar with Windows and have keyboarding skills of at least 30 wpm.

BOS 257 Word Processing and Document Formatting II **3 credits**
Level I Prerequisites: (COMPASS Reading = 70 or REA 070) and (COMPASS Writing = 81 or ENG 091), both courses may enroll concurrently
Level II Prerequisites: BOS 157
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the second of two courses in word processing and document formatting. It introduces students to advanced word processing formatting and functions such as macros, styles, templates, graphics, Web pages, versions, forms, WordArt, Draw, outlines, indexes, and mail merges. The formatting of memos, letters, reports and specialized documents according to current business standards is emphasized throughout the course. Students must be familiar with Windows and have keyboarding skills of at least 25 wpm.

Computer Aided Drafting

CAD

CAD 101 Introduction to AutoCAD **2 credits**
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course provides an introduction to the use of AutoCAD software (CAD program candidates should choose CAD 111). This course was previously IND 216.

CAD 103 Introduction to 3D CAD **2 credits**
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This is a software based course designed to teach the student 3D Solid Based software. The user will learn how to create solid model parts using various modeling techniques. From the solid model, the student will learn how to create solid assemblies, assembly drawings and detail drawings. This course is not part of the CAD certificate or AAS programs. This course was previously IND 217.

CAD 105 Blueprint Reading and Analysis **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course reviews all engineering drawings used in an industrial setting. Students learn to read, sketch, and use various types of engineering documentation. They review and sketch machine drawings, sheet metal layouts, cast and forged drawings, hydraulic and pneumatic schematics, industrial-based electrical schematics and diagrams, piping layouts and schematics, and welding and fabrication drawings. Students learn the national drafting standards as they apply to each discipline and learn to apply any related mathematics as required on drawings. This course was previously IDD 111.

CAD 109 Theory of Dies **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a survey course designed to introduce students to the major types of dies used in manufacturing, their components, and design parameters. This course was previously IDD 113.

CAD 111 CAD I-Detailing **4 credits**
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course is an introduction to the graphical language of industry using sketching and CAD. This course examines standard drafting practices in the application of material specifications, drawing numbering systems, tabulated drawings, auxiliary views, sectioning, screw threads and fasteners. Emphasis is placed on dimensioning, tolerancing, and the use of CAD for the preparation of assembly and detail drawings, and parts lists for various manufacturing disciplines. AutoCAD software will be featured.

CAD 111A CAD IA - Detailing **2 credits**
Level I Prerequisites: consent required
22.5 lecture, 22.5 lab, 0 clinical, 0 other, 46 total contact hours

The purpose of this course is to offer apprentices and other qualified individuals an introduction to the graphical language of industry using sketching and CAD. This course examines standard drafting practices in the application of the isometric, oblique, orthographic projection sketches and drawing, auxiliary views, sectioning and dimensioning practices. Emphasis is placed on dimensioning, tolerancing, and the use of CAD for the preparation of detail drawings. AutoCAD software is featured.

CAD 111B CAD IB - Detailing 2 credits

Level I Prerequisites: consent required
22.5 lecture, 22.5 lab, 0 clinical, 0 other, 46 total contact hours

The purpose of this course is to offer those who have completed CAD 111A and other qualified individuals a continuation of instruction in the graphical language of industry using sketching and CAD. This course examines standard drafting practices in the application of material specifications, drawing numbering systems, tabulated drawings, screw threads, and fasteners. Emphasis is placed on dimensioning, tolerancing, and the use of CAD for the preparation of assembly and detail drawings, and parts listed for various manufacturing disciplines. AutoCAD software is featured. Students with equivalent work experience may contact the instructor for permission to waive the prerequisite.

CAD 113 CAD II 4 credits

Level II Prerequisites: CAD 111 minimum grade "C"
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course covers practices and procedures for creating assembly and detail drawings from given layouts using CAD. An introduction to principles of 3D design is included with emphasis on the use of standard parts.

CAD 115 Descriptive Geometry 4 credits

Level I Prerequisites: CAD 111 minimum grade "C" or equivalent
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

Points, lines and planes and their relationships in space are studied, with emphasis on practical application of principles to actual problems in industry. This course was previously IND 112.

CAD 174 Co-op CAD Drafting I 1-3 credits

Level I Prerequisites: CAD 111, CAD 113, and CAD 115 minimum grade "C"
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This course was previously IND 174.

CAD 211 CAD III 4 credits

Level I Prerequisites: CAD 113 minimum grade "C"
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course introduces the student to the basics of feature-based parametric solid modeling. This course covers 3D construction techniques such as extrude, revolve, loft, and sweep. Solid models will be used to produce dimensioned detail and assembly drawings conforming to industry standards.

CAD 213 Mechanisms 4 credits

Level I Prerequisites: CAD 111 and CAD 113
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

The principles of gears, cams, flexible drive systems, linkages, and other mechanical means to transmit motion and energy are studied. Included in this course are graphical and mathematical techniques used to solve for force, displacement and motion application problems. Students are also required to use computer related programs such as Excel and CAD to complete the application problems. Students with equivalent work experience may contact the instructor for permission to waive the prerequisites.

CAD 215 Geometric Dimensioning and Tolerancing 3 credits

Level I Prerequisites: CAD 113 may enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers the language of Geometric Dimensioning and Tolerancing (GD&T) as governed by the ASME Y14.5M, 1994 Dimensioning and Tolerancing Standard. This application based course covers the rules, practices, and symbology that is outlined in the national standard. Specifically, students learn how to set up a datum reference framework, apply the 14 geometric controls, and analyze the obtained tolerances gained from applying GD&T. Students with experience equivalent to CAD 113 may contact the instructor for permission to waive the prerequisite. This course was previously IND 123.

CAD 217 Mechanical Design 4 credits

Level II Prerequisites: CAD 113 or CAD 211 minimum grade "C"
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

The purpose of this this course is to give students an opportunity to experience the complete design process as it is practiced in industry. Given a design problem, the student will develop a product from ideation through prototype. The student will accomplish this task using problem solving techniques, teamwork, and other engineering design techniques. CAD skills will be demonstrated by delivering 3D models, detail drawings, and a functional prototype, as well as jig and or fixture drawings for part production. The student will deliver a presentation promoting their solution to the problem.

CAD 219 Theory of Jigs and Fixtures 3 credits

Level II Prerequisites: MTT 111 minimum grade "C"
30 lecture, 15 lab, 0 clinical, 0 other, 45 total contact hours

The design and use of jigs and fixtures for purposes of workholding and quality control is studied and applied. Emphasis is placed on the student's ability to develop a practical design including proper locating and clamping principles for given parts. This course was previously IDD 211.

CAD 221 CAD IV 4 credits

Level I Prerequisites: CAD 211 minimum grade "C"
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course provides the student with advanced feature-based parametric solid modeling skills. The course covers 3D construction techniques unique to sheet metal parts, molded parts, weldments, and castings. Solid models will be used to produce dimensioned detail and assembly drawings conforming to industry standards. Animation tools will be used to create exploded views and presentations.

CAD 274 CAD Co-op Education II 1-3 credits

Level I Prerequisites: CAD 174 minimum grade "C"; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

CAD 280 The Basics of Part Modeling 3 credits

Level II Prerequisites: Industry experience or completion of postsecondary CAD training
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students learn fundamental concepts and applications of the I-DEAS Master Series (SDRC) tool set. The course specifically focuses on the creation and modification of a 3D part or model. Students learn to navigate through the extension user interface, work with various sketch planes and reference geometry, create wireframe sketches, constrain those wireframe sketches through the use of geometric constraints and model dimensions, and then extrude or revolve those sketches into 3D solid parts. Use of the I-DEAS data management system is also covered.

Child Care Professional**CCP****CCP 101 Child Development 3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a general overview of the physical, social, emotional and intellectual development of the child from conception to maturity with emphasis on the preschool years. It examines the environmental, ethnic and familial factors that make for group differences and individuality of growth, and reviews current research in these areas.

CCP 103 Establishing Programs for Children 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

The philosophy and theory of programs in child care are examined. Traditional, open, Montessori, High Scope, Piaget Based, Head Start, parent involvement and kindergarten programs are explored. Observations of area child care centers are frequently assigned.

CCP 104 The Basics of Child Care 1 credit

15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course introduces care givers to the childcare profession. The focus is on the knowledge and skills needed to care for children in group care settings. Topics covered include professionalism, the business of child care, health and safety, nutrition and food handling, child development, guidance and discipline, parent/provider relationships, and community resources. The course is equivalent to the 15 hour Child Care Futures Basic Training Course conducted by the Michigan 4-C Association and its local affiliates.

CCP 107 Math & Science Activities for Children 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Integrated curriculum workshops introduce the theory of math and science experiences for children. Topics include: learning to observe and teach the science and math around us every day; making materials, collecting resource files and practical application of ideas to be used in the child care setting. Community resources are explored. It is recommended that students take CCP 101 prior to this course.

CCP 109 Language and Communication for Children 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Designed for child care professionals, this course examines the development of language in children. Consideration is given to non-verbal communication and cultural differences. Basic methods, activities and materials for language arts and language development are introduced and their application in the child care setting is addressed. It is recommended that students take CCP 101 prior to this course.

CCP 111 Management of Child Care Programs 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Practical aspects of daily operation of a child care program are presented: administrative forms and record keeping, state and federal regulations that affect daily operations, policies and procedures. Licensing regulations and accreditation standards are stressed.

CCP 113 Health, Safety and Nutrition for Child Care 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Best practices in health, safety and nutrition are presented. Students develop specific competencies in these areas including establishing and maintaining a healthy, safe child care program, planning nutritional meals and snacks, and teaching children and their parents about health, safety and nutrition. Communicable diseases, government funded child/family food and nutrition programs, playground and toy safety, and resources for the child care provider are included.

CCP 122 Child Development Credentialing I 4 credits

Level I Prerequisites: (COMPASS Reading = 70 or REA 070) and (COMPASS Writing = 81 or ENG 091) both courses may enroll concurrently
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to provide part of the formal training for students working toward their Child Development Associate Credential. During this course, students cover eight of the thirteen functional areas of the Child Development Associate (CDA) Competency Standards. Students participate in group seminar discussions and work on assigned observations and portfolio projects. Students must be 18 years of age and have a high school diploma or GED to register for this course.

CCP 123 Child Development Credentialing II 4 credits

Level I Prerequisites: CCP 122 and (COMPASS Reading = 80 or ACS 107 may enroll concurrently) and (COMPASS Writing = 81 or ENG 091)
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is a continuation of CCP 122 for students working toward their Child Development Associate Credential. Five of the thirteen functional areas of the Child Development Associate (CDA) Competency Standards are covered. Students participate in group seminar discussions and work on assigned observations and portfolio projects.

CCP 124 CDA Assessment Preparation 1 credit

Level I Prerequisites: consent required

Corequisites: CCP 134

15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course helps CDA candidates prepare for credential renewal or initial direct assessment. Students seeking the Child Development Associate credential for the first time should have completed 124 hours of approved instruction and 480 hours of approved experience with children. Students seeking CDA recredentialing receive assistance with their professional development plan and preparation for reassessment.

CCP 132 Child Development Practicum I 1-2 credits

Level I Prerequisites: consent required

Corequisites: CCP 122

0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

This course provides a supervised field experience for CDA candidates. Students are expected to demonstrate competence in the CDA functional areas: safe and healthy learning environment, physical and cognitive communication. Students are required to work in a licensed child care center with infants and toddlers or preschoolers, or licensed family child care home, or in a home visitor program during regular hours of operation. Observations will be completed at the work site using standards for the Child Development Associate national child care credential.

CCP 133 Child Development Practicum II **1-2 credits**
Level I Prerequisites: consent required
Corequisites: CCP 123
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

This course provides a supervised field experience for CDA candidates. Students are expected to demonstrate competence in the CDA functional areas: creative, self, social, guidance, and families. Students are required to work in a licensed child care center with infants and toddlers or preschoolers or licensed family child care home, or in a home visitor program during regular hours of operation. Observations will be completed at the work site using standards for the Child Development Associate national child care credential.

CCP 134 Child Development Practicum III **1 credit**
Level I Prerequisites: consent required
Corequisites: CCP 124
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

This course provides a supervised field experience for CDA candidates. Students are expected to demonstrate competence in the CDA functional areas: safe, healthy, learning environment, physical, cognitive, communication, creative, guidance, self, social, and families. Students are required to work in a licensed child care center with infants and toddlers or preschoolers or licensed family child care home, or in a home visitor program during regular hours of operation. Observations will be completed at the work site using standards for the Child Development Associate national child care credential.

CCP 160 Foundations of Child Care and Early Education **3 credits**
Level I Prerequisites: CCP 101 minimum grade "C", may enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an overview of the theories and philosophies that have shaped modern child care and early childhood education programs. A history of the field, current issues and future developments in the profession are covered. State licensing requirements and national accreditation standards are emphasized in relationship to establishing and operating programs for children from birth through age twelve.

CCP 200 Working with Parents **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course explores the many facets of parent and staff involvement in the child care setting. Topics include: various forms of parent participation, ways of increasing positive communication with parents, cultural differences and goals of parents, and planning parent involvement programs. Emphasis is given to the preparation, mechanics and techniques for the individual parent/teacher conference and parent meetings. This course should be taken during the last semester of the program or after 50 credits have been completed. It is recommended that students take CCP 101 prior to this course.

CCP 209 Curriculum for Young Children **3 credits**
Level I Prerequisites: CCP 101 minimum grade "C", may enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an overview of developmentally appropriate curriculum creation for young children. State licensing requirements and national accreditation standards are emphasized in relationship to establishing and operating programs for children from birth through age twelve.

CCP 210 Child Guidance and Classroom Management **3 credits**
Level I Prerequisites: CCP 101 minimum grade "C", may enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This comprehensive course focuses on child guidance and classroom management for the child care provider and adults working with preschool and elementary school aged children in educational and recreational settings. Emphasis is placed on the social and emotional development of children birth through age 12 and developmentally appropriate guidance strategies. This course meets Positive Behavior Support Standards for the Michigan Department of Education (2000). Current work experience with children age 12 or younger is required. This course was previously CCP 110.

CCP 218 Advanced Child Care Seminar **1 credit**
Level I Prerequisites: consent required
Corequisites: CCP 219
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

Students learn about the role of the head child care provider, plan and evaluate extended sequences of activities for young children, and analyze and evaluate practice for developmental appropriateness. Students must meet with the CCP program advisor the semester before enrolling to confirm eligibility and select the appropriate work. This course should be taken during the last semester of the program or after 50 credits have been completed.

CCP 219 Advanced Child Care Practicum **2 credits**
Level I Prerequisites: consent required
Corequisites: CCP 218
0 lecture, 0 lab, 0 clinical, 240 other, 240 total contact hours

Students take increasing responsibility in the child care setting and assume the role of head child care provider for a minimum of two weeks. Students develop activities and learning materials suitable for young children, implementing developmentally appropriate practice in the work place. Students are placed in licensed group child care settings. Student must meet with a program advisor prior to enrolling in the course to arrange placement. This course should be taken during the last semester of the program or after 50 credits have been completed.

CCP 220 Care and Development of Infants and Toddlers **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The development of infants and toddlers is studied. Emphasis is placed on stages of development in physical cognitive and social/emotional areas and developmentally appropriate practice in child care. Developmental issues related to health and safety, nutrition, toilet training, and child guidance are considered. Parent issues discussed include pregnancy, adjustment to parenting and working parents of infants and toddlers. Observation in an infant/toddler group care settings is required. It is recommended that students take CCP 101 prior to this course.

CCP 230B Heads Up! Reading - Part B **1 credit**
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course surveys the research-based principles and practices for providing children from birth through age five with a strong foundation in early reading and writing within a developmentally appropriate child care or early education program. The major goal is to prepare early childhood teachers and caregivers to enhance early literacy outcomes and increase their teaching skills.

CCP 251 Education of Exceptional Children 3 credits

Level I Prerequisites: (CCP 101, PSY 100, PSY 200, PSY 206, or HSC 147) minimum grade “C”

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course presents an overview of the major categories of exceptionality. Methods for identifying and working with children in child care, recreational and educational settings are explored. Working with an interdisciplinary team and partnering with parents is a major focus. A working knowledge of resources, a comfort level for working with exceptional children and their families, and exploring the roles of professionals who work with exceptional populations are stressed. This course was previously CCP 100.

Chemistry**CEM****CEM 057 Introductory Chemistry 3 credits**

Level I Prerequisites: (COMPASS Writing = 81 or ENG 091) and (COMPASS Reading = 70 or REA 070) both courses minimum grade “C” and may enroll concurrently

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course offers a basic exposure to chemistry. Students with no background in high school science or algebra, or students wishing to improve their chemistry background should take this course before taking CEM 105 or CEM 111. Introductory Chemistry Laboratory (CEM 058) must be taken concurrently.

CEM 058 Introductory Chemistry Lab 1 credit

0 lecture, 45 lab, 0 clinical, 0 other, 45 total contact hours

Designed to accompany CEM 057, this course provides an experience with basic chemical laboratory practices and procedures.

CEM 105 Fundamentals of Chemistry 4 credits

Level I Prerequisites: high school chemistry or (CEM 057 and CEM 058) and (MTH 097 or high school algebra) minimum grade “C” all CEM, MTH and high school requirements

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Students with an interest in nursing or other health related areas, or needing a general science elective find that this broad survey of the major topics in chemistry meets the requirements of their program.

CEM 111 General Chemistry I 4 credits

Level I Prerequisites: (two years high school algebra, MTH 169, or COMPASS Algebra = 66) and (CEM 057 and CEM 058) or high school chemistry minimum grade “C” all CEM, MTH, and high school requirements

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers the major topics in chemistry. Laws of chemical combination, states of matter, atomic and molecular structure, bonding, and other basic principles are covered. It is for students in a professional or pre-professional curriculum.

CEM 122 General Chemistry II 4 credits

Level I Prerequisites: CEM 111 and (COMPASS Algebra = 66 or MTH 169) both courses minimum grade “C”

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers four major topics in chemistry: kinetics, chemical thermodynamics, chemical equilibrium, and electrochemistry. Laboratory work includes qualitative and quantitative analysis.

CEM 140 Organic Biochemistry 4 credits

Level I Prerequisites: CEM 105 or CEM 111 minimum grade “C”

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

An introduction to both organic chemistry and biochemistry for nursing and other health services students. Major topics covered are the structure and functional groups of organic compounds, structures of biological molecules, mechanism of enzyme-catalyzed reactions, equilibria involved in the exchange and transport of oxygen and carbon dioxide, acid-base balance, and bioenergetics.

CEM 211 Organic Chemistry I 4 credits

Level I Prerequisites: CEM 122 minimum grade “C”

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course provides students with the background in nomenclature of organic chemistry, stereochemistry, the preparation and reactions of aliphatic and aromatic compounds. Students also practice the preparation and handling of organic compounds in the laboratory. This is the first course in a two semester sequence.

CEM 218 Analytic Chemistry 4 credits

Level I Prerequisites: CEM 122 minimum grade “C”

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Techniques for the separation and quantitative determination of chemical substances by gravimetric, volumetric, and instrumental methods are learned and practiced in this course.

CEM 222 Organic Chemistry II 4 credits

Level I Prerequisites: CEM 122 and CEM 211 minimum grade “C”

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course provides a continued exploration of nomenclature, stereochemistry, preparations and reactions of organic compounds including spectroscopic analysis in the laboratory. Students apply the techniques used in CEM 211 to the synthesis and analysis of complex organic compounds. Laboratory work includes hands-on spectroscopic analysis (IR, GC, and NMR) of products and unknowns. This is the second course in a two semester sequence of organic chemistry.

Computer Information Systems**CIS****CIS 099 Computer Literacy 1 credit**

Level I Prerequisites: No Basic Skills prerequisite

15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course teaches all competencies required by the Washtenaw Community College Computer and Information Literacy associate degree graduation requirement. If students have not met this requirement by passing the Computer and Information Literacy test, they may meet it by completing this course and passing the final exam. Competencies covered include, but are not limited to, basic word processing, file management, information evaluation, and email. Basic computer concepts such as operating systems, hardware and software, networks, and legal and security issues are also taught.

CIS 100 Introduction to Software Applications 3 credits

30 lecture, 15 lab, 0 clinical, 0 other, 45 total contact hours

This class covers basic computer literacy, an introduction to Windows desktop, the fundamentals of productivity software (currently using Office XP) and experience using the Internet. No previous computer training is required. Class format includes hands-on work on the computer.

CIS 110 Introduction to Computer Information Systems **3 credits**
Level II Prerequisites: A working knowledge of applications software or enroll in CIS 100.
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The course covers the principles of information systems for business majors. It provides an overview of information systems including a review of computer concepts, how technology is used in business, the information systems discipline, and the systems development life cycle. Students need a working knowledge of applications software and keyboarding to be successful in the course. Students who do not have these skills may enroll in CIS 100 concurrently with CIS 110.

CIS 117 Windows Operating System **2 credits**
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course covers the use of an operating system with a graphical user interface to maintain, troubleshoot, repair, and customize a microcomputer system. Respect for the rights of others and proper security measures are also discussed. Windows XP is currently used in the course. The course contains material previously taught in CIS 116 and CIS 117.

CIS 121 Linux/UNIX Fundamentals **3 credits**
Level II Prerequisites: CIS 100, CIS 110, CPS 120, or CSS 180 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces UNIX and Linux tools to the experienced computer user and to those with only a basic knowledge of computers. The course covers the UNIX/Linux file system, communication with other users, editors, file manipulation and processing, basics of pipes and redirection, simple shell programming, introduction to the X windows system, and a basic introduction to Linux. Students with experience equivalent to CIS 100, CIS 110, CPS 120, or CSS 180 may contact the instructor for permission to waive the prerequisites.

CIS 174 CIS Co-op Education I **1-3 credits**
Level I Prerequisites: Two courses in CIS discipline, minimum grade "C"; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

This course recognizes the value of learning which takes place on the job by offering college credit for development and achievement of learning objectives which are accomplished through current work experiences. Students also participate in monthly work related activities, such as meetings or seminars.

CIS 175 Beginning Java Programming **4 credits**
Level I Prerequisites: COMPASS Algebra = 66 or MTH 169 minimum grade "C"
Level II Prerequisites: CIS 100, CIS 110, or CPS 120 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to provide an introduction of Java Basics to students who have no previous programming experience. The content of this course includes an introduction to language basics, object oriented concepts, string manipulation, I/O (input/output), GUI (graphical user interface) concepts, and event handling. The focus will be on programming concepts and simple examples.

CIS 204 Linux Installation and Configuration **3 credits**
Level I Prerequisites: CIS 121 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the first of four courses on the Linux operating system. Students learn to configure and install several versions of Linux. Students should have a basic understanding of UNIX/Linux commands and structure to succeed in this course. This course is designed to help prepare students for Linux Certification Exams. Students with experience equivalent to CIS 121 may contact the instructor for permission to waive the prerequisite.

CIS 206 Linux System Administration **3 credits**
Level I Prerequisites: CIS 204 minimum grade "C"; or consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the second of four courses on the Linux operating system. Linux System administration tasks are discussed and practiced. This course is designed to help prepare students for Linux Certification Exams. Students should be familiar with common Linux distributions and should be comfortable with basic installation and configuration to succeed in this course.

CIS 208 Linux Networking **3 credits**
Level I Prerequisites: CIS 206 minimum grade "C"; or consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the third of four courses on the Linux operating system. Linux networking theory is discussed and practical application of the theory is shown through lab exercises. Students should be familiar with common Linux distributions and comfortable with system administration activities to succeed in this course. This course is designed to prepare students for Linux Certification Exams.

CIS 210 Linux Security and Privacy **3 credits**
Level I Prerequisites: CIS 208 minimum grade "C"; or consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the fourth in a series of four courses on the Linux operating system. Linux security, ethical considerations, and privacy issues are discussed. Practical application of security theory is taught through lab exercises. Students should be familiar with common Linux distributions, system administration, and networking to succeed in this course. This course is designed to prepare students for Linux Certification Exams.

CIS 221 UNIX Tools and Scripts **3 credits**
Level I Prerequisites: CIS 121 minimum grade "C"; or consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students learn to use UNIX more efficiently with advanced forms of the commands and utilities covered in CIS 121, as well as new commands and constructs. Advanced forms of topics begun in CIS 121 include sed, grep, awk, Perl, and how to effectively use regular expressions, as well as constructs and special commands used in writing shell scripts. New topics covered include functions, traps, arithmetic on variables, and input/output techniques.

CIS 238 PC Assembly Language **3 credits**
Level II Prerequisites: (CPS 171 or CPS 185 minimum grade "C") or proficiency with any programming language
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a first course in PC assembly language. The organization of the 80x86 microprocessor is examined to aid in the study of the instruction set. Topics include various character/numeric conversions, twos and tens complement arithmetic, string and bit manipulation, the calling of assembly language routines from other assembly programs as well as from high level language programs, and the use and modification of DOS and BIOS interrupt routines. Prerequisites will be checked the first day of class.

CIS 265 Programming the Web 3 credits

Level II Prerequisites: INP 150 minimum grade "C" or basic HTML knowledge
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is intended for students who have a knowledge of problem solving techniques as applied to programming languages and a basic knowledge of HTML. Topics covered include creating HTML forms, Common Gateway Interface (CGI), programming using Perl (process data from the form), basic JavaScript for verifying form data, and the setup of a simple Web server.

CIS 266 Web Programming Using Active Server Pages 4 credits

Level II Prerequisites: CIS 265 and (CPS 171 or CPS 185) minimum grade "C" all courses or equivalent industry experience
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is intended for students who understand Common Gateway Interface (CGI). VBScript (Visual Basic Script) is used in server side scripting to process form data from the browser. The Application,ObjectContext, Request, Response, Server and Session objects along with their properties, collections, methods, and events will be discussed. Other related topics including ActiveX Data Objects (ADO) database access will be covered. Prerequisites will be checked on the first day of class.

CIS 269 Java Certification Preparation 4 credits

Level II Prerequisites: CPS 171, CPS 290, or CIS 175 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course provides an intense presentation of the fundamentals of the Java programming language to students who already have a good knowledge of C++ (or have taken CIS 175). The goal of the course is to prepare students to pass the Sun Java Certification Exam. Content includes language basics, object oriented concepts, threads, exceptions, string manipulation, Input/Output (I/O), Graphical User Interface (GUI) concepts, event handling, and collection classes.

CIS 270 Perl Programming 3 credits

Level II Prerequisites: CIS 265 minimum grade "C" or basic PERL knowledge
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class will cover Perl in depth. Topics include program design and programming style, Perl syntax and language, functions, complex data structures, regular expressions, debugging, modules, and use of objects. A wide range of real-world examples will be used to demonstrate Perl programming principles followed by short assignments in and out of class.

CIS 274 CIS Co-op Education II 1-3 credits

Level I Prerequisites: CIS 174 minimum grade "C"; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course students gain skills from a new experience in an approved, compensated, computer-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

CIS 277 Java for Programmers 3 credits

Level II Prerequisites: (CPS 171 or CPS 185) minimum grade "C" or proficiency in a programming language
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers the basics of Java, including creating a simple applet and application, object oriented programming concepts, objects and classes in Java, managing inheritance, and simple Java I/O. Students consider practical issues, common problems and solutions in applet development, string handling, program attributes, accessing system resources, error handling, threads, and creating a user interface. Prerequisites will be checked on the first day of class.

CIS 278 Java Server Programming 4 credits

Level II Prerequisites: (CIS 269 or CIS 277) minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course covers some of the key Java 2 Enterprise Edition (J2EE) concepts. The main focus will be on Java Servlets, Java Server Pages (JSP), Java Bean Fundamentals and Java Database Connectivity (JDBC). Additional topics covered can include Remote Method Invocation (RMI), Java E-mail, SQLJ (an implementation of the SQL database query language in Java), and JSP tag libraries. Students taking this class should have a good knowledge of Java Fundamentals, and some knowledge of simple HTML and simple SQL.

CIS 279 XML Programming 4 credits

Level II Prerequisites: (CIS 175 or CIS 269) and INP 150, minimum grade "C" all courses
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course, XML related programs are developed in Java and Javascript. XML concepts (DTD, CSS, XSL, DOM) are also covered. Students must have a working knowledge of Java and HTML to succeed in this course. Javascript and Dynamic HTML concepts are taught based on the prerequisite knowledge of Java and HTML.

CIS 282 Relational Database Concepts and Application 3 credits

Level II Prerequisites: CPS 120, CPS 171, CPS 185, CIS 175, or CIS 265 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an introduction to relational database theory and practice. Topics covered include terminology, normal forms, design of database tables, SQL (structured query language), and application generation. The student will incorporate SQL in procedural files to program applications. This course is intended for anyone possessing a basic knowledge of programming who is interested in database theory and practice. Prerequisites will be checked on the first day of class. The title of the course was changed from Small Systems Database.

CIS 286 UNIX Systems Administration 4 credits

Level I Prerequisites: CIS 121 minimum grade "C"; or consent required
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

Concepts and technical knowledge of operating systems, utilities and control languages are presented with hands-on experience using the UNIX operating system. Topics covered include startup and shutdown, user accounts, security, automating routine tasks, managing system resources, file systems, back-ups, devices, and networking.

CIS 288 Systems Analysis and Design 3 credits

Level II Prerequisites: (CPS 171 or CPS 185) minimum grade "C" or equivalent industry experience
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course surveys computer applications and techniques in major areas of business, business structure, analytical communication with system users, principles of package software evaluation and acquisition, planning schedules and resource requirements for software development, program testing and installation procedures, principles of software development monitoring, structured walkthroughs and other programmer communication, and producing software development specifications. Prerequisites will be checked on the first day of class.

CIS 289 Project Leadership and Design Tools 3 credits

Level II Prerequisites: CIS 288 minimum grade "C" or equivalent industry experience
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will combine technical, communications and project leadership topics to provide a comprehensive exposure to overall project management. It will prepare the experienced programmer, analyst and business analyst for a project leadership role. Prerequisites will be checked on the first day of class.

CIS 290 Microcomputer System Support 4 credits

Level II Prerequisites: Twenty credit hours in Microcomputer System Support program
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is the final course in the Microcomputer System Support program. Students gain problem solving skills, practice user training techniques, and consolidate knowledge required for serving as a Microcomputer Systems Support Technician. Prerequisites will be checked on the first day of class.

CIS 291A Introduction to Oracle SQL 3 credits

Level II Prerequisites: (CIS 282 minimum grade "C"; or consent required) and (CPS 171, CPS 185, CIS 175, or CIS 265) minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is intended to instruct the student in the use of Structured Query Language (SQL) as implemented by Oracle Corporation. Students learn how to create and maintain database objects. Using SQL*Plus and iSQL*Plus, students learn how to retrieve, change and delete data from a SQL compliant database. The student is further introduced to database concepts, as implemented by Oracle, including recovery, domain integrity and referential integrity. This course also prepares the student for the Oracle Certification examination 1Z0-007, Introduction to 9i SQL. This course is the first half of the previous course CIS 291.

CIS 291B Program with PL/SQL 3 credits

Level II Prerequisites: CIS 291A minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is intended to instruct the student in the use of Procedural Language/Structured Query Language (PL/SQL). The student learns to write PL/SQL code that can be shared across the database, forms and reports. The student also learns the characteristics of the different types of program units. Activities include the development of program procedures, functions, packages and database triggers. This course also prepares the students for the Oracle Certification examination 1Z0-147, Oracle 9i: Program with PL/SQL.

CIS 292 Oracle 9i Forms Developer: Build Internet Applications 3 credits

Level II Prerequisites: CIS 291B minimum grade "C" or equivalent industry experience
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, the student learns to deploy Internet applications using Forms. Students learn how to customize forms through user input items, how to control data access by creating event-related triggers, and debug Web applications through the Forms environment. This course also prepares the student for the Oracle Certification examination 1Z0-141, Oracle 9i: Forms Developer: Build Internet Applications.

CIS 294 Information Systems Planning 3 credits

Level II Prerequisites: CIS 289 minimum grade "C" or equivalent industry experience
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will explore the many issues related to managing technical resources, people, machines, and systems. It prepares the experienced analyst or project leader for the role of IS manager. Prerequisites will be checked on the first day of class.

CIS 296 Oracle9i Database: Fundamentals I 3 credits

Level II Prerequisites: CIS 291A minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students build on the skills learned in CIS 291 in the creation of SQL queries and PL/SQL functions and are introduced to basic Oracle database administration concepts. Students learn how to create a database, manage an instance, manage data storage, and manager security. This course prepares students to take Oracle9i exam number 1Z0-032.

CIS 297 Oracle9i Database: Fundamentals II 3 credits

Level II Prerequisites: CIS 296 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students learn how to troubleshoot, design, and implement backups and recoveries of Oracle databases. Students also learn about Oracle network administration. This course prepares students to take Oracle exam number 1Z0-033.

CIS 298 Oracle9i Database: Performance and Tuning 3 credits

Level II Prerequisites: CIS 297 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class is taught on Oracle9i. Students are introduced to Oracle database tuning concepts and learn how to manage memory and disk input/output, optimize sorts, and minimize contention. This course prepares students to take Oracle exam number 1Z0-033.

CIS 299 Oracle Network Administration 1 credit

Level II Prerequisites: CIS 296 minimum grade "C" or equivalent course or industry experience
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

Students learn about Oracle network administration and about Oracle Net8 architecture, configuration, and troubleshooting. This course prepares students to take Oracle 8i Network Administration exam number 1Z0-026.

Criminal Justice

CJT

CJT 100 Introduction to Criminal Justice 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an in-depth look at the criminal justice system including law enforcement, courts and corrections. Individuality and the purpose of each division is studied. The student is provided with a sound understanding of the basic functions of each component.

CJT 110 Emergency Telecommunication 5 credits
Level I Prerequisites: consent required
80 lecture, 0 lab, 0 clinical, 0 other, 80 total contact hours

The goal of this course is to provide participants with basic skills in public safety communication. Communication skills, telephone and dispatch techniques, legal issues and CPR skills are some of the topics covered in the course.

CJT 111 Police/Community Relations 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The role of the individual officer and the department in achieving and maintaining public support is studied. Topics include: customs, culture, and problems of ethnic and minority groups. Public information services, and techniques for the alleviation of community tensions are also covered.

CJT 120 Criminal Justice Ethics 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a normative ethics course that examines values and issues relevant to success in the criminal justice area. The course includes personal values clarification, historical ethics and applied ethics.

CJT 160 Criminal Justice Constitutional Law 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

A comprehensive examination of key provisions of the US Constitution with emphasis on those areas affecting the rights and privileges of individual citizens (e.g. those imparting procedural law). A historical approach is adopted to give students a complete understanding of the mutable nature of the Constitution and those factors which impact it. This course was previously CJT 112.

CJT 208 Criminal Evidence and Procedure 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an examination of the criminal justice judicial process, including the roles of defense attorneys, prosecutors and judges. It emphasizes the rules and laws governing the admissibility of evidence, as well as the law governing criminal procedure.

CJT 209 Criminal Law 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the history and philosophy of the development of criminal law in America. It is also an in depth examination of the elements of traditional crimes, based upon the common law and the Model Penal Code. The course covers the theoretical challenges and defenses to criminal liability.

CJT 221 Law Enforcement Training 16 credits
Level I Prerequisites: minimum 45 credits with 2.0 GPA and pass MCOLES test; consent required
451 lecture, 390 lab, 0 clinical, 0 other, 841 total contact hours

The successful completion of this course is mandatory for anyone seeking law enforcement licensing in the State of Michigan. The Michigan Commission on Law Enforcement Standards (MCOLES) and the WCC Police Academy Advisory Committee have created the course content. The WCC Student Handbook, the MCOLES Policy and Procedure Manual, and the WCC Police Academy Daily Rules and Regulations will govern student conduct. The police academy is structured as an adult learning experience, and will require significant self-discipline on the part of the student. Teamwork is required. Just as a sworn law enforcement officers operate under a code of honor which requires them to be above reproach in ethics and behavior, students will also be held to this same standard. MCOLES pre-enrollment is a corequisite of this course.

CJT 223 Juvenile Justice 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The major emphasis of this course is on problems of law enforcement related to juvenile crime. Major topics covered include theories of juvenile delinquency, work of youth agencies, legislative involvement and new approaches to the prevention of juvenile crime.

CJT 224 Criminal Investigation 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students will be introduced to the science of criminal investigation. They will become familiar with the methodology of crime scene investigations, evidence collection, preservation, and analysis. Included are the rudiments of follow-up investigations, interviews, interrogations and report writing. Techniques applicable to investigation of specific crimes will be highlighted.

CJT 225 Seminar in Criminal Justice 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a unifying experience and evaluation of criminal justice systems, policies and practices. Preparation of a concluding research paper is required for this course. The focus is on analytical thought processes and problem solving.

Construction Management

CMG

CMG 130 Construction Site Safety and MIOSHA Regulations 3 credits
Level I Prerequisites: COMPASS Algebra = 66 or MTH 169
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers both the application of safe work practices and the Michigan Occupational Safety and Health Act (MIOSHA) standards as they apply to construction site safety. Topics include: personal protective equipment; hand, portable, and stationary power tools and equipment; construction site safety; MIOSHA standards; HAZMAT; and an investigation into the philosophical, social, economic, and technological basis for safety. Students will develop a model construction site safety plan.

CMG 150 Introduction to Construction Management 3 credits
Level I Prerequisites: COMPASS Algebra = 66 or MTH 169
30 lecture, 15 lab, 0 clinical, 0 other, 45 total contact hours

This course covers an introduction to developing, planning, and scheduling construction projects. Additional topics include: site development; material usage; specifications; estimating; and managing cost control.

CMG 170 Construction Graphics 3 credits

Level I Prerequisites: CMG 150 minimum grade “C”
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers basic print reading skills for residential and light commercial/industrial projects. It includes symbols and conventions, terminology, print organization, and basic material take-off techniques. It will include refinement of basic sketching and drawing skills.

CMG 200 Construction Systems 3 credits

Level I Prerequisites: CMG 170 minimum grade “C”
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers structural systems, associated non-structural components, and consideration appropriate to mechanical, electrical, plumbing, and support equipment.

Computer Networking Technology**CNT****CNT 201 Administering Microsoft Windows XP Professional 3 credits**

Level II Prerequisites: (CST 225, CNT 206, or CIS 117) minimum grade “C”
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to give students a strong foundation in installing, configuring, and administering Windows XP Professional. Topics covered include configuring file systems, security, networking protocols, and network printing. Performance tuning and troubleshooting will be taught, with an emphasis on the boot process and application support. A basic understanding of Windows XP Professional and networking principles are required.

CNT 206 Internetworking I - Fundamentals 4 credits

Level II Prerequisites: (CST 155 and CST 225) or (CSS 180 and CNT 211) minimum grade “C” in all courses
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is part of the CISCO networking curriculum at WCC. It prepares students for a portion of the CISCO Certified Network Associate (CCNA) certification examination. Students learn the fundamentals of the Open Systems Interconnect (OSI) model and the basics of computer networking including contemporary network services, transmission media, and protocols. The most common implementations in today’s Local Area Networks (LANs) and Wide Area Networks (WANs) are used. Students must complete the Computer Systems Technology Certificate or have equivalent experience to register for this course. This course was previously CNT 200.

CNT 211 Administering and Managing Microsoft Windows 2003 Server 4 credits

Level II Prerequisites: CNT 201 or CSS 180 minimum grade “C”
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is part of the preparation program for the Microsoft certification, Microsoft Certified System Administrator (MCSA). It is designed to give students a strong foundation in installing, configuring, and administering Windows 2003 server as the main component within an overall Microsoft network structure. Networking activities are emphasized, with an over-the-network Windows 2003 installation, as well as active directory and network protocol installation and configuration. Also emphasized, from a server viewpoint, are disk management (including disk preparation) and fault tolerance. User and group creation, file/printer sharing and security permissions are covered in detail. Server and network monitoring, optimization, tuning, and troubleshooting are also emphasized.

CNT 216 Internetworking II - Routers 4 credits

Level I Prerequisites: CNT 206
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is part of the CISCO networking curriculum at WCC. It prepares students for a portion of the CISCO Certified Network Associate (CCNA) Certification Examination. Students gain the knowledge and skills to install, configure, update, and troubleshoot network routers. Students also solve common routing problems. This course was previously CNT 225.

CNT 221 Implementing a Windows Server 2003 Network Infrastructure 3 credits

Level II Prerequisites: CNT 211 minimum grade “C”, may enroll concurrently
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to give students a strong foundation in installing, configuring, and administering Windows 2003 server networking services. Topics covered include Telnet, DHCP, DNS, WINS, and remote access server, using Windows 2003 server as a router, IPSEC, network address translation, and certificate server. The course also emphasizes the basics of TCP/IP and IP addressing, including classful/classless addressing and subnetting basics.

CNT 222 Managing a Microsoft Windows 2000 Network Environment 4 credits

Level II Prerequisites: CNT 201 and CNT 211 minimum grade “C”
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is a “capstone” course for the Microsoft certification, Microsoft Certified System Administrator (MCSA). The functions of Windows 2000 Server used to manage a network made up of Windows Servers and Workstations are covered. Topics from previous networking courses are addressed in this course from an “integrated” viewpoint.

CNT 224 Microsoft ISA Administration 4 credits

Level I Prerequisites: CNT 211 minimum grade “C”
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course covers the installation, configuration, administration, and management of Microsoft’s Internet Security and Acceleration Server (ISA). Two main proxy server functions are emphasized: firewall security, and Web page caching.

CNT 226 Internetworking III - Switches 4 credits

Level I Prerequisites: CNT 216
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is part of the CISCO networking curriculum at WCC. It prepares students for a portion of the CISCO Certified Network Associate (CCNA) certification examination. The course also provides students with the knowledge and skills necessary to install, configure, update, and troubleshoot switched Local Area Networks (LANs) and Virtual Local Area Networks (VLANs). Other skills include migration from RIP to IGRP, IGRP configuration, routing of Novell IPX, and security via the implementation of Access Control Lists. This course was previously CNT 235.

CNT 231 Administering Microsoft Windows 2003 Active Directory **4 credits**
Level II Prerequisites: CNT 211 minimum grade "C", may enroll concurrently
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to give students a strong foundation in installing, configuring, and administering Windows 2003 active directory. Topics covered include the structure and components of active directory, preliminary planning required for implementation, and actual installation and configuration. Other key topics covered: group policies; replication; security; and deploying Windows 2003 using remote installation services.

CNT 236 Internetworking IV - WANs **4 credits**
Level I Prerequisites: CNT 226
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is part of the CISCO networking curriculum at the College. It provides students with the knowledge and skills necessary to install, configure, update, and troubleshoot a variety of broadband networks including Frame Relay, Integrated Services Digital Network, and Asynchronous Transfer Mode. This course was previously CNT 245.

CNT 241 Designing a Windows 2000 Directory Services Infrastructure **4 credits**
Level I Prerequisites: CNT 231 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to instruct students in the design of a Directory Services architecture using Windows 2000 Active Directory. The course also prepares students to complete the Windows 2000 Certification Examination 70-219. Students will learn to analyze business requirements and translate those requirements into an Active Directory database.

CNT 246 Advanced Routing Configuration **4 credits**
Level I Prerequisites: CNT 236 minimum grade "C+"
Level II Prerequisites: Computer Networking Academy I Certificate or Cisco CCNA Certificate
50 lecture, 30 lab, 0 clinical, 0 other, 80 total contact hours

This course prepares students for a portion of the CISCO Certified Network Professional (CCNP) certification examination. It also provides students with the knowledge and skills necessary to configure various routing protocols such as IGRP, EIGRP OSPF and BGP. In addition, students learn how to configure routers to enhance network security. This course was previously CNT 255.

CNT 251 Designing Windows Security **4 credits**
Level I Prerequisites: CNT 211 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course students learn to identify the security risks associated with managing resource access and data flow on the network and describe how Windows 2003 features are used to secure a network and its resources. The student will learn to plan a Windows 2003 administrative structure that facilitates secure and verifiable user account management; define security requirements for Windows 2003 based domain controllers, application servers, file and print servers and workstations; design end-to-end security for the transmission of data between hosts on the network; design a strategy for securing access for non-Microsoft clients within a Windows 2003 based network; design a strategy for securing local resources accessed by remote users; and design a strategy for securing local resources accessed by remote offices.

CNT 256 Remote Access Networks **4 credits**
Level I Prerequisites: CNT 246 minimum grade "C+"
50 lecture, 30 lab, 0 clinical, 0 other, 80 total contact hours

This course prepares students to complete a portion of the CISCO Certified Network Professional (CCNP) certification examination. It also provides students with the knowledge and skills necessary to configure various remote access technologies including backup to permanent WAN connections, optimizing traffic on dedicated WAN connections, and scaling IP addresses. This course was previously CNT 265.

CNT 261 Planning a Windows Server 2003 Network **4 credits**
Level I Prerequisites: CNT 211 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course, students learn to analyze the business requirements for a network infrastructure design. The student will design a new network infrastructure using the elements of network topology, routing, IP addressing, name resolution such as WINS and DNS, virtual private networks, remote access, network address translation, and telephony service. Emphasis is placed on effective preliminary planning, follow-up monitoring, and evaluation for small and large networks.

CNT 266 Multi-Layer Switching **4 credits**
Level I Prerequisites: CNT 256 minimum grade "C+"
50 lecture, 30 lab, 0 clinical, 0 other, 80 total contact hours

The course is part of the CISCO networking curriculum at WCC. It provides students with the knowledge and skills necessary to configure, supervise, manage, and troubleshoot various Virtual Local Area Networks. This course was previously CNT 275.

CNT 271 Migrating from NT 4.0 to Windows 2000 **4 credits**
Level I Prerequisites: CNT 251
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course students learn to migrate domains from Windows NT 4.0 to Windows 2000 and to perform domain restructures. A migration can include only an upgrade, only a restructure, or both an upgrade and a restructure.

CNT 276 Network Troubleshooting **4 credits**
Level I Prerequisites: CNT 266 minimum grade "C+"
50 lecture, 30 lab, 0 clinical, 0 other, 80 total contact hours

This course prepares students for a portion of the CISCO Certified Network Professional (CCNP) certification examination. It also provides students with the knowledge and skills necessary to troubleshoot a wide variety of LAN and WAN configurations. This course was previously CNT 285.

CNT 281 Installing Clustering Services **3 credits**
Level I Prerequisites: CNT 231
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students learn to install, configure, and administer clustering services using a Microsoft Windows 2000 Advanced Server.

Communication

COM

COM 101 Fundamentals of Speaking 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Through the use of practical experience, students acquire the essential speaking and listening skills which are the most sought-after skills in the work world. Students work to relieve the stress which the average person encounters in public speaking. Students polish organization and delivery skills, as well as gaining a heightened awareness of the relationship between a speaker and an audience.

COM 102 Interpersonal Communication 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This interactive course will explore the principles of communication as it pertains to personal and workplace relationships. The communication process between two people is dynamic and often misunderstood. Handling criticism and defensiveness in others is an important skill in coping with today's sometimes hostile world. Conflict management will be explored.

COM 130 Introduction to Mass Communication 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This survey course investigates the mass media from historical, economic, and social viewpoints. Major emphasis is placed on the history, theory, and criticism of the broadcast media. The course attempts to create a more "critical consumer" of mass media.

COM 142 Oral Interpretation of Literature 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students practice performance techniques necessary to effectively communicate by delivering interpretations of prose, poetry and oral histories in class and in public. Performance theory is directly applied to assignments. Special emphasis is placed on how to approach the interpretation of literature vocally and nonverbally in an effort to bring the literature to life for an audience. Highly recommended for any student wishing to enhance public communication skills, poise and understanding of literature.

COM 183 Advanced Public Speaking 3 credits
Level I Prerequisites: COM 101
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students strengthen their ability to prepare and deliver dynamic speeches using today's computer generated graphics and other presentation skill techniques. Being organized to prevent information overload and displaying enthusiasm for the presentations are keys to success in public speaking.

COM 200 Family Communication 3 credits
30 lecture, 0 lab, 0 clinical, 15 other, 45 total contact hours

Family issues are at the forefront of national concerns, particularly in governmental, educational, and religious arenas. This course examines the ways in which members of family systems interact in order to develop, sustain, and manage their relationships. Students learn to promote healthy communication skills within the family in everyday life. These skills include listening, expressing emotions in a healthy way, and problem solving.

COM 225 Intercultural Communication 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course allows students to explore communication between members of different cultures. During the course, students will become familiar with the ways that nonverbal and verbal communication influence intercultural relationships. Students will share cultural similarities and differences and will discuss ethical ways to use communication in order to construct a bridge between cultures.

Construction Technology

CON

CON 103 Residential Painting I 3 credits
Level I Prerequisites: COMPASS Pre-Algebra = 24 or MTH 039
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the first in a series of courses that cover fundamentals of residential painting. Topics include basic safety, painting equipment, paints and coatings, surface preparation and application techniques.

CON 104 Construction I 3 credits
Level I Prerequisites: COMPASS Reading = 36 and
COMPASS Writing = 40
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This is an introductory course in residential construction. It teaches skills and knowledge which support advanced certificates in construction-related fields. Topics include: job site safety; basic hand and power tool operation; reading of construction documents; and residential carpentry layout practices. Students will develop competencies in carpentry and fastening, as well as the safe and practical use of hand power tools used in residential construction and building industries.

CON 105 Construction II 3 credits
Level I Prerequisites: COMPASS Reading = 36 and
COMPASS Writing = 40
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course covers the construction of interior partitions, wall openings, windows and doors. Ceiling joist and rafter systems; layout procedures; print interpretation and installation techniques are included to support the lab activities. Additional contact hours are needed for homework which must be done in the lab setting.

CON 128 Wall Covering and Decorating Techniques 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The concepts of paint applications and techniques, special applications, material handling and storage, and site and equipment maintenance are covered.

CON 130 Commercial Property Maintenance I 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to increase the knowledge and skills of individuals who are responsible for the maintenance and repair of commercial property. This includes institutions, hospitals, hotels, malls, residential rental property, both single and multifamily, resorts, and office buildings. This course was previously TRI 131.

CON 133 Commercial Property Maintenance II 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course addresses the skills and knowledge required to successfully maintain and repair commercial properties. This course was previously TRI 133.

CON 135 Commercial Property Maintenance III 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course addresses the knowledge and skills of individuals who are responsible for the maintenance and repair of commercial properties. This course was previously TRI 135.

CON 137 Commercial Property Maintenance IV 3 credits

Level I Prerequisites: consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course addresses the knowledge and skills of individuals who are responsible for the maintenance and repair of commercial properties. This course was previously TRI 137.

CON 170 Introduction to Cabinetry and Millwork 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 24, COMPASS Writing = 40, and COMPASS Reading = 36
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course teaches students about general safety, cabinet making and millwork materials, terminology, basic hand tools and portable power tools. Stationary equipment and its proper use and some aspects of design and layout will be introduced.

CON 173 Cabinet Making Principles and Concepts 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 24
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course is the first of a two-part series that covers safe and productive use of common woodworking tools and equipment. The focus is on processes as opposed to product. This course was previously TRI 171.

CON 174 CON Co-op Education I 1-3 credits

Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated position in the field of construction. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

CON 175 Cabinet Making Fabrication 3 credits

Level I Prerequisites: CON 173 or TRI 171
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is the second of two courses that introduce the student to methods and processes used in woodworking. The focus of this course is on woodworking processes rather than products. This course was previously TRI 271.

CON 190 Building Codes and Quality Control 3 credits

Level I Prerequisites: Open to Construction Management majors only
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will explore the code requirements for constructing private residences and investigate the quality control issues that parallel the code.

CON 204 Construction III 3 credits

Level I Prerequisites: CON 105 minimum grade "C"
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course covers the interior systems installation for private residences. Topics include drywall application and trims, ceiling systems, floor covering systems, and insulation. Additional contact hours are needed for homework which must be done in the lab setting.

CON 205 Construction IV 3 credits

Level I Prerequisites: CON 204 minimum grade "C"
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course covers the theory and application techniques for exterior systems and roof covering systems. Topics include: vinyl siding and trims; metal siding and trims; Soffit, Fascia, and trims. Also covered are roofing systems, shingles, ice guard, drip edge, and rake components. Additional contact hours are needed for homework which must be done in the lab setting.

CON 275 Finishing Concepts and Processes 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 24 and COMPASS Reading = 36
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course investigates the concepts and processes of finishing and provides opportunities to further develop the skills of those majoring in Residential Construction. Topics covered include: preparation for finishing, finishing equipment, finishing schedules, staining, filling and sealing and topcoats. Safety issues are addressed.

Computer Science

CPS

CPS 115 Introduction to Programming with 3D Animation 3 credits

Level II Prerequisites: CIS 100
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an introductory course in programming using a 3D animation environment. The student learns basic programming techniques using Alice, a 3D animation tool designed to teach algorithmic thinking and abstraction using on-screen movies and games. Programming topics include sequential, decision and iterative control structures, functions, recursion, lists, objects, and inheritance. This course also introduces the student to basic animation concepts such as storyboarding and lighting.

CPS 120 Introduction to Computer Science 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to computer science for those planning to take advanced courses in the computer field. This course is recommended for those planning to take programming courses. Students write, enter, compile, and execute simple computer programs. This course is intended to bridge the gap between a basic computer literacy course and advanced courses.

CPS 171 Introduction to Programming with C++ 4 credits

Level I Prerequisites: COMPASS Algebra = 66 or MTH 169 minimum grade "C"
Level II Prerequisites: CIS 100, CIS 110, or CPS 120 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is an introduction to programming using the C++ language. Students should have basic experience using a computer but no prior programming is required (experienced programmers should consider CPS 290). Students learn about problem solving strategies, top-down program development and programming style. Topics include sequential, decision and iterative control structures, functions, basic data structures and an introduction to classes. Students write and execute approximately eight C++ programs. Students with computer experience equivalent to CIS 100 or CIS 110 may contact the instructor for permission to waive the CIS prerequisite.

CPS 185 Introduction to Visual Basic .Net Programming **4 credits**
Level I Prerequisites: COMPASS Algebra = 66 or MTH 169 minimum grade "C"
Level II Prerequisites: CIS 100, CIS 110, or CPS 120 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is an introduction to programming using the Visual Basic .Net Programming language. Students should have basic computer experience, but no prior programming is required. Subjects covered include: creating forms containing several types of controls, setting form and control properties, designing and writing code containing control structures of sequence, selection and iteration. Built-in functions, subroutines and methods will be used, and user defined functions and subroutines (with parameters) will be written. Arrays will be used and files will be read and written.

CPS 271 Object Features of C++ **4 credits**
Level I Prerequisites: CPS 171 minimum grade "C" or equivalent industry experience
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course continues the study of C++ begun in CPS 171 (experienced programmers should consider CPS 290). Students learn the object-oriented features of the language. Topics include classes, constructors and destructors, operator overloading, pointers, dynamic allocation of memory, inheritance, polymorphism, file manipulation, templates, and exceptions. Prerequisites will be checked on the first day of class.

CPS 272 Data Structures with C++ **4 credits**
Level I Prerequisites: CPS 271 or CPS 290 minimum grade "C" or equivalent industry experience or consent required
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is the third of a sequence of C++ courses, following CPS 171 and CPS 271. The course covers more advanced computer science features as implemented in C++. Topics include testing, verification and complexity of algorithms, recursion, advanced data structures, class libraries, and techniques for team design of large programs.

CPS 275 Linux/UNIX System Programming **3 credits**
Level II Prerequisites: CPS 271 or CPS 290 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is intended for students who want to learn about client/server programming on Linux/UNIX using the C/C++ programming language. Some of the topics covered are: Linux/UNIX programming fundamentals, process management, inter process communication, TCP/IP communication. Special programs developed in class include a simple Linux shell program and a simple HTTP Web server.

CPS 276 Web Programming Using Apache, MySQL, and PHP **4 credits**
Level II Prerequisites: CIS 175, CIS 277, CPS 171, or CPS 185 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course covers Web server programming and database access from the Web. Students taking this class should have knowledge of SQL (Structured Query Language), HTML (Hypertext Markup Language), and a programming language such as C++ , Visual Basic, Java, or Perl. Students will learn to work with the Apache Web server in a Unix environment. Web applications that will access a MySQL database will be developed with the PHP programming language. To achieve an efficient and secure solution for accessing databases from the Web, the students will learn and utilize the following concepts: cookies, persistent database connections, and secure sockets.

CPS 277 Game Programming **4 credits**
Level II Prerequisites: CIS 269, CPS 261, CPS 271, or CPS 293 minimum grade "B"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

The goal of this class is to teach useful technology in a gaming production environment. The following topics will be addressed: object-oriented programming; working in teams; multitasking; image processing; animations; networking; audio file processing; physics principles; testing; using pre-existing libraries of software; and documentation. The course will be structured to recreate an industrial software development environment.

CPS 285 Advanced Visual Basic .Net Programming **4 credits**
Level II Prerequisites: CPS 185 minimum grade "C" or equivalent industry experience
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is a continuation of the CPS 185 Visual Basic course, and is intended for students with a basic understanding of Visual Basic .Net. Among the topics to be addressed in this course are: classes, database access, the MDI interface, user defined controls and error checking.

CPS 290 Object-Oriented Programming **4 credits**
Level II Prerequisites: Proficiency in a programming language
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course presents techniques and methodologies for designing computer programs, including an introduction to object-oriented design using C++. Limitations of traditional methods and the advantages of the object-oriented method are discussed. Topics include structured programming, program testing and verification, encapsulation, inheritance, polymorphism, streams, templates, exceptions, and extensibility of code. Students design and write programs using C++. Students should have a thorough understanding of programming using a programming language, but knowledge of C++ is not a prerequisite.

CPS 293 C# .NET **4 credits**
Level II Prerequisites: CIS 175, CPS 171, CPS 185, or CPS 290 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course assumes some programming experience and will cover the fundamentals of the C# language and the Microsoft .NET architecture. Language fundamentals will include C# basics and object oriented techniques such as polymorphism, properties, exceptions, events, collections etc. Graphical User Interfaces (GUI) will be covered using forms and Graphics Data Interface (GDI+). Data access techniques will be covered including I/O classes, database Active-X Data Objects (ADO), and Web pages using Active Server Pages (ASP).

CPS 295 Advanced Visual C++ Windows Programming **4 credits**
Level II Prerequisites: CPS 293 minimum grade "C" or proficiency in Visual C++ programming
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course provides in-depth exposure and experience with advanced topics from the Microsoft Foundation Class (MFC) Windows programming. Students should be familiar with Microsoft Visual Studio 97 (including class wizard, resource and dialog editors, Visual C++ and the debugger) and have a working knowledge of basic MFC programming techniques. Advanced topics include sockets, threads, COM servers and containers, ActiveX Automation, interprocess communication and synchronization (including semaphores, events, and flags), DAO, ODBC, ADO, DLLs, metafile, multi-media and registry programming.

Computer Systems Security

CSS

CSS 180 Computer Security for PC's **4 credits**
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is intended to provide a strong introduction into the field of computer systems security by providing lecture and hands on exercises in securing a PC system. Topics covered include power-on self test, hard disk technology, data formats, operating system loading, command line interfaces, basic concepts in network security and operation, virus, worm and Trojan horse attacks, encryption, system hardening, CMOS configuration, firewalls and physical security.

CSS 200 Information Assurance I **4 credits**
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course provides a solid grounding in computer security essentials. Topics to be covered include understanding security measures, techniques for securing systems, legal issues, basic intrusion detection and recovery methods. This is the first of a series of computer security courses. This course assumes an intermediate level of computer knowledge and experience.

CSS 205 Information Assurance II **4 credits**
Level II Prerequisites: CSS 200 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course introduces the network security specialist to the various methodologies for attacking a network. The student will be introduced to the concepts, principles and techniques, which will be supplemented by hands-on exercises for attacking and disabling a network. These methodologies are presented with the concept of how to properly secure a network. The course will emphasize network attack methodologies with an emphasis on student use of network attack techniques and tools.

CSS 210 Managing Network Security I **4 credits**
Level II Prerequisites: CSS 205, CNT 206, and CNT 216 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course teaches students to design and implement security solutions that reduce the vulnerability of computer networks. The student is introduced to the various methods for defending a network. Topics include concepts, principles, types, packet filtering with ACLs and context-based access control, AAA, intrusion detection, VPN, and PIX firewall implementation. The student is also prepared for the Managing Cisco Network Security, Cisco PIX Firewall Advanced, and Security+ Exams.

CSS 212 Fundamentals of Secure Wireless Local Area Networks **4 credits**
Level II Prerequisites: CNT 216 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is a component of the curriculum of the Cisco Network Academy and teaches students to develop, implement, troubleshoot, and secure wireless networks. Topics covered include: a primer on radio frequency transmission, current market technologies, wireless design best practices, site survey procedures, equipment configuration techniques, building wireless networks, and methodologies for securing wireless networks.

CSS 215 Managing Network Security II **4 credits**
Level II Prerequisites: CSS 210 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course will expose the student to various defense methodologies associated with Virtual Private Networks (VPN), Host Intrusion Detection Systems, and Network Intrusion Detection Systems (NIDS). Students will also be introduced to the best practices associated with properly securing critical business network systems using VPNs.

CSS 220 Network Security Design **4 credits**
Level II Prerequisites: CSS 215 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course affords the network security specialist the opportunity to conduct a vulnerability analysis upon a network using attack methodologies learned by the student in previous courses. The student must demonstrate the ability to design, plan and execute a vulnerability analysis against an organizational network. The student must prepare a written report about the security design, attack methodology, and the tools and techniques used.

CSS 240 High-Technology Crime **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Designed for those seeking advancement in the computer security profession, this course provides an introduction to the most common high-technology crimes including computer intrusion theft of information and theft of computer components. Additional topics covered include principles of high-technology crime investigations, investigating computer intrusion, searching, seizing and analyzing computer evidence from a legal view, federal privacy laws and computers, and the fourth amendment.

CSS 270 Computer Forensics I **4 credits**
Level I Prerequisites: CSS 180, CSS 200, and CSS 205 minimum grade "C+"
40 lecture, 20 lab, 0 clinical, 0 other, 60 total contact hours

This course deals with the preservation, identification, extraction, documentation and interpretation of computer data. Topics covered include evidence handling, chain of custody, collection, preservation, identification and recovery of computer data using forensic recovery software and methods.

CSS 275 Computer Forensics II **4 credits**
Level I Prerequisites: CSS 270 minimum grade "B"
40 lecture, 20 lab, 0 clinical, 0 other, 60 total contact hours

This course is a continuation of CSS 270, Computer Forensics I, and includes forensic analysis of Linux file systems, and introduces additional various forensic analysis software suites used to perform forensic analysis of FAT 16, FAT 32, and NTFS file systems.

Computer Systems Technology

CST

CST 118 MS Command Line Fundamentals **2 credits**
Level II Prerequisites: CIS 100 minimum grade "C" or equivalent
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course prepares students to use Microsoft command-line functions and utilities to perform typical tasks required of a PC service technician or network administrator. Students learn to use the command-line to work with files and directories, manage and back up disk drives, create emergency boot disks, and develop operating system startup configuration files. In addition, students will create and use batch files to automate routine configuration, maintenance, and network management tasks including backing up files to a network drive and printing to a network printer. Students in the Computer Systems Technology program should take CST 118 either before or concurrently with CST 150. This course was previously ELE 118.

CST 150 Computer Systems Technology I 5 credits

Level II Prerequisites: CIS 100 minimum grade “C” or equivalent
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Through hands-on experiences, this course prepares students to install, configure, upgrade, and troubleshoot personal computers. Students learn the fundamentals of PC hardware including the motherboard, power supply, CPU, memory, storage devices, add-on cards, BIOS, and CMOS. In addition, students learn the fundamentals of the Windows 9x/Me operating system including operating system functions, structure, major system files, and the basic boot sequence. Students in the Computer Systems Technology Certificate program should take CST 118, either before or concurrently with this course. This course was previously ELE 150.

CST 155 Computer Systems Technology II 5 credits

Level II Prerequisites: CST 150 minimum grade “C” or equivalent
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Through hands-on experiences, this course builds on the student’s knowledge of personal computer installation, configuration, upgrading, and troubleshooting. Students learn both fundamental and advanced techniques in working with the Windows NT/2000/XP operating system. Students apply their understanding of the operating system’s functions and structure, and employ common diagnostic utilities and tools, to identify steps to correct system problems. This course was previously ELE 155.

CST 225 Computer Systems Technology III 3 credits

Level II Prerequisites: CST 118 and CST 150 minimum grade “C”; or consent required
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

Students learn basic Local Area Network (LAN) and Wide Area Network (WAN) knowledge and skills required to connect a personal computer to a network or the Internet. Topics include peer to peer and client server networks, networking topologies, transmission media and devices, packet and frame architectures, network operating systems, protocols, and the Open Systems Interconnect (OSI) model. In addition, students learn the fundamentals of wireless networking, DSL, cable, and analog modems, IP addressing, IP routing, networking printing, and network troubleshooting methods. This course contains material previously taught in ELE 216A and ELE 225A.

CUL 114 Baking I 3 credits

Level I Prerequisites: CUL 110
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

This course is designed to introduce students to basic theory, practices, and production techniques required to produce quality baked good items such as yeast raised breads, quick breads, cookies, pies, and hi-ratio cakes. Emphasis is placed on time management, safe food handling, storage, and proper utilization of ingredients and equipment.

CUL 115 Pastry I 3 credits

Level I Prerequisites: CUL 110
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

The student learns to produce contemporary pastries that would appear on the menus of the finer restaurants of the world. Emphasis is placed on the basics of baking and progressing to the fine art of pastry production. Lectures, demonstrations, and practical applications include petite fours and French pastry, puff pastry and pate choux specialties, gateaus and tortes, ice cream production and plated desserts.

CUL 118 Principles of Nutrition 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

General principles of nutrition are discussed in this course as they pertain to selection of foods, nutritional needs of all age groups, the meaning of food to people, the relationship of food and nutrition to menu planning.

CUL 120 Culinary Skills 3 credits

Level I Prerequisites: CUL 110
Corequisites: CUL 121
30 lecture, 83 lab, 0 clinical, 0 other, 113 total contact hours

This course introduces the student to the principles of quantity food production, fabricating techniques and recipe conversions, costing, product identification and classical culinary skills. Students will also learn how to operate and care for equipment, along with maintaining a safe and sanitary environment. When taken with CUL 121, these two courses are equivalent to the previously offered CUL 111.

CUL 121 Introduction to Food Preparation Techniques 3 credits

Level I Prerequisites: CUL 110
Corequisites: CUL 120
30 lecture, 83 lab, 0 clinical, 0 other, 113 total contact hours

This course emphasizes the skills necessary to produce a la carte food preparation and presentation in a full service restaurant. This beginning production course will also examine the development of standards in food preparation, portion control, sanitation, receiving and storage of inventory, as well as the proper use in preparation and service. When taken with CUL 120, these two courses are equivalent to the previously offered CUL 111.

CUL 124 Baking II 3 credits

Level I Prerequisites: CUL 114
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

This course builds on principles and production techniques learned in Baking I, CUL 114. Students learn more complex production skills in the preparation of sweet and savory specialty breads, chiffon’s mousse, custard pies, egg foam based cakes, pate choix products, doughnuts, Danish and puff pastry. Students with experience equivalent to CUL 114 may contact the instructor for permission to waive the prerequisite.

Culinary Arts

CUL

CUL 100 Introduction to Hospitality Management 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to give students an overview of the hospitality industry and opportunities in the industry today. It is an introduction to the study of the business organization and functions of management. On-site tours of the hospitality industry will be coordinated.

CUL 110 Sanitation and Hygiene 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course communicates the importance of sanitation to the hospitality worker: layman’s bacteriology, communicable diseases, food poisoning, pest control, cleaning and sanitizing, and personal hygiene. Students who complete this course and pass the exams receive National and State Sanitation Certification. CUL 110 is a requirement in all of the culinary programs and should be taken the first semester a student begins any culinary program.

CUL 125 Pastry II 3 credits

Level I Prerequisites: CUL 115 or CUL 124
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

The student continues to learn contemporary desserts and pastries. Emphasis is placed on holiday desserts, hot and cold plated desserts, confectionery, chocolate and sugar show pieces, and management and interpersonal skills.

CUL 130 Beginning Cake Decorating 1 credit

7 lecture, 23 lab, 0 clinical, 0 other, 30 total contact hours

This course is designed to teach students proper preparation and frosting techniques. Students learn the decorating techniques required to produce and design borders, side garlands, message inscriptions, buttercream flowers, and wedding cake construction.

CUL 131 Wedding Cake Design 1 credit

7 lecture, 23 lab, 0 clinical, 0 other, 30 total contact hours

This course is designed to teach students the finer techniques of cake decorating. Students learn to cover a cake in rolled fondant, create lace pieces, ruffles, borders, and make beautiful gum paste flowers. Students are encouraged to demonstrate creativity in the production of cakes for competition and decorative show pieces.

CUL 140 Bakery Management and Merchandising 2 credits

Level I Prerequisites: 15 credit hours in Baking and Pastry program
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Students understand and develop merchandising techniques through analysis of current competitive practices used in bakeries. They prepare bakery products and promotional projects such as newspaper ads, brochures, press releases and the basics of arranging display cases. Proper control of processing frozen dough products and the theory and application of no-time doughs and mixes used in commercial bakeries are covered, along with management principles and practices of the industry.

CUL 150 Food Service Management 3 credits

Level I Prerequisites: CUL 110
Corequisites: CUL 151
30 lecture, 83 lab, 0 clinical, 0 other, 113 total contact hours

Students demonstrate service and supervisory techniques necessary in the operation of a full-service restaurant. Guest speakers, tours, and classroom discussions follow the lab, covering issues of guest service, financial accounting, responsible beverage service, and human relations principles related to the front of the house management. Students have the opportunity to receive certification for Techniques of Alcohol Management (TAM) and Race for Life (CPR).

CUL 151 Food Service Marketing 3 credits

Level I Prerequisites: CUL 110
Corequisites: CUL 150
30 lecture, 83 lab, 0 clinical, 0 other, 113 total contact hours

Students demonstrate personal sales strategies as they operate a full service restaurant lab. Guest speakers, tours, and classroom discussions will follow the lab covering topics related to functions of marketing such as promotion, advertising, and public relations.

CUL 174 CUL Co-op Education I 1-3 credits

Level I Prerequisites: 15 credit hours in program; consent required
10 lecture, 0 lab, 0 clinical, 120 other, 130 total contact hours

In this course students gain skills from a new experience in an approved, compensated, culinary arts-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

CUL 210 Garde Manger 3 credits

Level I Prerequisites: CUL 120 and CUL 121
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

Students demonstrate classical cold food preparation and presentation techniques as they relate to buffet display. Students will learn the methods related to the preparation of pates, gallantines, terrines, mousse, charcuterie, buffet salads, brines, cures, and ice sculptures. Students with experience equivalent to CUL 120 and CUL 121 may contact the instructor for permission to waive the prerequisite.

CUL 220 Organization/Management of Food Systems 3 credits

Level I Prerequisites: CUL 100
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

A study of the processes of recruitment, selection, training and evaluation, collective bargaining and human relations techniques in personnel management. Theoretical applications are developed and discussed through actual case studies.

CUL 224 Principles of Cost Control 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Forecasting and cost control exercises are a major part of this course. Students are involved in analyzing all costs related to food, beverage, labor and supplies as well as discussions and exercises related to purchasing, receiving, and storage.

CUL 227 Advanced Culinary Techniques 2 credits

Level I Prerequisites: CUL 230 and CUL 231
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course is a culmination of experiences for the advanced student. Focus will be placed on competitive skills in food design, presentation, organization, timing, and cooking methods used in hot and cold food competition. In addition, students have the chance to demonstrate their creativity and design skills through ice sculpture.

CUL 228 Layout and Equipment 3 credits

Level I Prerequisites: CUL 120 and CUL 121
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class is designed to give necessary insight involved in developing a floor plan of a restaurant or food service facility. Individual projects make use of information related to surveying, planning and design of both menu and kitchen layout. Students with experience equivalent to CUL 120 and CUL 121 may contact the instructor for permission to waive the prerequisite.

CUL 230 Quantity Food Production 3 credits

Level I Prerequisites: CUL 120 and CUL 121
Corequisites: CUL 231
23 lecture, 90 lab, 0 clinical, 0 other, 113 total contact hours

This course builds on basic preparation and production techniques learned in CUL 120 and CUL 121. Quantity Food Production is designed to provide students with advanced preparation techniques and methods required to produce quality food items in quantity for breakfast, brunches, and luncheon buffets. Students will demonstrate organization, management, and production skills.

CUL 231 A La Carte Kitchen 3 credits

Level I Prerequisites: CUL 120 and CUL 121
Corequisites: CUL 230
 23 lecture, 90 lab, 0 clinical, 0 other, 113 total contact hours

This course gives students the opportunity to advance and refine their skills in quality food production. Food preparation focuses on restaurant “cooked to order” cooking. Emphasis is placed on time, organization, portioning, and teamwork.

CUL 250 Principles of Beverage Service 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to teach students techniques in beverage production and service as well as the ability to identify strategies for effective management and marketing of beverage operations. Emphasis will be placed on point of origin, mixology and regulations of beer, wine, and spirits. Comparative tastings are a major component of this course.

CUL 260 Catering and Banquet Production Management 3 credits

Level I Prerequisites: Completion of the Culinary and Hospitality Management program or CUL 227, may enroll concurrently; consent required
 15 lecture, 60 lab, 0 clinical, 0 other, 75 total contact hours

This advanced course provides the graduate culinary arts degree student with the ability to display knowledge of a variety of catering operations. This will include planning, organizing, marketing and executing receptions, parties, and special events.

Dance

DAN

DAN 101 Beginning Modern Dance I 1 credit

Level I Prerequisites: No Basic Skills prerequisite
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course introduces dance as a creative art form. Basic movement vocabulary is taught along with body placement, alignment and simple tools for composing dance studies.

DAN 102 Beginning Modern Dance II 1 credit

Level I Prerequisites: No Basic Skills prerequisite
Level II Prerequisites: DAN 101 minimum grade “C”
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course continues in more depth the use of basic movement vocabulary by applying the technique to more complex dance phrases and is paced faster than DAN 101.

DAN 103 Beginning Tap Dance I 1 credit

Level I Prerequisites: No Basic Skills prerequisite
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

In this course, students learn basic tap dance vocabulary which is incorporated into traditional steps and dance routines. Rhythmical enjoyment is emphasized.

DAN 104 Tap Dance II 1 credit

Level I Prerequisites: No Basic Skills prerequisite
Level II Prerequisites: DAN 103 minimum grade “C”
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

In this course, students learn basic tap dance vocabulary which is incorporated into traditional steps and dance routines. Rhythmical enjoyment is emphasized.

DAN 105 Beginning Jazz Dance I 1 credit

Level I Prerequisites: No Basic Skills prerequisite
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This dance form originated in Africa and has evolved through American social and stage dance. The movement is rhythmical, bold, percussive, and expansive. Basic jazz vocabulary is taught along with body alignment. This course helps to improve overall body control, agility, and coordination.

DAN 106 Beginning Jazz Dance II 1 credit

Level I Prerequisites: No Basic Skills prerequisite
Level II Prerequisites: DAN 105 minimum grade “C”
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This is a course designed for students with jazz dance background who want to work on proficiency of jazz movement and stylized dancing. Students with experience equivalent to DAN 105 may contact the instructor for permission to waive the prerequisite.

DAN 107 Beginning Ballet I 1 credit

Level I Prerequisites: No Basic Skills prerequisite
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course provides basic ballet movement vocabulary by associating the French ballet terms with the appropriate execution. Balance, body alignment, flexibility, and overall body control can be developed in this course. Students also learn how to view performances.

DAN 108 Beginning Ballet II 1 credit

Level I Prerequisites: No Basic Skills prerequisite
Level II Prerequisites: DAN 107 minimum grade “C”
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course introduces more complex ballet movements and turns. Students who want to improve their proficiency at the barre, centre, and through the space find this course appropriate. Students with experience equivalent to DAN 107 may contact the instructor for permission to waive the prerequisite.

DAN 110 Afro-American Dance I 1 credit

Level I Prerequisites: No Basic Skills prerequisite
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course introduces the basic movements used in American boogie, jazz, Dixieland, modern and Latin dance. The focus of the class is to identify these movements and relate them to their ancestral African and African/American dance heritage.

DAN 111 Popular Dance Forms 1 credit

Level I Prerequisites: No Basic Skills prerequisite
 0 lecture, 30 lab, 0 clinical, 0 other, 30 total contact hours

This course is an overview of popular dances. Club dancing, line dancing, partner and solo dancing are a few examples of the dances that will be studied. This class also presents contemporary popular social dances.

DAN 122 Ballroom Dance I 1 credit

Level I Prerequisites: No Basic Skills prerequisite
 0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

Students learn the basics of good social dance so they can feel comfortable in any dance situation. They learn how to lead, follow, and dance the most popular and most useful dances: fox trot, waltz, swing, cha-cha, rumba, polka and hustle. Designed for those with limited or no experience or for those who wish to review the basics.

DAN 123 Dance Exercise I 1 credit

Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

Designed for students who are looking for a slower paced dance exercise course, this choreographed program of stretching and simple dance routines set to various types of music, helps trim and recondition the body while providing an excellent starting or re-entry point for a fitness program. Students are encouraged to develop a total fitness program. Discussion of nutrition and the learning of simple relaxation techniques are also a part of this class where no prior dance or exercise experience is required.

DAN 130 Dance for Musical Theatre 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is designed to familiarize students with basic movement and music vocabulary as applied to dance in musical theatre. Students should complete a beginning level dance course before taking this course.

DAN 180 Dance Appreciation: The World of Dance 3 credits

Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 45 lab, 0 clinical, 0 other, 45 total contact hours

This is an introduction to dance and movement of many of the world's cultures. After learning the socio-cultural relevance of each dance style, students will be encouraged to express themselves through basic movement exercises patterned after the culture being studied. Owing to the nature of dance, a high emphasis will be placed on video and experiential learning and presentation.

DAN 200 Advanced Performance-Dance 2 credits

Level II Prerequisites: DAN 101, DAN 105, and DAN 107 minimum grade "C"
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course provides the experienced dancer with the tools and language of choreography. Using these tools the student will create and present dance works. Production aspects will be introduced and utilized.

DAN 210 Afro-American Dance II 1 credit

Level I Prerequisites: DAN 110, No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This class is designed to further students' dance vocabulary using basic African/Afro-American movements employed in the boogie, jazz, hip-hop, modern and Latin dance. Emphasis is on building confidence through the use of movement combinations; traditional African/Afro-American movement; exploring solo creation, and learning at least one Afro-American dance. Students with experience equivalent to DAN 110 may contact the instructor for permission to waive the prerequisite.

DAN 222 Ballroom Dance II 1 credit

Level I Prerequisites: No Basic Skills prerequisite
Level II Prerequisites: DAN 122
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

Students perfect the basics of good social dance so they can excel in any dance situation. They learn advanced patterns in fox trot, waltz, swing, cha-cha, rumba, polka and hustle. They are introduced to tango, mambo and samba. It is designed for those who have previous ballroom dance experience.

DAN 223 Dance Exercise II 1 credit

Level I Prerequisites: DAN 123, No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course is designed for students who are looking for a medium paced dance exercise course. This choreographed program of stretching and simple dance routines, set to various types of music, helps trim and recondition the body while providing an excellent maintenance or re-entry point for a fitness program. Discussion of nutrition and the learning of simple relaxation techniques are also a part of this class. No prior dance exercise is required, though a moderate level of fitness is suggested. Students with experience equivalent to DAN 123 may contact the instructor for permission to waive the prerequisite.

Dental Assisting**DEN****DEN 102 Managing Safe Practice in Dentistry 1 credit**

7 lecture, 15 lab, 0 clinical, 0 other, 22 total contact hours

This is a study of microbiology, types of diseases and their transmission, the application of OSHA guidelines to dentistry, as well as the management of hazardous waste in the dental office. The student will gain practical experience in the operation of all disinfectant and sterilization equipment and techniques and learn how to manage and manipulate various substances in a safe manner. This course will aid a student in preparation for the Dental Assistant National Board (DANB) examination in Infection Control (ICE).

DEN 106 Biomedical Science for Dental Assistants 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course covers the formation and eruption of the teeth, cell tissue and organ development, nervous system, trigeminal nerve, and types and uses of local and general anesthesia.

DEN 107 Oral Anatomy 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This is an introductory course in head and neck anatomy. It covers skull and facial bones, masticatory muscles, oral anatomy - hard and soft tissues, anatomical nomenclature, tooth development and morphology, tooth surface annotation, cavity classification, occlusion and malocclusion.

DEN 108 Dental Radiography 1 credit

Level I Prerequisites: No Basic Skills prerequisite; consent required
12 lecture, 0 lab, 36 clinical, 0 other, 48 total contact hours

The principles, techniques, safety precautions, and operation of dental radiographic equipment are studied. This course, when combined with DEN 128, meets the radiographic requirements of the Michigan Dental Practice Act. Program students and dental assistants employed by licensed dentists are eligible to enroll in this course.

DEN 109 Oral Hygiene 1 credit

Level I Prerequisites: (COMPASS Reading = 70 or REA 070) and (COMPASS Writing = 81 or ENG 091) may enroll concurrently in ACS and ENG courses
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course is designed to give dental assisting students a basic awareness of preventive dentistry. Etiology, prevention and control of dental caries, and oral hygiene instruction is emphasized. Students must be admitted to the Dental Assisting Program or receive instructor permission to register for this course.

DEN 110 Basic Clinical Dental Assisting 4 credits

Level I Prerequisites: DEN 102 minimum grade "C"
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course is an orientation to dental assisting. It provides an overview of the history of dentistry, professional organizations, ethics, and the role of the modern dental health team. Students are introduced to the dental operatory, equipment and basic procedures, and the application of Occupational Safety and Health Administrations (OSHA) guidelines used in four-handed dentistry.

DEN 112 Dental Materials 4 credits

Level I Prerequisites: DEN 102 and DEN 106 minimum grade "C"
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course is designed to give dental assisting students theoretical knowledge of the uses and properties (chemical and physical) of the most commonly used dental materials. Students will gain laboratory and clinical experience in the manipulation, practical application, and safe use of common dental materials in accordance with OSHA guidelines.

DEN 119 Dental Nutrition 1 credit

Level I Prerequisites: Admission to Dental Assisting Program
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course is designed to give dental assisting students a basic awareness of nutrition in dentistry. The etiology, prevention, and control of dental caries through nutrition and diet analysis are emphasized. Students must be admitted to the Dental Assisting program or receive instructor permission to register for this course.

DEN 120 Oral Diagnosis Theory 1 credit

Level I Prerequisites: DEN 102, DEN 106, and DEN 107 minimum grade "C"
8 lecture, 24 lab, 0 clinical, 0 other, 32 total contact hours

This theoretical course provides students with the knowledge and techniques used to obtain diagnostic data and the methods of recording this data. Students gain practical experience in common charting techniques and record management in different specialty areas of dentistry.

DEN 128 Dental Radiography Practicum 1 credit

Level I Prerequisites: consent required
0 lecture, 45 lab, 0 clinical, 0 other, 45 total contact hours

Students gain experience in exposure methods, processing methods and mounting techniques. This course, when combined with DEN 108, meets the radiographic requirements of the Michigan Dental Practice Act. Students in the program and dental assistants employed by licensed dentists are eligible to enroll in this course.

DEN 129 Oral Pathology and Dental Therapeutics 2 credits

Level I Prerequisites: DEN 102, DEN 106, and DEN 107 minimum grade "C"
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is a study of diseases of teeth and supporting structures, oral pathology, and systemic diseases and their relationship to dental health. Dental assistant students gain experience in critical evaluation of a patient's health status and apply the essential skills needed to assist in common dental/medical emergencies. Various drugs and their effect on medical/dental care also are studied.

DEN 130 Clinical Practice 1 credit

Level I Prerequisites: DEN 102, DEN 106, DEN 107, DEN 108, DEN 109, DEN 110, and DEN 112 minimum grade "C"; consent required
0 lecture, 0 lab, 120 clinical, 0 other, 120 total contact hours

This course is being offered online to provide students throughout the state the opportunity to become eligible to take the Michigan Board of Dentistry Registered Dental Assistant (RDA) exam. This course will be offered in an online format for all students. Students who are currently employed full time in the office of a licensed dentist will perform clinical activities in that office. Students not employed in dentistry will perform all clinical activities in the WCC Dental Clinic facility as well as other community sites, such as the University of Michigan Dental School or other sites provided by the WCC faculty. All students are required to perform all course objectives. Clinical evaluation will be completed either by the employer dentist, or the WCC clinical instructor, or a supervisor in a clinical site. Regardless of the pathway in which the student is enrolled, a WCC faculty will visit each clinical site as required by the Commission on Dental Accreditation of the American Dental Association. The student must have a current CPR card from ARC or AHA. DEN 130A and DEN 130B combined to form DEN 130.

DEN 131 Principles of Dental Specialties 4 credits

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course provides a study of advanced clinical procedures used in dental specialties. Latest concepts in each specialty are presented by dental specialists from the community.

DEN 202 Advanced Clinical Practice 3 credits

0 lecture, 0 lab, 0 clinical, 280 other, 280 total contact hours

Students actively participate in a variety of clinical settings. The course is structured according to students' area of interest and geographic access in dentistry. Students become acquainted with a number of office routines, procedures, equipment, and patient and staff relationships. For distance learning students not employed in dentistry, all clinical activities will be performed in community sites provided by WCC faculty. Students in the distance learning pathways who are employed by a licensed dentist, will be required to visit two or more specialty practices and provide evidence of such visitation. This course is graded on a Pass/No Pass grading system.

DEN 204 Advanced Functions 4 credits

Level I Prerequisites: consent required
30 lecture, 30 lab, 75 clinical, 0 other, 135 total contact hours

This course is designed to provide dental assisting students with knowledge and skill in performing legally delegated intra-oral functions. In Michigan, the legal duties of the Registered Dental Assistant are outlined in the rules of the Michigan Board of Dentistry, Rule #330. A student must have a current CPR card and a grade of 2.0 in all courses.

DEN 205 Expanded Duties for the RDA 2 credits

Level I Prerequisites: No Basic Skills prerequisite
Level II Prerequisites: current RDA license
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed for the current registered dental assistant in the state of Michigan who must meet the requirements of the Michigan Dental Law R. 338.11405 to practice new duties promulgated in July 2003. The course will provide the student with the skills needed to place, condense, and carve amalgam restorations; take final impressions for indirect restorations; perform pulp testing; place and remove matrices and wedges; apply cavity liners and bases; place and pack nonepinephrine retraction cords; apply desensitizing agents; take impressions for specific situations; dry endodontic canals; and etch and place adhesives prior to placement of orthodontic brackets.

DEN 212 Dental Practice Management 3 credits

Level I Prerequisites: CIS 100
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to the dental business office. It is the study of systems of management used in dentistry, interpersonal communications (written and verbal), basic concepts of third party payment, machines and computer utilization. Students gain actual computer experience in word processing, database, and spreadsheet programs. Students develop skills in interviewing and writing letters of application and a resume. Students with experience equivalent to CIS 100 may contact the instructor for permission to waive the prerequisite.

DEN 230 Alternative Dental Assisting Education Project 9 credits

Level I Prerequisites: Passing score on DANB Exam
30 lecture, 16 lab, 600 clinical, 0 other, 646 total contact hours

This course is designed specifically for the on-the-job trained dental assistant who has been admitted to the Dental Assisting Program with advanced standing after successfully passing the Dental Assistant National Board Examination. In this course the dental assistant will demonstrate hands on skills that cannot be tested in a written examination. Student will validate clinical, laboratory, radiographic, and business office skills in their offices of employment. This course is graded on a pass/no pass grading system.

Drama**DRA****DRA 152 Acting for the Theatre I 3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class is an introduction to acting through improvisation and the presentation of monologue scenes, poetry, and original text. It covers analysis and application of the performance skills needed in stage theatrical performance, including voice projection, character development and analysis, emotional expression, and staging. These skills are emphasized in a studio class setting where students frequently perform in class for each other and receive coaching and direction from the instructor. This course will appeal to anyone interested in developing their acting, presentation, and/or communication skills. All skill levels are welcome.

DRA 167 Theatre Production 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This is a course in which, through tours of area theaters, workshop participation and supervised participation in a campus or off-campus production. The student is exposed to or gain practical experience in one or more of the various phases of the theatre arts: stage managing, lighting design, lighting execution, scenery, publicity, house management and properties. Specific duties to be arranged with the instructor/director.

DRA 170 Theatre Festival 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Students will travel to a professional theatre festival such as the Stratford Theatre Festival or the Shaw Theatre Festival in Ontario to attend plays, participate in class discussions, and do preparation for an essay assignment. The course will appeal to those with an interest in various aspects of theatrical performance, including acting, directing, design, production, and literature. A back-stage tour of the facilities will be included. There will be additional expenses for travel.

DRA 180 Theatre Appreciation 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

A lecture-demonstration course fostering appreciation of theatre as a collective performing art and humanistic event. Focusing on production components, styles, and historical development, the course will include the study of theatre text, the viewing of video documentation, and the attendance of on- and off-campus theatre productions. Please note this is not an acting class. Students interested in studying acting are encouraged to take DRA 152.

DRA 204 Improvisational Acting for the Theatre 3 credits

Level I Prerequisites: DRA 152 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

An interactive acting course introducing the art of performing without a script. Various forms of impromptu exercises and traditional acting games are explored to enhance skills in spontaneity, comic timing, concentration, verbal and non-verbal expression, characterization and group cooperation. Students will practice developing improvisational sketches and prepare to perform before an audience.

DRA 208 Acting for Theatre II 3 credits

Level I Prerequisites: DRA 152 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of DRA 152, focusing on the further study and practice of acting techniques, including the performance of poetry, prose, spoken word, monologues, scenes, personal narrative and improvisation.

DRA 209 Acting for Musical Theatre 2 credits

Level I Prerequisites: DRA 152, MUS 204, and MUS 209 minimum grade "C-", may enroll concurrently in MUS 209
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This is a fundamentals in acting for musical theatre course. It covers analysis and application of the performance skills needed by the actor/singer in a musical theatre performance. Through song and scene study, students learn basic acting techniques, including expression of character through vocal and physical performance, staging, character development and emotional expression. The emphasis is on performance, not vocal techniques. This course will appeal to anyone interested in developing their vocal performance and acting skills specifically for musical theatre performance. Students should take this course and MUS 209 in the same semester.

DRA 220 Playwriting 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students develop playwriting skills and techniques by critiquing published one-acts and through exercises on character, monologue, dialogue and conflict. During the course, students will write a ten to fifteen page play, which will be workshopped by the class. Avenues of production will be discussed for these plays, and when possible, staged readings of some plays will be performed in New Voices Rising at WCC.

Electrical & Computer Engineering

ECE

ECE 100 Introduction to Engineering and Computers 2 credits
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course offers an introduction to the engineering profession with an emphasis on electrical and computer engineering. Engineering ethics, professionalism, and the honor code are also discussed. Students are introduced to digital logic. Laboratory work includes email and Internet applications and an introduction to Excel spreadsheet, Excel Solver, Microsoft Word, and Pspice logic simulation software. Students work in teams on assigned term projects.

ECE 210 Circuits 4 credits

Level I Prerequisites: MTH 192 and PHY 222
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers fundamental laws, electrical elements and sources, energy, and power. DC analysis of linear circuits, node and mesh analysis, operational amplifiers and op-amp circuits, Thevenin and Norton theorems, sinusoidal steady-state response and the phasor concept are also discussed. In addition, students learn about introductory concepts on complex frequency, average power in AC circuits, maximum power transfer in circuits and design projects.

ECE 270A Computer Fundamentals 4 credits

Level I Prerequisites: ECE 100
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers the basic concepts of computer interfacing, sensing, and control integrated with software concepts. Students are introduced to structured programming and C++. Students also learn about computer hardware and software installation and serial communication.

ECE 273 Digital Systems 4 credits

Level I Prerequisites: ECE 100
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course offers an introduction to digital logic. Topics include numbers and coding systems, Boolean algebra with applications to logic systems, Karnaugh and Quine-McCluskey minimization, combinational logic design, flip-flops, sequential network design, and design of digital logic circuits.

Economics

ECO

ECO 110 Introduction to Economics 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a basic one semester introduction to economics. The course consists of four main units: an introduction to general economic concepts including markets and “supply and demand”; an introduction to microeconomics with a focus on business firms, costs, and the role of competition; an introduction to macroeconomics with a focus on output, unemployment and the price level as well as money, banking, and stabilization policy; and international economics focusing on trade issues and economic growth and development. The purpose of the course is development of students’ “economic literacy” rather than development of the analytical tools of economics.

ECO 211 Principles of Economics I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the first half of basic principles of economics. Emphasis is on macroeconomic concepts of national income, fiscal and monetary policy and problems of unemployment, inflation and economic growth. This course is required of all Business Administration transfer students.

ECO 222 Principles of Economics II 3 credits

Level I Prerequisites: ECO 211
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the second half of Principles of Economics, ECO 211. Emphasis is on microeconomic concepts of demand, supply and problems relating to prices and resource allocation. Students with experience equivalent to ECO 211 may contact the instructor for permission to waive the prerequisite.

ECO 280 International Economics 3 credits

Level I Prerequisites: ECO 211
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a course in international trade and finance covering topics such as tariffs and quotas, trade agreements, exchange rates, and international finance institutions such as the IMF and World Bank. It is designed primarily for transfer students and those interested in pursuing international business.

Education

EDU

EDU 100 Paraprofessional Roles and Responsibilities 3 credits

Level I Prerequisites: COMPASS Reading = 70 and
COMPASS Writing = 81
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is the first of three courses in which school paraprofessionals prepare their portfolios for review by school district evaluators. Students will use the seven required portfolio elements to design the contents of their own portfolios, using Michigan Department of Education (MDE) mandated documentation procedures. Class activities will emphasize the connection between paraprofessional duties, and the creation of a portfolio that reflects these duties. Students will also learn to demonstrate their ability to assist in instruction in the areas of reading, writing, and mathematics. Demonstrations of these abilities will be through the MDE approved methods - classroom observation and dialog with a qualified colleague.

EDU 101 Assisting in Reading and Writing Instruction 3 credits

Level I Prerequisites: COMPASS Reading = 70, COMPASS Writing = 81, and EDU 100 may enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course prepares students to complete the reading and writing instruction sections of the Paraprofessional Portfolio. Students will read and summarize selected professional literature about reading and writing instruction. They will then prepare for classroom observation and dialog with a colleague assessments concerning the content of the selected articles, and their application to the classroom.

EDU 102 Assisting in Mathematics Instruction 3 credits

Level I Prerequisites: COMPASS Reading = 70, COMPASS Writing = 81, and EDU 100 may enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course prepares students to complete the mathematics knowledge section of the paraprofessional portfolio. Students will prepare demonstrations of their skills in the nine mathematical concepts identified by the Michigan Department of Education, which will be evaluated by a classroom observation or a discussion with a qualified colleague.

EDU 103 Special Issues in Paraprofessional Practice 3 credits

Level I Prerequisites: COMPASS Reading = 70, COMPASS Writing = 81, EDU 100, EDU 101, and EDU 102
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the final course for the Paraprofessional Portfolio Preparation Certificate. Topics essential to the responsibilities of the paraprofessional are addressed, such as: behavior management; assistive technology; instructional support strategies; and communication skills.

Electricity/Electronics**ELE****ELE 040 Residential Wiring 2 credits**

0 lecture, 45 lab, 0 clinical, 0 other, 45 total contact hours

This course is a practical hands-on course that has been designed to help students better understand wiring techniques and safety considerations for dealing with a residential wiring system. A great deal of “hands on” time is offered and is devoted to working with the wiring materials and constructing circuits of the type found in the home. Typical of the kinds of circuits that are discussed and wired by the student are: duplex outlet circuits, dimmer circuits, three and four-way switch circuits, CGI circuits, lawn and garden lighting circuits, electrical dryer and electric stove circuits. Grading is by the satisfactory/unsatisfactory system.

ELE 095 Electrical Blueprint Reading 2 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an introductory level course in reading basic electronic/electrical manufacturing drawings to determine if the hardware complies with the engineering design requirements. Students learn to identify the basic graphical symbols used in electrical/electronic manufacturing drawings. The basic types of technical information contained in each category of manufacturing drawing is studied.

ELE 111 Electrical Fundamentals 4 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097
60 lecture, 30 lab, 0 clinical, 0 other, 90 total contact hours

A basic electricity course that includes both DC and AC circuits. The course has been designed for those students who need an understanding of electrical principles and applications but do not need the theoretical or mathematical depth required for circuit design. Lab exercises deal with many of the practical applications of electricity along with learning to use test equipment for the purpose of circuit diagnosis and troubleshooting.

ELE 134 Motors and Controls 4 credits

Level II Prerequisites: ELE 111 or ELE 123B or equivalent
60 lecture, 30 lab, 0 clinical, 0 other, 90 total contact hours

Topics include DC motors and generators, alternators, AC motors and typical controls for DC and AC motors. This is a hands-on course with heavy emphasis on laboratory exercises. The prerequisites will be checked by the instructor on the first day of class.

ELE 137 Switching Logic 4 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097A
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This is a beginning course in digital switching logic. Students learn the devices and circuits used to build computers and other digital control equipment. Lecture topics include data codes, digital logic gates and circuits, ladder logic diagrams, and the use of programmable logic controllers (PLCs). Laboratory topics stress breadboarding logic circuits and programming logic circuits using PLCs.

ELE 174 ELE Co-op Education I 1-3 credits

Level I Prerequisites: (ELE 111 and ELE 137) or CST 150; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course the student gains skills from a new experience in an approved, compensated, electronics related position. Together with the instructor and employer, the student sets up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

ELE 204 National Electrical Code 4 credits

Level II Prerequisites: ELE 111 or equivalent
75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This course covers the use of the National Electrical Code as a tool to plan the safe installation of electrical equipment in residential, commercial, and industrial locations. Students calculate required numbers of branch circuits; select sizes of conductors, raceways, fuses, circuit breakers, and boxes; and plan motor circuits, services, and feeders. Other topics include: cardio-pulmonary resuscitation and other safety issues, grounding, GFCI, kitchen circuits, motor controls, local codes, and code changes. Recommended for industrial controls students and those interested in becoming licensed journeymen or master electricians. Prerequisites will be checked by the instructor on the first day of class.

ELE 211 Basic Electronics 4 credits

Level II Prerequisites: ELE 111 or equivalent
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Basic Electronics is a beginning lecture and laboratory course covering solid state devices. It includes the theory and application of diodes, and both bipolar and field effect transistors. These devices are tested and then circuits using them are constructed and tested in the laboratory using common laboratory equipment. Prerequisites will be checked by the instructor on the first day of class.

ELE 220 Modems, Peripherals and Introduction to Networking 4 credits

Level I Prerequisites: CST 150 and CST 155
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This is a lecture and laboratory course in the basic knowledge and skills required to install, troubleshoot and operate modems, printers and network hardware for PC's. Topics include an introduction to the theory and practical aspects of Local Area Networks and the installation, configuration and troubleshooting of modems, printers and network hardware for PC's. Also covered are various standards, network architectures and protocols.

ELE 224 Introduction to PLCs 4 credits

Level II Prerequisites: ELE 137 minimum grade “C-” or equivalent
60 lecture, 30 lab, 0 clinical, 0 other, 90 total contact hours

An introduction to programmable logic controllers (PLCS) which covers PLC hardware, relay-type, timer, counter, data manipulation, math and program control instructions, with an emphasis on troubleshooting. Weekly lab assignments use Allen Bradley SLC-500 and PLC-5 controllers and RSLogix software. This course is offered for students, electrician apprentices, electricians, technicians, and engineers.

ELE 254 PLC Applications 5 credits

Level II Prerequisites: ELE 224 minimum grade “C-”
60 lecture, 30 lab, 0 clinical, 0 other, 90 total contact hours

This is an advanced course which features the Allen-Bradley SLC-500, PLC 5, A.I. Series, and RSLogix software. Topics include conceptual understanding and troubleshooting of PLC systems which utilize data manipulation instructions, program control instructions, data communications, remote I/O, analog I/O, block transfer, and PID process controls. PLC based motion control is also discussed. This course is intended for industrial electronics students, technicians, industrial electricians, and engineers who need to upgrade their skills in the area of PLC applications. Prerequisites will be checked on the first day of class.

ELE 274 ELE Co-op Education II 1-3 credits

Level I Prerequisites: ELE 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

ELE 299 Customer Relations 2 credits

21 lecture, 0 lab, 0 clinical, 0 other, 21 total contact hours

Students enhance their interpersonal skills through the techniques gained in this course. Developing insight using demonstrations, video tape, role playing, and interaction, the student is guided in a curriculum that builds a value-added attitude for customer service personnel. Skills learned include controlling one’s emotions in difficult situations and increasing customer satisfaction.

ENG 020 English as a Second Language I 8 credits

Level I Prerequisites: oral interview and Must see academic advisor or counselor for prerequisites
120 lecture, 0 lab, 0 clinical, 0 other, 120 total contact hours

This course is designed for students who do not speak or understand spoken or written English. The course covers survival language necessary for minimum functioning in the community. Satisfactory/unsatisfactory grading is used.

ENG 021 English as a Second Language II 8 credits

Level I Prerequisites: oral interview and ENG 020
120 lecture, 0 lab, 0 clinical, 0 other, 120 total contact hours

This class is designed for students who have had some exposure to and/or instruction in English. The course emphasizes survival language. Satisfactory/unsatisfactory grading is used.

ENG 023 High Beginning ESL Reading and Listening 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This class is designed as a continuation of ENG 021 and is for students who have had some exposure to and/or instruction in English. This course goes beyond minimal survival English toward communication of daily living. Reading and listening are emphasized. This class can be taken concurrently with ENG 024. Satisfactory/unsatisfactory grading is used. This course is the first half of the previous course ENG 022.

ENG 024 High Beginning ESL Grammar and Communication 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This class is designed as a continuation of ENG 021 and is for students who have had some exposure to and/or instruction in English. This course goes beyond minimal survival English toward communication of daily living. Grammar and communicative competence are emphasized. This class can be taken concurrently with ENG 023. Satisfactory/unsatisfactory grading is used. This course is the second half of the previous course ENG 022.

ENG 028 Low Intermediate ESL Reading 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to lay the foundations for reading improvement needed by ESL students. Vocabulary development, active reading strategies, independent silent reading and comprehension are covered. Students must satisfactorily complete their work before advancing to a higher level reading course. On the recommendation of the instructor, this course may be completed in two semesters as ENG 028A, ENG 028B. Satisfactory/unsatisfactory grading is used.

ENG 030 Intermediate ESL Grammar 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This intermediate level class expands students’ knowledge of English grammar and vocabulary and their ability to understand and use spoken and written English. Special attention is given to the appropriate use of the forms studied. Satisfactory/unsatisfactory grading is used.

English

ENG

ENG 000 Writing Center 0 credit

0 lecture, 15 lab, 0 clinical, 0 other, 15 total contact hours

The Writing Center provides three services. First, students enrolled in English 040, 050, 051, 091, 100, and 111 receive additional practice and/or assignments in developing writing skills in the lab. The practice method and assignments vary from course to course. Second, students can receive help on any writing project from the Center staff. Third, Macintosh computers are available so students may word-process their papers.

ENG 010 Writing Practicum 1 credit

Level I Prerequisites: consent required
0 lecture, 15 lab, 0 clinical, 0 other, 15 total contact hours

This course provides individualized instruction. Students may be referred to this course by their instructor to remove a specific deficiency in their writing. Students may enroll in this course to improve writing or receive help in completing writing assignments for English classes or other courses requiring writing. Satisfactory/unsatisfactory grading is used.

ENG 032 Intermediate ESL Grammar 4 credits

Level I Prerequisites: ENG 030 pass with "S" grade
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course meets with ENG 030 but students are required to demonstrate greater mastery of the material. Successful completion of ENG 032 is required for entrance into ENG 060. Satisfactory/unsatisfactory grading is used.

ENG 033 Intermediate ESL Reading 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to further develop independent reading comprehension skills for ESL students through reading authentic texts including novels and textbook selections. Emphasis is placed on vocabulary development, active reading strategies, variable reading rates, silent reading and comprehension. On the recommendation of the instructor, this course may be completed in three semesters as ENG 033A, 033B, and 033C. Students must demonstrate a reading level at or above the eighth grade level. Satisfactory/unsatisfactory grading is used.

ENG 035 English Pronunciation and Conversation 3 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This intermediate pronunciation and conversation class is for learners of English as a second language. Students practice using English to agree, disagree, invite, and compare. Grammar and vocabulary are reviewed as they relate to the conversations. Some outside reading is required. Satisfactory/unsatisfactory grading is used. The prerequisites may be taken before or concurrently with this course.

ENG 037 Intermediate ESL Writing 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This class is designed to help students internalize both the grammar and vocabulary that they have been studying by using it to produce well-formed sentences and paragraphs. Writing as communication is emphasized. Satisfactory/unsatisfactory grading is used. The prerequisites may be taken before or concurrently with this course.

ENG 050 Basic Writing I 4 credits

Level I Prerequisites: COMPASS Reading = 51 or REA 050 may enroll concurrently

Corequisites: ENG 000

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This class is the first course for inexperienced writers. It helps students to gain confidence writing formal English sentences and paragraphs. Satisfactory/unsatisfactory grading is used. Students who want to register for additional credits may take MTH 039, MTH 054, MTH 062, or MTH 090, as appropriate, and/or REA 050 concurrently with this course.

ENG 051 Basic Writing II 4 credits

Level I Prerequisites: ENG 050 and (COMPASS Reading = 51 or REA 050 may enroll concurrently)

Corequisites: ENG 000

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course meets along with an ENG 050 class but has more advanced writing lab assignments. Satisfactory/unsatisfactory grading is used.

ENG 060 Advanced ESL Grammar 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

Students study sophisticated forms of English grammar, including subject/verb inversion, reduced clauses, and complex verb phrases. Special attention is given to the appropriate use of the forms studied. Satisfactory/unsatisfactory grading is used.

ENG 061 Advanced ESL Grammar 4 credits

Level I Prerequisites: ENG 060 pass with "S" grade

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course meets with ENG 060, but students are required to demonstrate greater mastery of the material. Successful completion of ENG 061 is required for progressing into classes with native speakers. Satisfactory/unsatisfactory grading is used.

ENG 064 Advanced ESL Reading 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to prepare ESL students for academic readings. Students will develop appropriate vocabulary, reading strategies, and study skills, which will enable them to succeed in occupational and academic classes at the 100 level. Satisfactory/unsatisfactory grading is used. This course is the first half of the previous course ENG 063.

ENG 065 Advanced ESL Speaking and Listening 3 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class is designed to prepare students for active participation in college classes. Understanding lectures, taking notes in class, and participating in class discussion are covered. Satisfactory/unsatisfactory grading is used. Placement in this course may be made by an ESL instructor.

ENG 067 Advanced ESL Writing 4 credits

Level I Prerequisites: Must see academic advisor or counselor for prerequisites.

Corequisites: ENG 000

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students learn to write paragraphs in Academic English. Academic vocabulary, rhetorical structure of English prose, and the writing process are emphasized. This class prepares ESL students for full participation in classes with native speakers. This course is the second half of ENG 063.

ENG 085 Review of English Grammar 3 credits

Level I Prerequisites: (COMPASS Writing = 40 or ENG 051) and (COMPASS Reading = 51 or REA 050)

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course reviews basic English grammar. It helps students to write sentences more precisely and effectively as well as to understand the principles of our grammatical system. This is not an appropriate course for ESL students. It may be taken prior to or in conjunction with any writing course or a foreign language.

ENG 091 Writing Fundamentals **4 credits**

Level I Prerequisites: COMPASS Writing = 40 or ENG 051 pass with "S" grade

Corequisites: ENG 000

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course focuses on strengthening the writing skills required of a worker, citizen, or college student. The emphasis is on developing and organizing ideas in long paragraphs and short essays in preparation for college-level writing. In order to pass with a grade of "C" or better, students must demonstrate at least "C" level competency on in-class writing by the end of the semester. Students must have a "C" or better to take English 111.

ENG 100 Written Communication **4 credits**

Corequisites: ENG 000

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course, students learn how to write effective letters, memos, resumes, and short reports. Students write letters for a variety of situations (including job application, complaint, commendation), prepare memos in response to job-related situations, write resumes fitted to each student's particular background, and prepare short reports relevant to the student's field and/or interests. During the first week of class, students must demonstrate a writing proficiency at the college level.

ENG 101 Introduction to Journalism **3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to understanding the demands and effects of journalism in print media. Techniques of finding, writing, and presenting both news and feature stories are emphasized. Students are expected to find and write various types of stories. They will also be introduced to typical newsroom structure and organization, as well as issues of ethics in journalism.

ENG 107 Technical Writing **3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students learn the technical writing process and apply it to writing tasks similar to those they will encounter on the job. Students develop, organize, and write memos, technical definitions and descriptions, instructions, reports, and presentations. At the end of the semester, students prepare a portfolio of their technical writing assignments. Note: During the first week of class, students must demonstrate a writing proficiency at the college level.

ENG 111 Composition I **4 credits**

Level I Prerequisites: ENG 091 minimum grade "C"

Corequisites: ENG 000

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course develops skills in critical reading, logical thinking, and written composition (from narrative to expository essays and documented essays). Reading materials serve as a basis for essays and classroom discussions. Students write both in-class and outside essays. Methods of organization and development are emphasized. During the first week of class, students must demonstrate their writing proficiency. In order to pass with a "C" or better, students must demonstrate at least "C" level competency on in-class writing by the end of the semester.

ENG 115 Scriptwriting for Media **3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students explore basic writing techniques and formats used in scriptwriting programs for a variety of media and purposes. Media formats may include video, television, film, and Internet broadcast for purposes that may be documentary, promotional, commercial, informational, or narrative. This course is a requirement for the Digital Video Film Production program.

ENG 140 Horror and Science Fiction **3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a study of science fiction and horror in literature with emphasis on literary, historical, psychological, and social relevance. Short stories, novels, films, and/or nonfiction related to both genres are analyzed and discussed. Specially designated sections may focus on horror, science fiction, subgenres, or major authors.

ENG 160 Introduction to Literature: Poetry and Drama **3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to give an understanding of literature through writing assignments, close reading and discussion of selected works of poetry and drama. Students are encouraged to evolve criteria for assessing the value of literary works.

**ENG 170 Introduction to Literature:
Short Story and Novel** **3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students explore short stories and the novel as they provide blueprints for living, self-discovery and recreation. Each student is helped in strengthening reading and writing skills. Readings and discussion consider the cultural relevance of writings, the structural design, and the effect upon the reader. Students are encouraged to evolve criteria for assessing the value of literary works. Special, designated sections of ENG 170 emphasize popular literature, mystery, westerns or images of women in literature.

ENG 181 African American Literature **3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a critical analysis of the African-American experience in the world of literature. It is an introduction to contemporary African-American literature, letters and thought, as well as a survey of the great works of African-American fiction. Designated sections may focus on specific time periods or a specific author.

ENG 185 English Grammar and Usage **3 credits**

Level I Prerequisites: written test score TOEFL = 500 or computerized test score TOEFL = 173

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students formalize their knowledge of the structure of English. They learn to respect the internal grammar of English and to separate the issues of grammar and usage. Students examine some of the complex problems related to English grammar and usage. This course is a structural analysis of English and is designed for college level students.

ENG 199 Technical Writing Internship **1-3 credits**

Level I Prerequisites: ENG 107 and ENG 108; consent required

0 lecture, 0 lab, 0 clinical, 45 other, 45 total contact hours

In this course, the student integrates theory and practice by working in an area of professional interest in the technical communication field under the dual supervision of a professional technical communicator and instructor of technical writing. Students spend 3-18 hours per week in a work setting and one hour per week in conference with the instructor. Note: The college cannot guarantee an internship since assignment with an employer is required.

ENG 200 Shakespeare 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides introductory reading and discussion of the varieties of Shakespeare's plays: comedy, history, tragedy and dramatic romance. All periods of Shakespeare's work are represented. Wherever possible, the opportunity to view performances, either live or on film, is made available.

ENG 208 Advanced Technical Writing I 3 credits

Level I Prerequisites: ENG 107 minimum grade "C"; or consent required

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students will write user documentation and learn the documentation creation process from beginning to end, including conducting a formal document needs analysis, drafting a detailed project plan and schedule; and producing and testing the document. Working in groups and individually, students create original work for their portfolios. To create their documents, students use advanced features in MS Word including styles, templates, tables of contents, and indexes. This is a required course in the Technical Writing program.

ENG 209 Advanced Technical Writing II 4 credits

Level I Prerequisites: ENG 208 minimum grade "C"

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this hands-on course, students explore the software tools used in the technical communication field to publish documents and create online help systems in an environment that simulates the workplace. Students work in small groups and individually to plan, write, and publish manuals using Framemaker. Students also design effective help systems using Robohelp, learn how to convert hard copy text to online formats, and explore the basics of manual online help coding. Students with experience equivalent to ENG 208 may contact the instructor for permission to waive the prerequisite or allow concurrent enrollment.

ENG 211 American Literature I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The nation's literature from its beginnings to the Civil War are discussed, stressing the major authors of the period. The course relates trends of the period to contemporary problems and readings.

ENG 212 English Literature I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The course studies English literature from its origins through the 18th Century. Readings stress the major works and authors from Beowulf to Swift.

ENG 213 World Literature I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

World Literature 213 and 224 is a sequence that attempts an approach to the eternal values of man through literary masterpieces written from the time of ancient Greece to the present.

ENG 214 Literature of the Non - Western World 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a survey of major world literature outside the body of traditional Western European and American literature usually studied in college classes. Typically, the course covers selections from African, Asian, and Near Eastern literature. This course includes an introduction to each culture and explores how the literature reflects that culture.

ENG 216 Newswriting and Reporting 3 credits

Level I Prerequisites: ENG 101 or ENG 111 minimum grade "C"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students write news articles that may be suitable for publication. Conventions of style used in newspaper writing are emphasized. Students also examine legal/ethical concerns and may practice coverage of breaking news, speeches, courts and government.

ENG 217 Feature Writing and Research 3 credits

Level I Prerequisites: ENG 101, ENG 111, or ENG 216 minimum grade "C"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for students who have prior writing experience in ENG 111 or its equivalent and who have an interest in writing features for newspapers, magazines, or trade publications. Course topics include writing techniques for personality profiles, in-depth event coverage and news analysis as well as research techniques for articles of more than 800 words.

ENG 222 American Literature II 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is the second half of a two-semester sequence (see ENG 211). It covers the period from the Civil War to the present and relates trends of the period to problems and writings occurring after the Civil War. Major fiction of the period including poetry, drama, short stories and novels as well as literary, social, political and economic trends are part of the discussions. Some designated sections focus on contemporary American Literature. Some writing is required.

ENG 223 English Literature II 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of ENG 212. It involves a study of representative writers of the Romantic, Victorian, Modern, and Contemporary periods.

ENG 224 World Literature II 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of ENG 213. It explores some of the great literary experiences of the Western tradition since the Renaissance and attempts to show how they have contributed to present cultural heritage.

ENG 226 Composition II 3 credits

Level I Prerequisites: ENG 111 minimum grade "C"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of ENG 111 and further develops critical reading and logical thinking skills. Students will write argumentative essays using a variety of formats. The research paper is emphasized. This course was previously ENG 122.

ENG 240 Children's Literature 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a survey of prose, poetry and illustrated books suitable for the preschool, elementary, and early adolescent child. This course is required of students entering elementary education; also for library studies or work, teacher's aide program, nursery and day care work and as general education for parents.

ENG 241 Adolescent Literature 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a survey of prose, poetry and some non-fiction suitable for adolescent readers. It is recommended for students entering upper elementary and high school teacher training programs; also for library science students and as a general education for parents.

ENG 242 Multicultural Literature for Youth **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a survey of prose, poetry and illustrated books exploring the experience of minority youth in American society suitable for the preschool through early adolescent child. The course is strongly recommended for practicing early childhood, elementary and secondary teachers as well as for students preparing to enter these fields; also for media or library studies work, childcare work and a general education for parents.

ENG 245 Career Practices Seminar **2 credits**
Level I Prerequisites: ENG 100, ENG 107, or
ENG 111 minimum grade "C"
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

In this course, students explore the career options available in their chosen fields. Topics include developing career and job-hunting plans, hiring practices, resume preparation, interviewing skills and relationships with colleagues.

ENG 260 Journal Workshop I **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This workshop is for emotionally mature, self-directed people committed to growth and discipline in their writing and in their lives. It offers in-class writing as a means to self-discovery and expression. Students explore movement and continuity of their lives while exploring creative and healing power of symbols. There is a choice of many ways to use writing: biography, mind exploration, growth work, creative expansion, problem solving, renewing faith, celebrating life, and affirming commitments. Journals remain confidential. The course may transfer to some colleges. Contact the transfer college to confirm course equivalency.

ENG 261 Journal Workshop II **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a continuation of ENG 260, for students who have already completed 260, and who wish to continue to develop their skills and produce additional written work.

ENG 265 Journalism Internship **3 credits**
Level I Prerequisites: (ENG 111 and ENG 216) or ENG 217 minimum
grade "C" all courses
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students work with campus publications such as The Voice, Link-Up, or CareerFocus as interns for a specified number of hours per week in addition to attending class meetings. The class meetings focus on developing work projects and providing constructive feedback for ongoing work at the above-mentioned publications. This course prepares students for a continued academic or professional track in journalism.

ENG 270 Creative Writing I **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students explore processes by which writers discover ideas. Aided by a series of writing exercises, students create elements of poetry, fiction, drama, and/or non-fiction such as dialogue, point of view, voice, and rhythm. Students also explore relationships between form and ideas in writing. Writing is viewed as a means of personal expression and as a craft with definable measures of quality.

ENG 271 Creative Writing II **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students work on individual writing projects such as a novel, short stories, poetry, film/TV/play scripts in a workshop setting.

Fluid Power

FLP

FLP 111 Fluid Power Fundamentals **4 credits**
Level I Prerequisites: (COMPASS Reading = 70 or REA 070 may enroll
concurrently) and (COMPASS Writing = 81 or ENG 091 may enroll
concurrently)
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This is a beginning course in fluid power that deals with the basic principles of hydraulics and pneumatics. Directional valves, pressure controls, flow controls, actuators, and basic pump theory are studied. ANSI and ISO symbols are used to design simple circuits. Disassembly of components and assembly of circuits make up the lab experiences.

FLP 174 FLP Co-op Education I **1-3 credits**
Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

FLP 214 Hydraulic Circuits and Controls **4 credits**
Level I Prerequisites: FLP 111 minimum grade "C-"
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course further develops the concepts of directional, pressure, and flow controls covered in FLP 111. Troubleshooting and reading of hydraulic blueprints is emphasized. Circuits will include conventional valving, modular sandwich, screw in, and slip in cartridge valves. An introduction to proportional valves, servo valves, and electrical ladder control diagrams is included. Lab exercises play an important roll in this class. This course contains material previously taught in FLP 213.

FLP 225 Fluid Power Motion Control **3 credits**
Level I Prerequisites: FLP 214
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

This course reviews basic electrical principles and covers amplifier theory as applied to open loop and closed loop control. Proportional directional valves, flow control valves, and pressure control valves are discussed along with hydraulic servo valves. Proper setup alignment of the drive amplifiers and troubleshooting of servo and proportional control systems are covered in class and laboratory sessions. Closed loop (PID) control theory and feedback transducers are also discussed.

FLP 226 Pneumatics **3 credits**
Level I Prerequisites: FLP 111
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

Industrial air systems for controlling conveyors, presses, clamps, etc. are covered. This course includes operation and practical use of compressors, distribution systems, actuators, and valves. The second half of the course concentrates on the design of pneumatic control and power circuits using ANSI and ISO symbols and also the Moving Part Logic technique (pneumatic ladder logic).

FLP 274 FLP Co-op Education II **1-3 credits**
Level I Prerequisites: FLP 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Facility Management

FMA

FMA 101 Introduction to Facility Management **3 credits**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course teaches students about facilities management within the organizational structure, facilities function, workload planning, staffing, and information management.

FMA 103 Building Systems I **3 credits**
 Level I Prerequisites: FMA 101
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course teaches students building design and construction, structural systems, building envelope, roofing systems, and HVA and air handling systems.

FMA 105 Building Systems II **3 credits**
 Level I Prerequisites: FMA 103 minimum grade “C”
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course teaches students about electrical systems, operation and management, lighting principles, vertical transport, energy management, and parking.

FMA 107 Facility Management Technology **3 credits**
 Level I Prerequisites: FMA 105 minimum grade “C”
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course teaches students about facilities technology defined, integration of technologies, automated building systems, and managing the interior environment.

French

FRN

FRN 109 Beginning Conversational French **2 credits**
 30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This is a basic French course, mainly conversational in approach, which assumes no previous knowledge of the language. It is chiefly for persons interested in foreign travel through a basic knowledge of spoken and written French. It may also be taken as a preview for students entering the first-year of college French studies or students already enrolled in the first year French course. This course does not satisfy four year college language requirements. This course was previously FRN 120.

FRN 110 Intermediate Conversational French **2 credits**
 Level I Prerequisites: FRN 109 or one semester college French
 30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course emphasizes the use of spoken French in every day context. Students work on improving aural/oral skills. By semester’s end, students should feel comfortable creating with language in the present, past, and future tenses. This course does not satisfy four- year college language requirements. This course was previously FRN 121.

FRN 111 First Year French I **5 credits**
 75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This is a beginning and transferable course in French which emphasizes the communicative approach. Classroom work and aural/oral practice sessions assist the student in establishing and perfecting the basic conversational tools in the language.

FRN 122 First Year French II **5 credits**
 Level I Prerequisites: FRN 111
 75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This is a continuation of FRN 111. Continuing classroom work and aural/oral practice sessions help the student to acquire basic conversational tools of the language as well as basic informational aspects of the culture.

FRN 213 Second Year French I **3 credits**
 Level I Prerequisites: FRN 122
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The goals for this course are the acquisition of extensive French lexicon and a comprehensive knowledge of advanced French grammar. Both areas are thoroughly tested and improved by a series of writing and oral assignments. Students with experience equivalent to FRN 122 may contact the instructor for permission to waive the prerequisite.

FRN 224 Second Year French II **3 credits**
 Level I Prerequisites: FRN 213
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a continuation of FRN 213. This course offers a complete and final overview of the French Language. Special attention is placed on the practical world of commercial, fiscal, and bureaucratic French by dealing with textual and aural real-life contexts. Students are exposed to the new trends and directions in the life of the French language. Students with experience equivalent to FRN 213 may contact the instructor for permission to waive the prerequisite.

Graphic Design Technology

GDT

GDT 100 Typography I **4 credits**
 Level I Prerequisites: COMPASS Pre-Algebra = 37, GDT 127 (may enroll concurrently), and GDT 139 minimum grade “C”
 60 lecture, 0 lab, 0 clinical, 30 other, 90 total contact hours

This is an introduction to the evolution/principles of typography concentrating on typographic form and classification, type as form/image, display type, text type, typographic relationships readability/legibility, grid systems, fundamental design principles and page layout. Assignments investigate typography as an element of design whose form and purpose is to achieve successful informative and expressive visual communication.

GDT 101 History of Graphic Design **3 credits**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course presents the history of Graphic Design from the Victorian Era to the present, focusing primarily on European and American major design movements and pioneering graphic designers/artists. Lectures refer to the social and political climates, the relationship of the applied arts to the fine arts, and technological innovations from the time of Gutenberg’s movable type printing press through digital printing and media.

GDT 105 Introduction to Mac Graphics 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to the fundamental tools and procedures of desktop publishing using Macintosh computers. Students complete tutorial exercises in a computer lab, using a variety of page layout and graphic applications. This course is recommended for those with little or no computer experience.

GDT 112 Graphic Communication I 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and (GDT 139, GDT 140, INP 152, or PHO 127 minimum grade "C")
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers methods in visual communication, ideation, visual perception, and problem solving techniques. Exercises explore word-picture-abstract design, visual thinking and communication theories.

GDT 127 QuarkXPress for Print Publishing 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and (GDT 105 minimum grade "C-", high school or college Mac-based course, or consent required)
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course covers the fundamental tools and techniques for print publishing with the page layout software, QuarkXPress. Lectures, demonstrations, exercises, and publication projects introduce students to basic software tools and the current version of the software. This course contains material previously taught in GDT 125 and GDT 126.

GDT 139 Illustrator Graphics 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and (GDT 105 minimum grade "C-", high school Macintosh-based course, or consent required)
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course covers the fundamental tools and techniques of the vector drawing software, Adobe Illustrator. Lecture, demonstrations, exercises and projects introduce students to basic software tools and the current version of the software. This course contains material previously taught in GDT 137 and GDT 138.

GDT 140 Photoshop Graphics 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and GDT 105 minimum grade "C"
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course covers the primary features and uses of Adobe Photoshop image-editing software. Lectures, demonstrations, exercises and imaging projects introduce students to basic software tools and techniques for image correction, enhancement, compositing, and new image creation for both print and on-screen use. This course contains material previously taught in GDT 141 and GDT 142.

GDT 150 Design for the Internet 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and (GDT 140, PHO 127, or INP 152 minimum grade "C")
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course provides a thorough introduction to the process of designing and constructing Web sites. Students complete exercises and projects using current industry standard Web authoring and image editing software. Graphic design principles and methodologies are used to construct a Web site and post it on the World Wide Web. Knowledge of vector drawing software is recommended.

GDT 174 GDT Co-op Education I 1-3 credits

Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Students are placed in approved industrial work experience to gain skills and knowledge offered by the employer. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

GDT 201 Technical Graphics 4 credits

Level I Prerequisites: GDT 139 and ART 111 minimum grade "C-"
60 lecture, 30 lab, 0 clinical, 0 other, 90 total contact hours

This is an exploration into various means for visualizing and communicating technical information. Students, using traditional drawing methods and computer software applications, create graphics that are designed to inform, instruct and/or disclose. Course content covers axonometric and perspective drawing, product illustration, instructional graphics using technically based subject matter.

GDT 214 Advanced Photoshop 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and (GDT 140 or consent required)
40 lecture, 20 lab, 0 clinical, 0 other, 60 total contact hours

This course covers advanced features and uses of the image-editing software Adobe Photoshop. Exercises and production projects using the current version of Photoshop focus on developing skills and understanding of such topics as getting good scans, color spaces and profiles, tonal image correction, removing color casts, clipping paths, task automation and more. A good basic working knowledge of Photoshop is an essential course prerequisite. Students with equivalent experience may contact the instructor for permission to waive the prerequisite.

GDT 220 Publication Design 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, GDT 100, GDT 127, and GDT 140 minimum grade "C-"
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This is a computer-based design course focusing on layout and design of publications. Students incorporate the use of grids and other methodologies to design and produce a variety of single- and multi-page publications in black and white, spot and process color.

GDT 222 Commercial Illustration 4 credits

Level I Prerequisites: ART 111, GDT 112, and GDT 139 minimum grade "C-"
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Traditional rendering illustration methods and computer illustration software provide students with the basics used by professional illustrators and designers. Comparative techniques of rendering projects are explored using traditional media and Macintosh computers. Emphasis is placed on developing a strong portfolio. Students provide supplies and computer disk. This course is taken twice for credit in the Illustration program.

GDT 236 Specialized Study 2-4 credits

Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This class provides an opportunity for independent study in a particular area of instruction with faculty supervision.

GDT 239 Imaging and Illustration 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, (GDT 140 or PHO 127), and GDT 139 minimum grade “C-” all courses
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

In this course students create industry related illustrations using vector and raster based software programs. Projects include: charts and graphs, technical renderings, and editorial and promotional illustrations.

GDT 245 Computer-Aided Painting 4 credits

Level I Prerequisites: GDT 105
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

In this course, students explore the world of digital art where the computer screen is transformed into an electronic canvas offering virtually limitless creative possibilities. Working with traditional themes, hands-on exercises and an array of simulated painting media and surfaces, students produce computer-generated images that have expressive and dynamic characteristics. Proficiency with the Macintosh computer is essential. Students with experience equivalent to GDT 105 may contact the instructor for permission to waive the prerequisite.

GDT 252 Advanced Digital Studio 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and GDT 220
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course offers advanced techniques and applications in computer based imaging and publication design. Topics include design, illustration, and electronic file preparation for offset printing involving integration of several professional graphics software programs. Advanced techniques in software such as Adobe PhotoShop, Adobe Illustrator, and QuarkXpress emphasize creative, real-world applications for graphic design production. Students who have equivalent experience may contact the instructor for permission to waive the prerequisite.

GDT 259 Graphic Communication II 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, GDT 112, GDT 139, and GDT 140
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course is an investigation into the process of visual communication; an interweaving of the graphic message, its theory, practice, technology, invention, and function with the desire to create, design, and illustrate. Students investigate the topics of nature, music, vernacular expression, and statistical data as stimuli for solving industry-related types of assignments.

GDT 260 Animated Graphics: Flash 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37 and (GDT 140 or INP 152) and (GDT 150 or INP 190) minimum grade “C” all courses
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

In this course students create vector-based animated illustrations using an industry standard software application. Assignments cover the spectrum of basic animation techniques, cell animation, animated control functions for applications such as advertising banners, graphic designs, movies, and multimedia productions. Students work toward creating an animated Web site or CD ROM of their student portfolio.

GDT 270 Web site Design 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, INP 140, INP 176, and (GDT 140 or INP 182) minimum grade “C” all courses
60 lecture, 0 lab, 0 clinical, 30 other, 90 total contact hours

Using current industry-standard image editing, Web authoring, and 2D animation software; students plan, design, produce, and publish Web design deliverables on the World Wide Web. Students analyze “client” need and target audience, and utilize principles of visual proposals and functional Web sites that communicate content effectively.

GDT 274 GDT Co-op Education II 1-3 credits

Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain further skills from continued experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

GDT 290 Professional Practices 4 credits

Level I Prerequisites: 48 credits in Graphic Design or Illustration program and COMPASS Pre-Algebra = 37; consent required
45 lecture, 0 lab, 0 clinical, 45 other, 90 total contact hours

This class prepares students for seeking employment in graphic design and illustration. Topics covered include graphic design and illustration career options/specialties, job hunting skills/techniques, freelancing, resume and portfolio preparation, and includes a professional review of students’ portfolios. This course should be taken during the final semester prior to graduation. This course was previously GDT 230.

Geography**GEO****GEO 101 World Regional Geography 3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an introductory course in World Regional Geography which is divided into two unequal parts. In the first portion of the class, students become familiar with the basic principles and concepts of physical and cultural geography which they employ during the remainder of the semester. In the second part of the course, students survey the world on a region-by-region basis, identifying the specific geographic characteristics such as climate, terrain, population, industry and manufacturing, trade, transportation, and agriculture, which give the individual regions their unique identity.

GEO 103 Cultural Geography 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the world-wide patterns and characteristics of some of man’s major economic activities (agriculture, industry, trade and commerce), on-going processes (urbanization, population growth and movement), institutions (language, religion and the nation-state), and current concerns (health and nutrition).

GEO 212 Geography of the US and Canada 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the geography of the United states and Canada on a region-by-region basis, identifying the specific characteristics of each region and exploring the relationships among the various regions.

Geology

GLG

GLG 100 Introduction to Earth Science **4 credits**
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

This course provides practical training in earth science including work with soils, minerals, rocks, glaciers, volcanism, plate tectonics, meteorology, oceanography, and astronomy. Students take a one-day glacier geology field trip.

GLG 103 Field Geology **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students examine the processes that have formed and are forming the landscape by studying formations at local sites. Emphasis is placed on environmental impact on the landscape and waters of Washtenaw County.

GLG 104 Weather **3 credits**
22.5 lecture, 22.5 lab, 0 clinical, 0 other, 46 total contact hours

Atmospheric processes and phenomena that produce the day-to-day weather changes experienced throughout the world are studied. Emphasis is placed on empirical observation of cloud types, development, and movement. Weather map interpretation and analysis including elementary weather forecasting techniques are presented. Field trips are included. GLG 104 is normally offered only in the spring term.

GLG 109 Common Rocks **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The identification of rocks and minerals is accomplished through laboratory and field studies. Emphasis is placed on Michigan specimens. This course is intended for teachers, students interested in becoming teachers, or those interested in rocks and minerals.

GLG 110 Geology of the National Parks and Monuments **2 credits**
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

The geological settings of specific national parks and monuments are studied including the principles and processes which shaped them. Slide programs and topographical maps are used to illustrate geological features.

GLG 114 Physical Geology **4 credits**
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

The physical features and processes of the earth are studied. Plate tectonics along with the interpretation of topographic maps and the study of common rocks and minerals are included. A three-day field trip is required with food and housing expenses the responsibility of the student.

GLG 125 Historical Geology **4 credits**
Level I Prerequisites: GLG 100 minimum grade "C"
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

The development of North America as a typical continent is presented including the formation of mountains, the evolution of life, and the identification of fossils. Several field trips are taken. A three-day field trip is required with food and housing expenses the responsibility of the student. Students with experience equivalent to GLG 100 may contact the instructor for permission to waive the prerequisite.

GLG 202 Earth Science for Elementary Teachers **3 credits**
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

This course presents the content and methodology necessary for success in teaching earth science in the elementary school. It includes laboratory activities, laboratory projects, lesson planning and student presentations. Content topics include rocks and minerals, volcanism, mountain building, dinosaurs, and weather. Methodology topics include behavioral objectives, lesson plans, presenting lessons, and student-centered approaches.

GLG 219 Field Studies in Geology **1-4 credits**
0 lecture, 0 lab, 0 clinical, 240 other, 240 total contact hours

In this course students learn about geology through field experiences either on or off campus. Sometimes travel is involved. Students learn the geology and the geologic history of a given locale, read and/or construct maps, and identify field rocks and fossils. Topics vary in scope, place, and design each semester. Examples include learning the geology of the Grand Canyon by rafting through it for a week or determining the mass, volume and density of the largest boulder on campus. Some semester topics require that students be in good health. Pre- and post-course meetings are held in addition to the field study activities. Students are responsible for their own travel expenses, fees, personal health and life insurance, and any other expenses when the semester topic requires it. Students may be asked to sign appropriate risk and release forms.

GLG 289 Dinosaurs for Educators **3 credits**
Level I Prerequisites: GLG 202
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for future and present teachers to review definitions, old myths and new dinosaur theories. Dinosaur bones and other fossils will be used to understand the evolution, extinction and behavior of dinosaurs. Students will evaluate dinosaur related products, write lesson plans, make a presentation and learn how to clean and prepare dinosaur bones. Field trips are required.

German

GRM

GRM 109 Beginning Conversational German **2 credits**
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is conversational in approach and assumes no previous knowledge of the language. It is geared chiefly for persons interested in obtaining a basic knowledge of spoken and written German, as well as an appreciation and awareness of contemporary German culture. German 109 may be taken as a preview for students entering the first year German studies or students already enrolled in the first year course. This course does not satisfy four year college language requirements. This course was previously GRM 120.

GRM 110 Intermediate Conversational German **2 credits**
Level I Prerequisites: GRM 109 or one semester of college German
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is a continuation of GRM 109, Conversational German. It emphasizes a conversational approach to the German language and includes instruction in the German culture including shopping, mass media, travel, social interactions, theatre and film. Emphasis is placed on speaking and listening comprehension. This course does not satisfy four year college language requirements. This course was previously GRM 121.

GRM 111 First Year German I **5 credits**
75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This is a beginning and transferable course in German which emphasizes the aural-oral approach. Classroom work and aural/oral practice sessions assist the student in establishing and perfecting basic conversational tools in the language. Students intending to study German should have a sound, basic background in English grammar and syntax to be able to take and succeed in a foreign language as inflected and analytical as German.

GRM 122 First Year German II **5 credits**
Level I Prerequisites: GRM 111
75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This is a continuation of GRM 111. Continuing classroom work and aural/oral practice sessions emphasize the communicative approach. Class conversations, short readings, and pattern practice also assist students in acquiring facility in the language, as well as informational aspects of the culture. Students who have experience equivalent to GRM 111 may contact the instructor for permission to waive the prerequisite.

Health Science

HSC

HSC 100 Basic Nursing Assistant Skills **4 credits**
Level I Prerequisites: COMPASS Reading = 51 and
COMPASS Writing = 40
40 lecture, 24 lab, 26 clinical, 0 other, 90 total contact hours

This course prepares students for employment in hospitals, long-term care facilities or home care as a Nursing Assistant, using classroom, laboratory and clinical methods for learning basic nursing skills. Students must be at least 17 years of age. Criminal background check clearance is required. Attendance is mandatory for all sessions. There is no make-up time permitted. Any absences will result in withdrawal from the course.

HSC 101 Healthcare Terminology **1 credit**
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course is designed to introduce healthcare professionals to terminology used in the workplace. Lecture material is supplemented by independent student computer assignments.

HSC 115 Medical Office and Laboratory Procedures **3 credits**
37.5 lecture, 22.5 lab, 0 clinical, 0 other, 61 total contact hours

This course consists of lecture on office examining room procedures, sterile techniques, medical emergencies, specimen collection and minor surgery. Laboratory experience applies course material from the lectures.

HSC 131 CPR/FPR and First Aid **1 credit**
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course teaches American Red Cross first aid and cardiopulmonary resuscitation for the professional rescuer (CPR/FPR). Students learn adult, child and infant CPR, use of resuscitation masks and how to treat choking emergencies. Additional skills taught include emergency care of sudden illnesses, bleeding, thermal injuries and injuries to muscles, bones and joints. Successful students earn ARC First Aid and CPR/FPR certification cards. This course is graded on a pass/no pass grading system.

HSC 131A Adult, Child, Infant CPR/AED/First Aid **1 credit**
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course prepares students to perform adult, child, and infant cardiopulmonary resuscitation (CPR). Course objectives follow the new American Red Cross guidelines for using an automated external defibrillator (AED). The standard First Aid course gives individuals in the workplace the knowledge and skills necessary to recognize and provide basic care for injuries and sudden illness until the advanced medical personnel arrive and take over. This course is graded using the pass/no pass grading system.

HSC 131B CPR/FPR
(for the Professional Rescuer) Review **.5 credit**
7.5 lecture, 0 lab, 0 clinical, 0 other, 8 total contact hours

This course provides the required annual update and skill practice for persons certified in American Red Cross cardiopulmonary resuscitation for the professional rescuer (CPR/FPR). This course is graded on a pass/no pass grading system. Students must have a current CPR/FPR card (2000 guidelines) to register for the course.

HSC 138 General and Therapeutic Nutrition **2 credits**
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course presents normal nutrition and its relationship to health. It includes a study of the nutrients and nutrition planning guides. Nutritional needs throughout the lifecycle are studied. Concepts of general nutrition are applied to various diet therapies prescribed for common disease states in clinical practice. This course was previously taught in two courses: HSC 118 (General Nutrition) and HSC 128 (Therapeutic Nutrition).

HSC 147 Growth and Development **3 credits**
Level I Prerequisites: ENG 107 or ENG 111 minimum grade "C", may
enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers physical, cognitive and psychosocial changes of individuals from birth until death. The role of the family and theories of death and mourning also are included. This course meets nursing program requirements and is also open to the general student population. This course may transfer to four-year institutions. Contact the transfer college to confirm course equivalency.

HSC 200 Advanced Nursing Assistant Skills **5 credits**
Level I Prerequisites: HSC 100
60 lecture, 45 lab, 0 clinical, 0 other, 105 total contact hours

This course builds on previously learned basic nursing assistant skills in the care of clients/patients/residents in a variety of health care settings. The course focuses on the acquisition of delegated technical skills required in the provision of treatments and procedures to clients/patients with more acute and/or complex health care needs. Emphasis is placed on the regular reporting and communication between the nursing assistant (delegatee) and registered nurse (delegator). This course is graded on a pass/no pass grading system. Students with experience equivalent to HSC 100 may contact the instructor for permission to waive the prerequisite.

HSC 200A Advanced Nursing Assistant Skills Part I 3 credits
Level I Prerequisites: HSC 100
37 lecture, 33 lab, 0 clinical, 0 other, 70 total contact hours

This course builds on previously learned basic nursing assistant skills in the care of clients/patients/residents in a variety of health care settings. The course focuses on the acquisition of delegated technical skills required in the provision of treatments and procedures to clients/patients with more acute and/or complex health care needs. Emphasis is placed on the regular reporting and communication between the nursing assistant (delegatee) and registered nurse (delegator). This course is graded on a pass/no pass grading system. Students with experience equivalent to HSC 100 may contact the instructor for permission to waive the prerequisite.

HSC 220 Pathophysiology 4 credits
Level I Prerequisites: BIO 111
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

The focus of this course is the study of disease processes in humans. The course includes identification of the etiology and pathogenesis of disease, alterations in normal body function, and the reaction and adaptation of the body to disease. LPN's may have the prerequisite waived with instructor permission.

History

HST

HST 121 Western Civilization I 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the essential social, cultural, political, economic and religious developments in Europe and the Mediterranean from ancient times to the Renaissance.

HST 122 Western Civilization II 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the essential social, cultural, political, economic and religious developments in Europe from the Reformation to the end of the nineteenth century.

HST 123 The Twentieth Century 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on twentieth century world history; that is, fundamental, historical changes within the last one hundred years. Particular attention is paid to the following four critical topics: political and social developments, economics, science and technology, and cultural trends.

HST 150 African American History 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the history of African-Americans in the United States from 1619 to the present.

HST 200 Michigan History 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The Michigan History course is a review and analysis of the social, economic and political history of the State of Michigan. Within the purview of the course is the study of the full extent of human experience from contact with the indigenous peoples through the arrival and implantation of European culture. The significant historical periods covered are Colonization, Territorial Years, Development from 1836 to 1861, Civil War and Post-War Development, the Progressive Era, World War I, the Great Depression, World War II and Post-War developments. This course can fulfill the Michigan history requirement for Teacher Certification in Social Studies (RX).

HST 201 United States History to 1877 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the first half of the basic, introductory survey of American History. It deals with what happened in the part of North America that became the United States, from just before European contact to the end of the Civil War. Focal points are the interaction of Native, European, and African people, the emergence of political structures and cultural patterns under British colonial rule, the nature and impact of the American Revolution, the economic and social transformation of the United States after the Revolution, the origins and course of the Civil War and the impact of Reconstruction.

HST 202 United States History Since 1877 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the second half of the basic, introductory survey of American history. It examines the United States development into the world's leading economic, political, and military power. Focal points are the era's major political reform movements, the changing nature of American society and culture, the impact of war upon the nation's economy and society, and the increased role played by the United States in world affairs.

HST 215 History of U.S. Foreign Relations 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course traces the history of U.S. foreign policy from the Revolutionary era to the present. It will address the relationship between the American economic, social, and political systems and the conduct of the nation's foreign policy. The role played by race, economics, ideology, and "national interest" will be assessed. Emphasis will be placed on the conduct of diplomacy immediately before, during, and immediately after periods of military conflict. The conduct of the Cold War will be reviewed in detail.

HST 216 U.S. Military History, Colonial Times to Present 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course traces the American military from its pre-colonial origins to the present. It addresses the relationship between the American economic and social systems and the nation's military, and addresses the effect of the nation's geography on the mission and organization of the military. Key conflicts such as the American Revolution, the Civil War, the Second World War, and the Vietnam conflict are addressed in detail in an effort to discern if there is a unique "American Way of War."

HST 220 The Civil War Era, 1845 - 1877 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course deals with the causes, conduct, and impact of the American Civil War. It focuses on the political, social, economic, and racial background to the conflict, the conduct battles and campaigns, the formulation of strategy, the mobilization of the nations' societies and economies, wartime diplomacy and politics, and the numerous issues surrounding Reconstruction. The course will assess the impact of the war on the nation's society, political system, and economy.

HST 230 History of the Holocaust 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course investigates the origins, development, and legacies of the Nazi onslaught against the European Jews from 1933 to 1945.

HST 235 African History **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The African History course is a survey of the development of African society, its culture and institutions, with emphasis on the 13th century to the present. It will address the effects of Christianity, Islam, the Slave Trade and colonialism on the African continent. Emphasis will also be placed on the process of decolonization and industrialization in modern Africa.

**HST 240 The History of the
Modern Middle East, 1798 - Present** **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an introduction to the history of the modern Middle East from the end of the eighteenth century to the present, focusing on the territories of the Ottoman Empire and its successor states. Major topics and themes will include Ottoman and Islamic institutions, the decline of the Ottoman and Persian empires and the rising influence of European powers, the emergence of Arab nationalism, the origins and development of the Arab-Israeli conflict, the emergence of radical Islamic movements, and contemporary events.

HST 250 The Arab-Israeli Conflict **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on the origins, development, and implications of the conflict. The course will introduce the students to factual, as well as interpretive, information about the conflict. The course will examine the salient issues that are related to conflict, with special emphasis on territorial claims and rights of self-determination asserted by each of the sides. The course will also reflect the spectrum of opinions in Israel and the Arab world regarding this conflict.

HST 251 War in the Modern World, 1500 - Present **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course deals with war and military institutions in Europe and North America since the beginnings of modern states (about 1500), while placing particular emphasis on the more recent period, from just before the American and French Revolutions to the present time. Its focus is on the interaction of warfare - a changing set of techniques and technologies - with the broader political, social, economic, and intellectual aspects of war as well as with the aftermath of war. Some attention is given to particular military campaigns and battles, but mainly to make clear the technical aspects of war and to illustrate important trends and patterns. The approach of the course is comparative, between the differing histories of nation-states, and between the divergent military experiences of Europe and North America. While touching on the global experience of war during the last four centuries, the course aims to explain the central role played by war in the history of the modern Western world.

HST 260 History of England to 1688 **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will provide the student with framework for understanding the various ways in which the English have influenced American history and culture by examining the essential social, cultural, political, economic, and religious developments in the British Isles from ancient times to 1688. While focusing on England, the course will also address important developments in Ireland, Scotland, and Wales.

Human Services Worker

HSW

HSW 100 Introduction to Human Services **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to basic human service work, including discussion of the various target populations, the types of professions and careers, social organizations and systems, history, professional roles, ethics, and legal considerations. Students are challenged through group discussions to determine whether the field is suitable for them, and whether their values are congruent with values espoused by human service professions.

HSW 150 Helping Approaches for Groups **3 credits**
Level I Prerequisites: HSW 100
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces the beginning helper to using groups to promote change. The student learns how to screen candidates for groups, prepare potential members to use the group productively, use basic group techniques, attend to group process, and use specific activities and techniques to achieve desired outcomes. Students with experience equivalent to HSW 100 may contact the instructor for permission to waive the prerequisite.

HSW 200 Interviewing and Assessment **3 credits**
Level I Prerequisites: HSW 100 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to basic interviewing skills in the helping professions, as well as to the process of individual needs assessment. Students will learn both attending and influencing skills. In addition, they will learn how to write goals, objectives, and progress notes in the context of a client intervention strategy.

HSW 225 Family Social Work **3 credits**
Level I Prerequisites: HSW 100 or SOC 100 minimum grade "C"
HSW 100 or SOC 100 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to the theory and practice of social work with families. Students will learn how to analyze American families as social systems, and to identify common patterns in their structure and functioning. Common problems and special circumstances in family functioning will be addressed. Students will learn how to engage families and how to conduct a family intake assessment. Beginning theory on how to intervene with families will be addressed.

HSW 230 Field Internship and Seminar I **3 credits**
Level I Prerequisites: HSW 100, (HSW 200 may enroll concurrently),
and minimum 2.0 GPA all HSW courses; consent required
15 lecture, 0 lab, 180 clinical, 0 other, 195 total contact hours

This course integrates students into the working world by having them complete field work in a human service agency. Students have the opportunity to progress from observation, to directly supervised client, to indirectly supervised client contact. The field work is integrated with course work during a one hour per week seminar. Learning objectives are individualized according to the field internship and career goals of each student.

HSW 232 Field Internship and Seminar II 3 credits

Level I Prerequisites: HSW 100, HSW 200, and HSW 230 minimum
2.0 GPA all HSW courses; consent required
Corequisites: HSW 220
15 lecture, 0 lab, 180 clinical, 0 other, 195 total contact hours

This course integrates students into the working world by having them complete field work in a human service agency. Students complete this internship at a different agency from the internship held in HSW 230 or hold a significantly different role in the same agency. The field work is integrated with course work during a one hour per week seminar. Learning objectives are individualized according to the field placement and career goals of each student.

HUM 146 Mythology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course presents myths from around the world and it explores the relationship between the development of a culture and its myth. The course also focuses on the similarities of the mythologies of all cultures, while touching on key points from other disciplines including psychology, science, and literature. Influences of these myths into Western culture will also be traced.

HUM 150 International Cinema 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a survey of important foreign films and film makers (primarily, though not exclusively, European). The films viewed in class are discussed in terms of film techniques as well as in terms of content. No foreign language ability is assumed.

HUM 160 American Film 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The development of American cinema from its beginnings in 1896 to the present is studied. The films, viewed in class, are discussed in terms of technique as well as in terms of content. The course relates American cinema to themes in American culture.

HUM 170 Montreal World Film Festival 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This brief course will be held at the Montreal World Film Festival in late August. Students travel to Montreal to attend screenings of films at the festival. The course will appeal to those with an interest in film or in cross-cultural travel as it offers both intensive film-viewing and an introduction to the largest French-speaking community in North America. The course fee will cover round trip train travel from Windsor, hotel accommodations in Montreal, passes to ten Festival films and the Festival program guide. Orientation sessions will be held both on campus and in Montreal.

HUM 175 Arts and Cultures of Middle East (3000 BCE - 1800 CE) 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on the arts and cultural achievements of the middle east from ancient times through the Ottoman Empire. It explores the political, social, and cultural ramifications of various events in the arts, literature, music, philosophy, and architecture of the area, with an emphasis on the Islamic period. The student explores the human experience in Middle Eastern culture through the evolution of artistic expressions.

HUM 190 Third Cinema 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to a rotating selection of films made outside of dominant European or US markets, including those produced in (or in exile from) Africa, Asia, the Middle East, Latin America, former Commonwealth regions, and first world "interior colonies", and including a substantial number of films made by women. The student will explore cinematic expressions of national, cultural, ethnic, religious and other interests. A combination of lectures, readings, class discussion and a group project familiarizes students with a comparative cultural studies approach. No knowledge of foreign languages is assumed.

Humanities

HUM

HUM 101 Humanities I - Ancient to Medieval Times 3 credits

Level I Prerequisites: pass Computer Literacy Test
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an inquiry into a culture or a period through the creative disciplines of human artistic output focusing on the Western World. Class instruction will cover all periods through at least three media. The periods covered include: Prehistoric, Egypt Mesopotamia, Aegeans, Greece, Rome, and the Middle Ages. The media used includes: history, visual arts (painting, sculpture, architecture), literature, philosophy, music, and religion.

HUM 102 Humanities II - Renaissance to Modern Times 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course explores the human experience in Western culture expressed in art, literature, drama, music, and philosophy, from the Renaissance to the present.

HUM 103 Introduction to Humanities - 20th Century 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on the arts and cultural achievements of the 20th century in the Western world. It explores the political, social, and cultural ramifications of various events (i.e. World War I and II, Freud, technological advances etc.) on the arts. The student will understand the world around them by exploring the arts of the previous century.

HUM 140 Special Topics 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Courses offered in this Special Topics series will provide a unique opportunity for alternative learning. With an emphasis on field work (trips to local museums, galleries, or studios), research projects, discussions, student presentations, and lectures, a wealth of material will be gathered to foster an understanding of the arts of one or more cultures or artistic periods. Areas of study focus on the fine arts and architecture but also include religion, way of life, cultural traditions, music, literature, and history.

HUM 145 Comparative Religions 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will examine the basic beliefs and practices of a variety of Eastern and Western religious traditions. During this examination, the similarities and differences between these traditions will be explored, as will the role of religious practice in society and the lives of human beings.

Heating, Ventilating, and Air Conditioning HVA

HVA 101 Heating, Ventilating, and Air Conditioning I 4 credits
Level I Prerequisites: MTH 090, REA 070, and ENG 091 (may enroll concurrently in ACS and ENG)
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course introduces the concept of thermodynamics and principles of refrigeration. Major units covered include HVAC mathematics, refrigeration systems, refrigerants, refrigerant tables, refrigerant oils, contaminants, dryers, moisture in the air, food preservation, refrigerant components (i.e. compressors, condensers, cooling towers, evaporators, metering devices, motors and accessories), defrost systems, estimating heat loads and commercial refrigeration systems. An overview of domestic and commercial AC systems and components will be provided from an operation and service perspective.

HVA 102 Sheet Metal Fabrication 4 credits
Level I Prerequisites: MTH 090, REA 070, and ENG 091 (may enroll concurrently in ACS and ENG)
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course focuses on elementary sheet metal layout with an emphasis on developing sheet metal patterns by standard short-cut methods. Students gain hands-on experience fabricating the patterns into actual sheet metal locks, seams, clips, connectors, ducts, elbows, tees, and offsets. This course was previously TRI 103.

HVA 103 Heating, Ventilation, & Air Conditioning II 4 credits
Level I Prerequisites: HVA 101
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers basic electrical theory, OHM's law, voltage, amperage, and circuitry as applied to HVAC and refrigeration systems. This course also continues discussion of AC motors and controls and electrical calculations introduced in HVA 101. Common control systems and applications, wiring schematics, and diagrams for both high and low voltage systems are also discussed. Basic diagnostic skills are introduced. Students with experience equivalent to HVA 101 may contact the instructor for permission to waive the prerequisite.

HVA 105 Heating, Ventilation, & Air Conditioning III 4 credits
Level I Prerequisites: HVA 103
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course covers common domestic heating systems including fuels and combustion characteristics, furnaces and furnace components and accessories, burner efficiency, and supply systems. Students use charts and mathematical calculations to determine heat load and system sizing principles. Control systems are covered and basic diagnostic skills are discussed. Students with experience equivalent to HVA 103 may contact the instructor for permission to waive the prerequisite.

HVA 107 Heating, Ventilation, & Air Conditioning IV 4 credits
Level I Prerequisites: HVA 105
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course prepares students to successfully enter the HVAC industry as repair personnel, sales staff, maintenance staff, or apprenticeship. This capstone course provides learning experiences in design, application, and servicing techniques for a wide range of refrigeration and HVAC equipment commonly found in domestic and commercial applications. This course covers basic troubleshooting and diagnostic skill development in a laboratory setting. Students with experience equivalent to HVA 105 may contact the instructor for permission to waive the prerequisite.

HVA 108 Residential HVAC Codes and Competency Exams 3 credits
Level I Prerequisites: HVA 102, HVA 107, and WAF 104; or consent required
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course reviews various electrical, plumbing, and mechanical codes as well as HVAC (Heating, Ventilation, and Air Conditioning) industry standards for design, operation, and maintenance of residential HVAC equipment and systems. Three exams are required: the Environmental Protection Agency (EPA) 608 Certification, Residential Industry Competency (ICE) Exam, and the HVAC Excellence Exam. This course also provides some preparation for the Michigan Mechanical Contractors Licensing Exam.

HVA 201 Energy Audits 3 credits
Level I Prerequisites: Complete the Heating, Ventilation, and Air Conditioning Certificate
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course provides a foundation for conducting energy audits. Topics include: techniques to reduce consumption of fossil fuels and electric power; heat recovery; thermal storage; continuous improvement; operation and maintenance practices; energy waste elimination; and use of renewable energy sources.

HVA 202 Air System Layout and Design 3 credits
Level I Prerequisites: Complete the Heating, Ventilation, and Air Conditioning Certificate
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course provides an introduction to mechanical air movement including blowers, fans, louvers, make-up air units, filters, system pressure losses, and equipment sizing. Codes and industry standards are also discussed.

HVA 203 Refrigeration Systems 3 credits
Level I Prerequisites: HVA 201 and HVA 202
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course covers the fundamentals of refrigeration system operations, installation, maintenance, and troubleshooting. Topics covered include: types of refrigeration systems and their components; single and two-stage refrigeration cycles; evaporators; compressors; valves; pressure vessels; refrigerant choices; coefficient of performance; and food storage.

HVA 204 Central Heating Plants 3 credits
Level I Prerequisites: HVA 201 and HVA 202
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course provides an introduction to large boiler system operations. Topics covered include: low and high pressure boilers; boiler heat exchangers; fuels; combustion; heat exchangers; pumps; large boiler control systems; water treatment; air handling equipment; maintenance; and troubleshooting.

HVA 205 Hydronic Systems 3 credits
Level I Prerequisites: HVA 201 and HVA 202
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course covers the fundamentals of hydronic (water) systems. Topics covered include open and closed hydronic system components, theory of operation, piping, pumps, expansion tanks, and water chillers.

HVA 206 Central Cooling Plants 3 credits

Level I Prerequisites: HVA 201 and HVA 202
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course provides an introduction to large scale cooling operations. Topics covered include: absorption systems including ammonia and lithium bromide; water chillers; cooling towers; air handling systems; pumps; control systems; maintenance; and troubleshooting.

HVA 207 Codes and Industry Standards with Commercial ICE 3 credits

Level I Prerequisites: HVA 201 and HVA 202
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course reviews various electrical, plumbing, and mechanical codes as well as HVACR industry standards for design, operation, and maintenance of HVACR equipment and systems in relation to commercial systems. The Commercial Industry Competency Exam (ICE) is also administered.

HVA 208 Codes and Industry Standards with Industrial ICE 3 credits

Level I Prerequisites: HVA 201 and HVA 202
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course reviews various electrical, plumbing, and mechanical codes as well as HVACR industry standards for design, operation, and maintenance of HVACR equipment and systems in relation to industrial systems. The Industrial Industry Competency Exam (ICE) is also administered.

INP 140 Building a Web site 3 credits

Level II Prerequisites: INP 099, CIS 100, or CIS 110 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Many people find it desirable or necessary to create a Web site as part of their larger responsibilities in an organization or small business. This course takes such people through the process of planning a Web site, creating the pages with Macromedia Dreamweaver, and publishing them on the Web. In addition, the course teaches techniques for organizing information on the Web in the context of other information an organization typically disseminates, and making sure Web visitors can find what they need quickly and effectively. The focus of this course is not on graphic image design, and is not intended for people seeking a career as a professional Web designer.

INP 150 Web Coding I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to creating pages for the Web using Extensible Hypertext Markup Language (XHTML) and Cascading Styles Sheets (CSS). Students will create Web pages using a text editor and publish them on a server using an FTP program. Upon completion of this course, students will have a comprehensive understanding of document structure and formatting techniques as well as develop effective troubleshooting skills. A test-out is available for students with prior Web coding experience; interested students should consult with an INP faculty member.

INP 152 Web Imaging I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to the fundamentals, tools, and techniques of Web imaging and web design software applications. Students will gain an in-depth understanding of imaging for the Web including creating and manipulating images, and optimizing images for the Web. Industry-standard software applications for Web design will be used in a PC-based classroom. A test-out is available for students with prior Web imaging experience; interested students should consult with an INP faculty member. This course was previously offered as INP 143.

INP 153 Designing User Experience I 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students will learn the principles and practices of user-centered design, as well as the fundamentals of information architecture and interface design for the Web. The focus will be on human-computer interaction, critical evaluation of existing Web sites, and creating deliverables that a user experience professional would typically produce. Upon completion of this course, students will have a working knowledge of approaches, tools, and techniques pertaining to a variety of Web topics such as content design, interface design, navigation, organization, labeling, search, and site mapping.

INP 160 Internet Technology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students will learn about the Internet and its history, core functions and components, standard approval processes, domain names and IP addresses. The students will analyze and validate Web sites, use browser options and plug-ins effectively, become acquainted with newsgroups, chat, FTP, and telnet, and explore options by which organizations connect to the Internet. The students will also use email attachments, and understand their types and limitations. This course was previously INP 220.

Internet Professional

INP

INP 099 Exploring the Internet 2 credits

Level I Prerequisites: REA 070 and ENG 050 minimum grade "C-", both courses may enroll concurrently
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

In this course the student will gain hands-on experience using the Internet. The student will become proficient in using electronic mail, browsing and searching the World Wide Web, installing browser plug-ins, reading newsgroups, and employing other Internet technologies such as message boards and chat/instant messaging.

INP 111 Web Searching 1 credit

Level II Prerequisites: computer literacy
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This Web searching course focuses on basic and intermediate research using the World Wide Web. Students learn to search various search engines, subject directories, electronic databases, and fee-based sites using basic and advanced search features, and common Internet functions including the Web, Web browsers, and listserves. In addition, the course includes searching for images on the Web, generating a works cited list, attaching a file to e-mail, creating bookmarks, and application of copyright law.

INP 170 Web Coding II **3 credits**

Level I Prerequisites: INP 150 minimum grade "C-" or INP 150 Test minimum score 70%
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students will learn advanced coding and formatting techniques for creating Web pages. Students will create complex image-based layouts using XHTML and CSS, enhance their troubleshooting skills and learn to code for accessibility. Students will also discuss the process of coding for multiple devices and media.

INP 174 Internet Professional Co-op I **1-3 credits**

Level I Prerequisites: consent required
Level II Prerequisites: Complete two INP core courses and two courses in the option
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Co-op courses provide the student with worksite skills and experience in an approved, compensated position related to their chosen field of study. Together with an instructor, an employer, and the Workplace Learning Center, the student determines work assignments and learning objectives to connect classroom learning with career-related work experience. Registration for a cooperative education course requires attendance at a co-op orientation.

INP 176 Web Animation I **3 credits**

Level I Prerequisites: INP 152, GDT 139, or GDT 140 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to effective use of animation for the Web. Students will learn a brief history of animation and how animation has become a growing trend in presenting information on the Web. Students will learn when and why animation is used as well as when it should be avoided or minimized. The class will use the latest industry-standard software to create interactive, animated Web presentations. Students will gain an understanding of all aspects of animating for the Web from concept and storyboarding, to final production and implementation. This course was previously INP 272.

INP 182 Photoshop for the Web **3 credits**

Level I Prerequisites: INP 152 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students will gain an in-depth understanding of the primary features and uses of Adobe Photoshop in Web design. Topics covered include workspace optimization, image manipulation tools and advanced collage techniques. Students will also learn common Web design techniques such as type effects, navigation design and page layout design. Industry-standard software applications for Web design will be used in a PC based classroom.

INP 190 Web Development I **3 credits**

Level I Prerequisites: INP 150 and INP 153 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students learn the basic principles involved in developing a user-centered Web site from concept to completion. Students work in teams to develop a complete Web site project plan, and then use this plan as a foundation to create a simple, functional Web site. Emphasis is placed on pre-production tasks, including working with the client to establish needs and objectives, preparing usable content for the Web and developing an effective user interface. Students will also develop their HTML skills using both code and industry-standard Web authoring software, learn local and global site management techniques, and implement effective quality assurance testing plans.

INP 203 Designing User Experience II **3 credits**

Level I Prerequisites: INP 153 and INP 190 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students will gain experience with various methods for evaluating and improving Web site usability and accessibility, as well as learn about technologies and techniques for presenting and managing Web content. In exploring the area of accessibility, the students will use adaptive technology to better understand how users with disabilities experience Web sites. Students will also research recent developments in the user experience field and explore opportunities for employment and further education in the field.

INP 212 Web Imaging II **3 credits**

Level I Prerequisites: INP 182 or (GDT 140 and INP 190) minimum grade "C-" all courses
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This advanced course is an in-depth exploration into creating effective and attractive Web site designs. Students learn advanced imaging techniques for the Web, with a focus on user interface and navigation design. Industry-standard software applications for Web design will be used in a computer-based classroom. This course was previously INP 240.

INP 253 Designing User Experience III **3 credits**

Level I Prerequisites: INP 203 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students will explore usability best practices in a variety of specialized Web domains, such as e-commerce Web sites, e-government Websites, intranets, and extranets. Best practices for form design, personalization, internationalization, and providing Web content to hand-held devices are also considered. The focus will be on identifying the use of best practices in existing Web sites and in developing interfaces that incorporate best practices.

INP 271 Web Coding III **3 credits**

Level I Prerequisites: INP 170 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students will explore and incorporate client-side and server-side technologies into Web sites. Students will use JavaScript and Dynamic HTML to create interactive interface components and Common Gateway Interface technologies to generate dynamic content. Students will also discuss and evaluate new and emerging technologies.

INP 274 Internet Professional Co-op II **1-3 credits**

Level I Prerequisites: INP 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Co-op courses provide the student with worksite skills and experience in an approved, compensated position related to their chosen field of study. Together with an instructor, an employer, and the Workplace Learning Center, the student determines work assignments and learning objectives to connect classroom learning with career-related work experience. Registration for a cooperative education course requires attendance at a co-op orientation.

INP 275 Web Database **3 credits**

Level I Prerequisites: INP 170 or INP 270 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students learn to distinguish different types of databases and the software available to create them. They learn the principles of relational databases and how databases are connected to the World Wide Web. Students create both simple and relational databases using industry-standard software, put the databases on a Web server, and create the HTML code and scripts to link each database to the Web user. This course was previously offered as INP 283.

INP 276 Web Animation II 4 credits

Level I Prerequisites: INP 272 minimum grade “C-”
Level II Prerequisites: CPS 120, CPS 171, or CPS 185 minimum grade “C-”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course students will learn advanced animation techniques using Macromedia Flash, with a focus on creating effective interactive user interfaces. The class will combine both interface design concepts and basic programming using Actionscript. A major focus of the class will be on the concept of Interaction Design - the process of creating logical, intuitive and interactive user interfaces. This course is intended for students interested in enhancing their Flash skills and who already possess a basic knowledge of programming concepts.

INP 280 Web Content Management 4 credits

Level I Prerequisites: INP 271 and INP 275 minimum grade “C-”
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course students will discuss and evaluate the benefits of content management for the Web. Topics covered include asset management, building template-based Web sites, developing single-source content and creating custom publishing systems. In addition, students will utilize industry-standard technologies including PHP, MySQL and XML to create a custom content management system. Previous SQL experience is required.

INP 282 Web Audio/Video I 3 credits

Level I Prerequisites: INP 152 or GDT 140 minimum grade “C-”
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on incorporating audio and video into Web sites. Topics covered include studying the following concepts as they relate to the Web: capturing audio and video properly, editing audio and video, compression codecs required for optimization, and publishing compressed audio and video. Industry-standard hardware and software for manipulating, compressing and publishing audio and video for the Web will be used. This course was previously INP 250.

INP 285 Web Server Security 3 credits

Level I Prerequisites: CIS 121 minimum grade “B”
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to Web server security using Linux, Apache, MY Sql, and PHP (LAMP). Students learn how to identify security risks, how to configure the Apache web server to avoid unwanted access, where to find and how to read system log files, where to turn services on and off, and the basic theory of a firewall. Students also configure Linux servers to both allow and disallow various types of access, including password protecting directories, turning file transfer (FTP) on and off, and setting up file system permissions.

INP 290 Web Development II 3 credits

Level I Prerequisites: INP 170 and INP 190 minimum grade “C-”
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is the capstone course in the INP degree and advanced certificate programs. Students will demonstrate their ability to create and manage Web sites by working as development teams to plan, produce, and implement a fully functional client Web sites throughout the course of the semester. The focus is on the development process, with specific attention given to teamwork, communication and presentation skills. This course was previously INP 260.

INP 295 Professional Practices 2 credits

Level I Prerequisites: 20 credits in INP discipline at 100 level or above
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This class prepares students for seeking employment in the Web design industry. Students will explore career options and gain experience in the job search process, including developing a resume and an online portfolio Web site. Consideration will also be given to freelance work and preparing bids for Web development work. Students will have the opportunity to interact with Web professionals working in various Web design roles. Students who have taken Web-related CIS and/or GDT classes may apply those toward the credit prerequisite and should contact the instructor for a waiver.

Mechanical Engineering Technology MET**MET 100 Presentation and Computer-Aided Drawing 4 credits**

Level I Prerequisites: COMPASS Algebra = 66 or MTH 152
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course is designed to increase the student’s competence in using presentation and drawing tools. The principles and applications of computer-aided drafting systems and familiarity with presentation of technical information are emphasized. Use of interactive graphic software, development of input and output skills, and familiarity with software, languages and CAD systems hierarchy are covered. The student is also introduced to three-axis creation of parts and the drafting of auxiliary views, details, assemblies, and solid models. Also covered are AutoCAD and Microsoft Office software. Students with equivalent experience may contact the instructor for permission to waive the prerequisite.

MET 110 Statics 3 credits

30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course represents an introductory, analytical, and practical approach to the principles and physical concepts of statics as they apply to timber construction. The emphasis is on the mastery of basic principles. AutoCAD will be featured as a practical approach to problem solving.

MET 174 MET Co-op Education I 1-3 credits

Level I Prerequisites: consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

MET 188 Introduction to Engineering Design 4 credits

Level I Prerequisites: MET 100
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course provides the beginning engineering student with an overview of engineering design, based on a hands-on experience with a client-centered engineering design project which includes a team-based design project, an introduction to the use of computer tools and lab/manufacturing techniques, and a survey of engineering disciplines involved with concurrent engineering projects. Students with experience equivalent to MET 100 may contact the instructor for permission to waive the prerequisite.

MET 211 Statics and Introduction to Solid Mechanics 3 credits

Level I Prerequisites: MET 100 and MTH 191
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course is an analytical and graphical study of the principles of statics including equilibrium and static equivalence. Also covered is determination of moment and force resultants in members, centroids, and moments of inertia. The course focuses on applications to engineering problems and the analysis of simple machines.

MET 220 Materials and Manufacturing 4 credits

Level I Prerequisites: CEM 111
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This is an introduction to materials, material processes and equipment used in the job shop, tool room, or manufacturing facility. The engineering properties of metals, polymers, ceramics and composites are correlated with the internal structure of the materials and the service condition.

MET 221 Computer-Aided Mechanical Design 3 credits

Level I Prerequisites: MET 100 and MTH 192
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

Basic mechanical design and basic manufacturing processes are used to complete a design/manufacturing project. This course also examines the principles of parametric and feature based three-dimensional CAD models including the applications of creating parts, creating assemblies, creating drawings, and good design practices. Agile design models are created using Pro-Engineer and SEER-DFM and are used to verify system build and test.

MET 239 Design of Machine Components 3 credits

Level I Prerequisites: MET 260, MTH 191, and PHY 211
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students learn the methods of designing the common machine components applying the principles of mechanics of materials and other engineering sciences. The focus is on the safety, reliability and cost effective issues with emphasis on obtaining computer-aided design criteria. Topics include load analysis and material strength overview, fatigue and failure theories, contact stress mechanics, hydrodynamic lubrication, and methods of design and performance analysis of machine members. Students with equivalent experience may contact the instructor for permission to waive the prerequisites.

MET 241 Introduction to Dynamics 3 credits

Level I Prerequisites: MET 211 and MTH 192
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course is an analytical and graphic study of the motion of rigid bodies. Vector description of force, position, velocity, and acceleration in fixed and moving reference frames are covered. Also included are kinetics of particles, assemblies of particles and of rigid bodies, energy and momentum concepts, and Euler's equations. Applications to engineering problems with principles of linkages, cams, gears, and displacement, velocity and acceleration analysis of mechanisms are included. Students with equivalent experience may contact the instructor for permission to waive the prerequisites.

MET 260 Strength of Materials 3 credits

Level I Prerequisites: MET 241 and MTH 192
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

In this course, students learn methods for calculation of shear, tensile, and compressive stresses in industrial materials. Topics include energy methods, buckling of columns, bending of beams, shear and torsion. The focus is on design of engineering structures with emphasis on problem solutions techniques, experimental analysis, and computer-aided solutions. Students with equivalent experience may contact the instructor for permission to waive the prerequisites.

MET 274 MET Co-op Education II 1-3 credits

Level I Prerequisites: MET 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course students gain skills from a new experience in an approved, compensated position in the field of Technology. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two possible co-op experiences.

MET 278 Finite Element Modeling Fundamentals 3 credits

Level I Prerequisites: MET 100
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course provides a general introduction to Finite Element Modeling (FEM). The integration of finite element theory, principles, problem formulation, and computer analysis are introduced along with the use of commercially available finite element software. Emphasis is placed on practical modeling methods, understanding FEM and FEA concepts, interpreting results and obtaining realistic solutions. Attention is given throughout to the modeling of engineering problems. Pre- and post-processing concepts are discussed in conjunction with the HYPERMESH software. Students with experience equivalent to MET 100 may contact the instructor for permission to waive the prerequisite.

MET 278A Finite Element Modeling Fundamentals 3 credits

Level I Prerequisites: MET 100
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course is intended to provide a general introduction to Finite Element Modeling (FEM). The integration of finite element theory, principles, problem formulation, and computer analysis are introduced along with the use of commercially available finite element software. Emphasis will be placed on practical modeling methods, understanding FEM and problems, Pre- and post-processing concepts are discussed in conjunction with the HYPERMESH software. Students with experience equivalent to MET 100 may contact the instructor for permission to waive the prerequisite.

MET 293 Introduction to Computational Fluid Dynamics 2 credits

Level I Prerequisites: MET 100
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

The aim of this course is to give students overall appreciation of computational fluid dynamics. The objective is to enable engineers to make informed use of CFD by appreciating the numerical, modeling, and computing issues associated with the current CFD codes. Aerodynamic, fluid dynamic, and thermodynamic examples are covered. FLUENT is used during the course. Students with experience equivalent to MET 100 may contact the instructor to waive the prerequisite.

Mathematics

MTH

MTH 039 Basic Mathematics 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a review of the basic arithmetic operations common in every-day situations. Topics covered include whole numbers, fractions, decimals, and percents. This course is offered both in a self-paced format and the standard lecture format. The lecture course includes an additional hour of computation guided by the instructor. This course uses the satisfactory/unsatisfactory grading system. Students who want to register for additional credits may take REA 050 and/or ENG 050 prior to or concurrently with this course.

MTH 062 Prealgebra 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 24 or MTH 039
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Prealgebra begins with a review of arithmetic including story problems. Topics include properties of whole numbers, signed numbers, variables, expressions, and equations. Students who want to register for additional credits may take REA 050 and/or ENG 050 prior to or concurrently with this course.

MTH 090 Occupational Mathematics 3 credits

Level I Prerequisites: COMPASS Prealgebra = 24 or MTH 062 minimum grade "C"
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides the computational skills needed to solve problems commonly encountered in various general occupational fields. Students with an interest in business should consider MTH 163, Business Mathematics. Students with an interest in health fields should consider MTH 165, Health Science Mathematics. Topics covered include: arithmetic review, sets, whole and integer number systems, practical algebra, geometry, measurements, the metric system, ratio and proportion problems, graphs, and statistics. This course is offered in a self-paced format and occasionally in the standard lecture format.

MTH 097 Introductory Algebra 5 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, MTH 062, or MTH 090 minimum grade "C"
 75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

The scope and content of this course is equivalent to a first-year high school algebra course. Topics include the real number system, algebraic operations, solving equations, practical applications, inequalities, graphing, systems of equations, polynomial and rational expressions, roots and radicals, and quadratic equations. This is a standard lecture format course. The content of this course is offered in the self-paced format as MTH 097A and MTH 097B.

MTH 097A Introductory Algebra (first half) 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, MTH 062, or MTH 090 minimum grade "C"
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is the first half of MTH 097. Topics include the rational number system, algebraic operations, solving equations, ratio and proportion, and practical applications. This course is offered only in the self-paced format.

MTH 097B Introductory Algebra (second half) 3 credits

Level I Prerequisites: MTH 097A minimum grade "C"
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is the second half of MTH 097. Topics include inequalities, graphing, systems of equations, polynomials, rational expressions, roots and radicals, the real number system, and quadratic equations. This course is offered only in the self-paced format.

MTH 107 Triangle Trigonometry 3 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097 minimum grade "C"
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to the trigonometric concepts of the triangle. Topics covered include triangles and the basic trigonometric ratios, solving right triangles, laws of sines and cosines, trigonometric ratios of any angle, degrees and radians, and vectors. This course is currently offered only in the self-paced format. Students with very limited math experience may wish to take this course in preparation for MTH 178.

MTH 148 Functional Mathematics for Elementary Teachers I 4 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097 minimum grade "C"
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is the first of a two-semester sequence presenting the mathematical concepts and problem solving techniques necessary for success in a teaching career at the elementary school level. It is not a course solely for teachers of mathematics, rather, it provides the general mathematical background for teachers of all subjects. Topics covered include problem solving, sets, functions, numeration systems, number theory and number systems, applications, and an introduction to probability. This course transfers to EMU's Elementary Education program.

MTH 149 Functional Math for Elementary School Teachers II 4 credits

Level I Prerequisites: MTH 148 minimum grade "C"
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is the second of a two-semester sequence presenting the mathematical concepts and problem solving techniques necessary for success in a teaching career at the elementary school level. It is not a course solely for teachers of mathematics; rather, it provides the general mathematical background for teachers of all subjects. Topics covered include probability, an introduction to statistics, introductory geometry, congruence and similarity, and measurement concepts. This course transfers to EMU's Elementary Education program.

MTH 151 Technical Algebra 4 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, MTH 062, or MTH 090 minimum grade "C"
 75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This course introduces algebraic and geometric concepts in an applied setting and is primarily for trade and technical students. Topics, which emphasize applications, include: mean, median, mode, percents, ratio and proportion, operating with algebraic expressions, formulas and equations, area, volume, and right triangle trigonometry. This course is offered in both a self-paced format and the standard lecture format.

MTH 152 Technical Geometry and Trigonometry 4 credits

Level I Prerequisites: COMPASS Algebra = 46, MTH 097, or MTH 151 minimum grade "C"
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course provides students with the geometric and trigonometric concepts needed to solve problems commonly encountered in technical and trade fields. Topics, which emphasize applications, include basic theorems of geometry, formulas for areas and volumes, trigonometric functions, solutions of right triangles, laws of sines and cosines, and the solution of oblique triangles. This course is offered in both a self-paced format and the standard lecture format.

MTH 160 Basic Statistics 4 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097 minimum grade "C"
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course provides students with a general understanding of statistical concepts dealing with the processing and interpretation of numerical information. Topics covered include describing a numerical data set, central tendency, variability, probability distributions, inference, and hypothesis testing. A graphing calculator is required for this course. See the time schedule for current brand and model.

MTH 163 Business Mathematics 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, MTH 062, or MTH 090 minimum grade "C"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides the mathematical skills needed to solve business application problems and satisfies the math requirements of several one- and two-year WCC business programs. The topics, which emphasize business applications, include operations with whole numbers, fractions, decimals, and percents; measurement or computer mathematics; the metric system; signed numbers; solving equations; ratio and proportion; percent applications; circle, bar, and line graphs; savings and loans; taxes and payroll; and an introduction to statistics. This course is offered in a self-paced format, and occasionally, in the standard lecture format.

MTH 165 Health Science Mathematics 3 credits

Level I Prerequisites: COMPASS Pre-Algebra = 37, MTH 062, or MTH 090 minimum grade "C" both courses

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides the mathematical skills needed to solve problems encountered in health-related fields, and satisfies the math requirements of several one- and two-year WCC occupational programs. The topics, which emphasize health science applications, include basic mathematics; operations with percents; fractions and decimals; geometry; the metric system; the apothecary and household systems; signed numbers; solving equations; ratio and proportion; instrumentation; circle, bar, and line graphs; an introduction to statistics; and exponents and logarithms. This course is currently offered only in the self-paced format.

MTH 167 Math Applications for Health Science 3 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097 minimum grade "C"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides the mathematical and algebraic skills required to solve calculations in health related fields. The topics which emphasize health science applications include: basic mathematics through algebra, the metric system, the apothecary system, the household system, solving algebraic equations, using proportions; circle, bar and line graphs; an introduction to statistics; mental arithmetic and estimation. Accuracy and speed of calculations are emphasized with timed tests.

MTH 167A Math Applications for Health Science 2 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097 minimum grade "C"

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course provides the mathematical and algebraic skills required to solve calculations in health related fields. The topics which emphasize health science applications include; basic mathematics through algebra, the metric system, the apothecary system, the household system, solving algebraic equations, using proportions; mental arithmetic and estimation. Accuracy and speed of calculations are emphasized with timed tests. This is the first half of a two part course. High school algebra is not enough to satisfy the prerequisite.

MTH 167B Math Applications for Health Science 2 credits

Level I Prerequisites: (COMPASS Algebra = 46 or MTH 097) and MTH 167A minimum grade "C"

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course provides the mathematical and algebraic skills required to solve calculations in health related fields. The topics which emphasize health science applications include; solving algebraic equations, using proportions; circle, bar and line graphs; an introduction to statistics; mental arithmetic and estimation. Accuracy and speed of calculations are emphasized with timed tests. This is the second half of a two part course. High school algebra is not enough to satisfy the prerequisite.

MTH 169 Intermediate Algebra 4 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097 minimum grade "C"

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

The scope and content of this course is equivalent to a second-year high school algebra course. Topics include: descriptive statistics, the real number system, polynomials, linear equations, inequalities, absolute value, radicals and exponents, complex numbers, quadratic equations and inequalities, linear and quadratic functions, inverse functions, lines and linear systems, non-linear systems, systems of inequalities and determinants. This course is offered in the standard lecture format. The content of this course is offered in the self-paced format as MTH 169A and MTH 169B. See a counselor or advisor to confirm transfer equivalency.

MTH 169A Intermediate Algebra (first half) 3 credits

Level I Prerequisites: COMPASS Algebra = 46 or MTH 097 minimum grade "C"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is the first half of MTH 169. Topics include descriptive statistics, the real number system, polynomials, linear equations, inequalities and absolute value. This course is offered only in the self-paced format. The combination of MTH 169A and MTH 169B transfers to some four-year institutions as MTH 169. See a counselor or advisor to confirm transfer equivalency.

MTH 169B Intermediate Algebra (second half) 3 credits

Level I Prerequisites: MTH 169A minimum grade "C"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is the second half of MTH 169. Topics include radicals and exponents, complex numbers, quadratic equations and inequalities, linear and quadratic functions, inverse functions, lines and linear systems, non-linear systems, systems of inequalities, and determinants. This course is offered only in the self-paced format. The combination of MTH 169A and MTH 169B transfers to some four-year institutions as MTH 169. See a counselor or advisor to confirm transfer equivalency.

MTH 176 College Algebra 4 credits

Level I Prerequisites: COMPASS Algebra = 66 or MTH 169 minimum grade "C"

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course may serve as a terminal college algebra course or, together with MTH 178, provides the necessary background for calculus. Topics include: descriptive statistics, properties of real numbers, relations and functions, graphs, rational and non-rational functions, exponential and logarithmic functions, inverses, conic sections, sequences and series, and the binomial theorem. To confirm transfer equivalency, consult a counselor or check the Web page of the college to which you are transferring. A graphing calculator is required for this course. See the time schedule for the current brand and model. This course was formerly MTH 179.

MTH 178 General Trigonometry 3 credits

Level I Prerequisites: COMPASS College Algebra = 46 or MTH 169 minimum grade "C", may enroll concurrently

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a rigorous background in trigonometry necessary for students intending to study calculus. Topics include: trigonometric functions, inverse trigonometric functions, trigonometric graphs and manipulations, identities, solutions of trigonometric equations, measurement of triangles and arc. A graphing calculator is required for this course. See the time schedule for current brand and model. It is recommended that MTH 176 be taken before or concurrently with this course.

MTH 180 Precalculus with Trigonometry 5 credits

Level I Prerequisites: COMPASS College Algebra = 46 or MTH 169 minimum grade “C”

75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This course provides the necessary background in college-level algebra and trigonometry for calculus for those with a previous background in the study of trigonometric functions. Those without a trigonometry background should elect MTH 176 and MTH 178 instead. Topics include descriptive statistics, properties of real numbers, relations and functions, graphs, rational and non-rational functions, exponential and logarithmic functions, trigonometric functions, inverses, conic sections, sequences and series, and the binomial theorem. To confirm transfer equivalency, contact a counselor or check the Web page of the college to which you are transferring. A graphing calculator is required for this course. See the time schedule for the current brand and model.

MTH 181 Mathematical Analysis I 4 credits

Level I Prerequisites: COMPASS Algebra = 66 or MTH 169 minimum grade “C”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course teaches the methods and applications of finite mathematics applied to social science and business. Topics covered include solution to linear equations and inequalities, mathematics of finance, matrices, linear programming, sets, probability and statistics. To confirm transfer equivalency, consult a counselor or check the Web page of the college to which you are transferring. A graphing calculator is required for this course. See the time schedule for current brand and model.

MTH 182 Mathematical Analysis II 4 credits

Level I Prerequisites: COMPASS College Algebra = 46, MTH 176, or MTH 181 minimum grade “C”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course teaches the elementary methods of calculus applied to social science and business. Topics covered include functions, differentiation of algebraic functions, optimization, exponential functions and logarithmic functions and their derivatives, integration, selected applications, and an introduction to multivariate calculus. Some four year institutions accept this course as the calculus requirement of certain of their business and social science programs. A graphing calculator is required for this course. See the time schedule for current brand and model.

MTH 191 Calculus I 5 credits

Level I Prerequisites: COMPASS Trigonometry = 46, (MTH 176 and MTH 178), or MTH 180 minimum grade “C” all courses

75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This is first-semester college calculus of one variable. Topics include limits, continuity, derivatives, applications of derivatives, elementary integration, and applications of integration. To confirm transfer equivalency, consult a counselor or check the Web page of the college to which you are transferring. A graphing calculator is required for this course. See the time schedule for current brand and model.

MTH 192 Calculus II 4 credits

Level I Prerequisites: MTH 191 minimum grade “C”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is second-semester college calculus of one variable. Topics include the calculus of transcendental functions, techniques of integration, indeterminate forms and improper integrals, sequences and series, parametric equations and polar coordinates. To confirm transfer equivalency, consult a counselor or check the Web page of the college to which you are transferring. A graphing calculator is required for this course. See the time schedule for current brand and model.

MTH 197 Linear Algebra 4 credits

Level I Prerequisites: MTH 191 minimum grade “C”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is an introductory college course in linear algebra. Topics include linear systems of equations, properties of vectors and matrices, determinants, vector spaces, linear transformations, eigenvalues, and applications. A graphing calculator is required for this course. See the time schedule for current brand and model.

MTH 210 Algebra for Elementary Teachers 4 credits

Level I Prerequisites: MTH 149 minimum grade “C”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course extends the concepts of algebra to provide a solid background for the future elementary teacher specializing in mathematics.

MTH 293 Calculus III 4 credits

Level I Prerequisites: MTH 192 minimum grade “C”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is the third-semester college calculus of more than one variable. Topics include geometry in the plane and in space, vector-valued functions, partial derivatives, multiple integrals, and an introduction to vector calculus. To confirm transfer equivalency, consult a counselor or check the Web page of the college to which you are transferring. A graphing calculator is required for this course. See the time schedule for current brand and model.

MTH 295 Differential Equations 4 credits

Level I Prerequisites: MTH 197 and MTH 293 minimum grade “C”

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is a first college course in elementary differential equations. Topics include techniques for solving ordinary differential equations of order one, techniques for solving linear equations, applications, the Laplace transform, and solving linear systems of equations using eigenvalues. To confirm transfer equivalency, consult a counselor or check the Web page of the college to which you are transferring. A graphing calculator is required for this course. See the time schedule for current brand and model.

Machine Tool Technology

MTT

MTT 101 Blueprint Reading and Computerized Drawings 2 credits

30 lecture, 15 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to mechanical blueprints in both the drafted and CAD versions. Sketching and clay modeling of three dimensional objects will help students interpret orthographic projection drawings. Exercises will include manipulating CAD drawings from a variety of softwares.

MTT 102 Machining for Auto Applications 2 credits

30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This is an introduction to basic machine tool operations. Much emphasis is placed on shop safety. Topics covered include the basic operation of band saws, vertical milling machines, lathes, drill presses, and surface grinders. Other topics include semi-precision and precision measurement tools, materials, heat treating principles, and use of the machinery handbook.

MTT 103 Introduction to Materials 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course includes an introduction to the basic terms, processes and structures of materials. Hardness testing, classification systems and demonstrations of testing equipment are studied. Principles of heat treatments are studied and demonstrated.

MTT 105 Machine Tool Skills Laboratory 2 credits

Level I Prerequisites: MTT 102, MTT 111, or MET 220 minimum grade “D”

15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

This class is designed to give students enrolled in other courses an opportunity to use the machine shop with faculty instruction. Many classes on campus require students to build or modify parts. For example, classes such as robotics require students to design and build working manufacturing cells. Lecture, along with demonstration, will be used to make students aware of various machine tool setups. Students who want to maintain their machine tool skills can select from dozens of projects available.

MTT 111 Machine Shop Theory and Practice 4 credits

Level I Prerequisites: COMPASS Prealgebra = 24 or MTH 039

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course provides an introduction to machine tool operation. Much emphasis will be placed on shop safety. Other topics that will be covered include: basic measurement, drawings, hand tools, feeds and speeds and rotary tools. In addition to the above, students will gain valuable “hands on” experience learning basic operations on the sawing machines, engine lathes, milling machines, and grinding machines.

MTT 140 Millwright Theory 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course teaches millwright practices. The topics covered include millwright fundamentals, fiber and steel rope, hoisting, structural woods and steels, Scaffolding, strengths of timber and metal beams, cranes and derricks, rigging, transporting heavy shop equipment, accident prevention, standards, laws, and codes. Participants also learn about the maintenance of bearings, belts, chain drives, and conveyors. This course was previously TRI 140.

MTT 174 MTT Co-op Education I 1-3 credits

Level I Prerequisites: MTT 202; consent required

0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Students are placed in an approved work experience to gain skills and knowledge offered by the employer. Together with the instructor and the employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experiences. Students with experience equivalent to MTT 202 may contact the instructor for permission to waive the prerequisite.

MTT 203 Advanced Machine Tool Operations 4 credits

Level I Prerequisites: MTT 111 and MTH 151 minimum grade “C-”

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course is a continuation of MTT 111, and will give students advanced machine tool skills required by industry. Topics include: carbide tooling identification and uses, threading and thread forms, cutting internal and external tapers, precision measurement, advanced layout and set-up techniques, and grinding. The student will attain a higher comprehension level for set-up and tooling requirements needed for CNC programming and CAD/CAM classes.

MTT 240 Plant Layout and Material Handling Systems 4 credits

Level I Prerequisites: MTT 140 or TRI 140

0 lecture, 60 lab, 0 clinical, 0 other, 60 total contact hours

This course teaches blueprint reading and simplified drawing of typical free and power type conveyor systems. In addition, students learn plant layout drawing of machinery, foundations, exhaust systems, heat treat furnaces, hoists, catwalks and platforms. This course was previously TRI 240.

MTT 274 MTT Co-op Education II 1-3 credits

Level I Prerequisites: MTT 174; consent required

0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Students are placed in an approved work experience to gain skills and knowledge offered by the employer. Together with the instructor and the employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experiences.

Music**MUS****MUS 103 WCC Jazz Orchestra 2 credits**

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

Jazz Orchestra is a performance-oriented course with an emphasis on musical phrasing, blending, and improvisation. This course will focus on melodic, harmonic, and rhythmic skills necessary for performing in a big-band setting. The class will perform in the community and on campus. The lessons focusing on musical skills vary depending on the musical selections, which change each semester; therefore, there is no limit as to how often the course can be repeated. However, this course can only be repeated for credit up to a maximum of four times.

MUS 104 Top 40 Combo 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This class will put emphasis on performing the type of music that is popular with dance, wedding receptions, and nightclub audiences. It will examine the different elements that make songs popular and more appropriate for dancing. The instrumentation in this type of combo will consist of lead and rhythm guitars, electric bass guitar, piano and synthesizers, drums, saxophone, trumpet and vocals. This class will perform in different venues throughout the community.

MUS 105 Basic Combo and Improvisation 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This is a basic performance skills class for instrumental and vocal solo or small group expression. Students learn basic improvisation and listening skills, how to express their original ideas through the acquisition of chord and scale relationships, and communication and group interaction skills. Students must demonstrate basic competency on their instruments.

MUS 106 Jazz Combo and Improvisation 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course is designed for the musician with some degree of competency to gain experience and skill in performance and improvisation of different styles of music. This is a performing group which offers concerts at WCC and in the community-at-large.

MUS 108 Musical Theater Performance 1 credit

Level I Prerequisites: consent required

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course provides the experience of participating in a production of a musical or musical revue. Students learn the basic vocal, acting and dance fundamentals necessary to learning their music, staging and choreography. Students receive experience in working with costumes, sets, lighting, props and sound in support of their performance. Students must audition for this course. The course can be repeated once for a total of 2 credits. This was previously MUS 208.

MUS 111 Contemporary Jazz Combo **2 credits**
Level I Prerequisites: MUS 140 minimum grade "C"; or consent required
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This class requires daily exercises and warm ups and introduces musical selections for improving melodic, harmonic and rhythmic skills necessary in the commercial market. The jazz combo is a performance oriented combo with emphasis on improvisation and professional conduct. The instrumentation will consist of lead and rhythm guitars, electric bass guitar, piano and synthesizers, drums, saxophone, trumpet and vocals. The class will perform in different venues throughout the community.

MUS 135 Chorus **1 credit**
Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This is a course in performance of a wide variety of choral music. This group is open to all students. It may be repeated for credit up to a maximum of three times.

MUS 136 Gospel Chorus **2 credits**
Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course in vocal studies covers ensemble and solo singing in the gospel music tradition. Vocal and breathing exercises, rehearsal techniques, improvisation, gospel vocal arranging skills, and a brief history of gospel music will be covered. Class performances will be presented each semester.

MUS 137 Gospel Piano and Choir Directing **3 credits**
0 lecture, 0 lab, 0 clinical, 45 other, 45 total contact hours

This course will cover traditional and contemporary chord progression used in gospel music. It will also cover different musical characteristics that are common in this type of piano playing such as quartertones and microtones, the call and response, syncopation, rhythm and polly rhythms. This class will also focus on ear training, and gospel phrasing while interacting with a vocalist or a choir. Some aspects of choir directing will be covered, such as establishing tenor, alto, soprano, and bass vocal sections.

MUS 140 Music Theory I **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to give students, prospective teachers and others a foundation in music theory and reading, concepts of rhythm, tonality, music composition, and other techniques, with the aim of developing musical skills and understanding. No musical experience is necessary. Instructional assignments are adapted to student goals.

MUS 142 Music Theory II **3 credits**
Level I Prerequisites: MUS 140
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course includes an in-depth study of melodic, harmonic and rhythmic aspects of tonal music related to various styles: European, rock, jazz, ballads and the Blues. The course equips students with a theoretical knowledge to extend and cultivate musical understanding and creativity while giving primary emphasis to the harmonic aspects of music.

MUS 143 Music Composition and Arranging **2 credits**
Level I Prerequisites: MUS 140
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This class is designed to enable students to develop skills and techniques in music composition, orchestration and arranging for all musical mediums. Students with experience equivalent to MUS 140 may contact the instructor for permission to waive the prerequisite.

MUS 146 Songwriting and Creative Improvisation **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

For the prospective song writer, this class deals with lyric writing and musical accompaniment. Students collaborate using their talents to produce songs and also become acquainted with musical styles through recordings and demonstrations. Music industry procedures concerning how to get a song published and recorded is discussed. Other areas of study include recording, the recording studio, record pressing and copy-right procedures.

MUS 147 Entertainment Law **2 credits**
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This is a music course for the serious music student and professional musician covering basic agreements, contracts, royalties, copyrights and other legal aspects in the music industry.

MUS 149 Ear Training **2 credits**
Level I Prerequisites: No Basic Skills prerequisite
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course provides an approach to listening to and reading music designed to develop composing and listening skills. It also offers an introduction in training the ear to identify intervals, chords, scales and chord progressions.

MUS 157 Jazz Improvisation **2 credits**
Level I Prerequisites: MUS 105, No Basic Skills prerequisite
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course in jazz theory provides students with techniques of melody, harmony, and rhythm that would excite spontaneous creativity in the jazz style. Students with experience equivalent to MUS 105 may contact the instructor for permission to waive the prerequisite.

MUS 162 Music Sequencing and Programming **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class demonstrates how to compose songs using a MIDI keyboard workstation and focuses on making the recording process a one-person operation. The student will record and edit original compositions using multiple tracks and will quantize rhythms and simulate instruments such as piano, drums, guitar, and bass guitar. The class will include string and horn arranging.

MUS 170 Computer Applications in Music **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course uses computer applications to provide basic instruction in the theory of computer-aided composition and sequencing. Terminology and theory in MIDI, digital audio, keyboard synthesis, and sequencing as are covered. Students will apply themselves to basic assignments in the areas cited above and complete individual and group projects.

MUS 175 Audio Recording Technology I **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to provide students with the fundamentals necessary for a career-oriented study in creative audio recording. Audio-visual and hands-on experience (professional recording studio access) is provided, as is lecture and studio experience on multimedia recording and mixing techniques.

MUS 180 Music Appreciation 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This introduction to music, using innovative techniques on how to listen to music after becoming acquainted with the socio-cultural values of people who produced the many kinds of music of our world. All music styles are covered. Presentations deal with the growth and development of musical forms and different styles through recording, demonstrations, instructor and student generated demonstrations and projects.

MUS 204 Voice I 3 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 45 other, 45 total contact hours

This course is a beginning course in voice, enabling the student to effectively sing with proper technique as well as perform beginning repertoire in class. The course covers fundamentals of vocal technique, basic anatomy and physiology of the voice, basic music terminology, and exposure to various vocal styles and genres. A significant amount of class time is spent on individual performance in a studio class setting.

MUS 205 Voice II 3 credits

Level I Prerequisites: No Basic Skills prerequisite

Level II Prerequisites: MUS 204 minimum grade "C"

0 lecture, 0 lab, 0 clinical, 45 other, 45 total contact hours

This course is a continuation of MUS 204, providing studies beyond the beginning stage. It focuses more on individual development in terms of technique, repertoire, and performance. The course also further develops the student's knowledge of theory, sightsinging and basic musicianship as they apply to the singer. Students with experience equivalent to MUS 204 may contact the instructor for permission to waive the prerequisite.

MUS 207 Introduction to American Musical Theatre 2 credits

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is an introduction to the uniquely American art form, the Broadway musical. It traces the development of the musical from its roots in operetta, vaudeville and burlesque to the modern-day diversity of today's offerings. It also examines several musicals from different styles and periods, and provides background and resources for repertoire and song selection.

MUS 209 Musical Theatre Song 2 credits**Performance Seminar**

Level I Prerequisites: MUS 204, No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course is a studio/seminar on song performance in the musical theatre genre, and is intended for students with background in voice. Vocal technique, diction, performance techniques, and development of repertoire are emphasized in a studio class setting. Students perform frequently in class and receive coaching from the instructor as well as feedback from their classmates. It is suggested that this course be taken the first time in conjunction with DRA 209, Acting for Musical Theatre. Students with experience equivalent to MUS 204 may contact the instructor for permission to waive the prerequisite. Course may be repeated up to three times for credit.

MUS 210 Functional Piano I 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

In this course, students who wish to learn the fundamentals of playing the piano develop the ability to read and execute keyboard music harmonically and melodically. The course covers basic musicianship, fundamentals of piano technique, elementary keyboard harmony, sight-reading, pedal technique, and keyboard facility for use in support of other music classes. The course also offers an introduction to how the piano works, its development, and composers and pianists in various styles.

MUS 211 Functional Piano II 2 credits

Level I Prerequisites: No Basic Skills prerequisite

Level II Prerequisites: MUS 210 minimum grade "C"

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course is a continuation of MUS 210, providing studies beyond the beginning stage. The focus is on individual development in terms of technique, expression, and performance. The course also provides further keyboard skills and historical and theoretical background. This course was previously MUS 213.

MUS 216 Blues and Jazz Piano I 3 credits

Level I Prerequisites: MUS 210 minimum grade "C"; or consent

required, No Basic Skills prerequisite

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a course about the basic styles of Blues and Jazz piano which covers the origin of Blues piano along with the forms and structuring of primary chord progressions, scales, and 8 bar blues, 12 bar blues, jazz piano voicing and styling. This course will also involve Blues and Jazz improvisation as well as performing Blues and Jazz standards.

MUS 217 Blues and Jazz Piano II 3 credits

Level I Prerequisites: MUS 216 minimum grade "C",

No Basic Skills prerequisite

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of Blues and Jazz Piano I. It is an advanced examination of jazz keyboard improvisational concepts, executing all styles of jazz standards from ballads to swing to Latin Jazz. The course will include a preparatory study of jazz voicing, phrasing, and improvisation techniques with a special emphasis on Blues and melodic improvisational concepts for both solo piano and ensemble styles.

MUS 225 Drums: Beginning Jazz/Rock 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

Rudimentary skills in jazz drumming are learned; study includes historical styles such as Swing, Be-Bop, and South American and African rhythms.

MUS 233 Beginning Guitar 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

Designed for those with limited or no experience playing the guitar, this course teaches basic chords and techniques as well as folk and Blues songs. Class is keyed to students' interests and needs.

MUS 236 Intermediate Guitar 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course is for students with a basic knowledge of guitar playing. There are opportunities to learn more advanced techniques as well as learning about song arrangements and theory. Class is keyed to students' interests and needs.

MUS 237 Finger-Style Blues and Slide Guitar 3 credits

Level I Prerequisites: MUS 233 and MUS 236 minimum grade "C", No Basic Skills prerequisite
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course draws from the history of the musicians from the Delta regions of Mississippi in the 1930's and beyond. It will focus on the finger picking techniques and the alternate tunings used by the great blues artists who inspired the blues tradition from Robert Johnson to Stevie Ray Vaughn. Students will execute various right hand techniques, such as alternating bass rhythms, shuffle bass rhythms, and Delta strumming rhythms. Left hand techniques will include advanced chord formations associated with blues theory, chord formations associated with the alternate tunings as well as techniques associated with the use of bottleneck slide. The student will also illustrate and explore blues theory and progressions.

MUS 239 Jazz Guitar I 3 credits

Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 45 other, 45 total contact hours

This course will focus on the styling of jazz guitar greats like Wes Montgomery, Kenny Burrell, and Joe Pass. Students will examine Montgomery's chord melody solos, the melodic content of his solos, and the use of playing with octaves. Students will learn the importance of Burrell's dynamics sensitivity, and will gain insight into Pass' playing of chords, walking bass lines, and improvising. Through the use of videotape these guitar masters will be introduced into the classroom.

MUS 240 Jazz Guitar II 3 credits

Level I Prerequisites: MUS 239 minimum grade "C", No Basic Skills prerequisite
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class will focus on the styling of jazz guitar greats such as Wes Montgomery, Kenny Burrell and Joe Pass. It will examine chord melody solos, the melodic content and playing with octaves. Through this study the student will learn the importance of dynamics and sensitivity. The class will give insight into improvisationally playing chords and walking bass lines simultaneously.

MUS 241 Rock Guitar 2 credits

Level I Prerequisites: MUS 236 minimum grade "C"
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course provides the student the opportunity to learn several techniques from the rock guitar genre. Classes will cover several styles from the fifties through current rock music trends. Students will need an electric guitar, small amplifier, and an understanding of tablature notation.

MUS 244 Rock Guitar: Tones and Techniques 2 credits

Level I Prerequisites: MUS 236 minimum grade "C"
0 lecture, 0 lab, 0 clinical, 0 other, 0 total contact hours

Rock Guitar: Tones and Techniques details how famous guitarists have achieved the sounds and styles heard on hit records and in concert. Students will learn how they can apply these principles to develop commercially viable sounds of their own. The course takes a hands-on approach to using equipment (guitars, amplifiers, effects devices) and to developing techniques for soloing and playing rhythm, as well as performing professionally in a variety of venues.

MUS 245 Music Producing and Arranging 2 credits

Level I Prerequisites: MUS 175 minimum grade "C"
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This class covers string and horn arranging with emphasis on arranging a rhythm section (guitar, bass guitar, drums, piano and keyboards). Also covered, is the role of the producer and the skills necessary for creating a finished recording product for the commercial market. The student should have some knowledge of general music theory.

MUS 248 Sound Reinforcement for Stage 3 credits

Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 45 other, 45 total contact hours

This class covers all aspects of theatrical amplification from the spoken word to musical performances. It will demonstrate how to equalize sound in order to amplify it. The class emphasizes the importance of monitoring the stage and mixing console while making volume and equalization adjustments for diverse musical and theatrical events.

MUS 251 Classical Piano I 3 credits

Level I Prerequisites: MUS 210 or MUS 211 minimum grade "C", No Basic Skills prerequisite
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to introduce students to proper techniques of classical piano. Techniques include hand position, tone, dynamics, phrasing, and meter. The student will also learn music theory (form, chord structures, voice leading) and history as it pertains to the music. Short preludes and etudes and other appropriate repertoire will be introduced to further develop technique and reinforce an understanding of classical style. The student will have an opportunity to study works of master classical composers such as Bach, Beethoven, Mozart and Chopin.

MUS 252 Classical Piano II 3 credits

Level I Prerequisites: MUS 251 minimum grade "C", No Basic Skills prerequisite
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of the Classical Piano I course and is designed to move the student to the next level of study. The student will move on to advanced study of the classical piano focusing on advanced techniques for the left and right hand, tone, dynamics, phrasing and meter. The student will study works of master classical composers such as Beethoven, Mozart, J.S. Bach, Tchaikovsky, Chopin and others.

MUS 271 Beginning Classical Guitar 3 credits

Level I Prerequisites: MUS 233 and MUS 236 minimum grade "C", No Basic Skills prerequisite
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to introduce students to proper finger-style techniques by focusing on the classical guitar approach. Techniques include proper left and right hand position, tone, dynamics, phrasing and meter. Students will be introduced to short preludes and etudes to further develop technique. A nylon string classical guitar is recommended.

MUS 272 Intermediate Classical Guitar 3 credits

Level I Prerequisites: MUS 271 minimum grade “C”,
No Basic Skills prerequisite
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a continuation of the Beginning Classical Guitar course and is designed to move the student to the next level of study. The student will move on to advanced study of the classical guitar focusing on advanced techniques for the left and right hand position, tone, dynamics, phrasing, and meter. The student will be introduced to complex preludes and etudes to further develop technique. The student will study works of master classical composers such as Beethoven, Mozart, J.S. Bach, Tchaikovsky, Handel, and others. A nylon string classical guitar is recommended.

MUS 275 Audio Recording Technology II 3 credits

Level I Prerequisites: MUS 175
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a career-oriented course for advanced audio technology recording. Students apply basic theory and recording skills to progressive recording of solo instrumental, small group and finally multi-track large ensembles. Students are assigned projects to record both students and professional groups within the college or externally.

MUS 280 Voice III - Classical Voice 3 credits

Level I Prerequisites: MUS 204 and (MUS 205 may enroll concurrently) minimum grade “C+”, **No Basic Skills prerequisite**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will expose students to the techniques and fundamental principles involved in the preparation and study of classical vocal repertoire. The class will assume knowledge of vocal production and stage presence from Voice I and Voice II. The curriculum will include the provision of theoretical vocal and musical concepts, as well as the application of classical voice principles through studio and/or outside performances.

MUS 281 Voice IV -Jazz and Improvisational Voice 3 credits

Level I Prerequisites: MUS 204 and (MUS 205 may enroll concurrently) minimum grade “C+”, **No Basic Skills prerequisite**
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus upon jazz and improvisational voice by surveying historical and contemporary context, teaching basic jazz and music composition theory, and helping to develop vocal improvisation techniques. Students will be expected to read, keep weekly journals, listen to music, analyze and imitate solo improvisations of others, sing scales and scat appropriate to jazz and world harmonies and forms, practice ear training development, and perform original improvisations.

MUS 285 Self Management for Working Artists 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class will teach students to market their skills as a musician. The class will instruct students on interpersonal skills, preparing a portfolio, booking performances, preparation and analyzing contracts, and negotiating skills to determine a monetary value for a musician's work. It will teach students how to manage their business while creating a multi-faceted career. Careers include an entertainer, engineer, arranger, producer, instructor, publisher, author, manager and, booking agent.

Numerical Control

NCT

NCT 112 Introduction to Computerized Machining (CNC)

4 credits

Level II Prerequisites: MTT 111 minimum grade “C-”, may enroll concurrently
 30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course develops proficiency in setup and operation of CNC Machining and Turning Centers. Students master CNC machine tool controls through laboratory experiences and the manufacture of pre-programmed parts. Part holding techniques and alignment are included course material. Process planning, tooling for CNC Machine Tools and inspection of machined products are included in the course.

NCT 121 Manual Programming & NC Tool Operation 4 credits

Level I Prerequisites: MTT 111 and (NCT 112 may enroll concurrently) minimum grade “C-”
 30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This is the first in a two-course study of manual programming of CNC milling and turning centers. Students experience the entire process of part manufacturing by processing working drawings of sample parts, writing and editing of programs, set up and operation of CNC machine tools, and inspection of the finished products. Feeds and speeds, fixed cycles, program editing, set up procedures, and tape preparation are major topics presented. Laboratory time is required outside of class time. Students with experience equivalent to NCT 112 may contact the instructor for permission to waive the prerequisites.

NCT 174 NCT Co-op Education I

1-3 credits

Level I Prerequisites: NCT 221; consent required
 0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Students are placed in an approved industrial work experience to gain skills and knowledge offered by the employer. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

NCT 221 Advanced Manual Programming and NC Tool Operation

4 credits

Level I Prerequisites: NCT 121 minimum grade “C-”
 30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This is the second of a two-course study of manual programming and CNC Machine Tool Operation. Complex cutter path generation, cutter compensation, repetitive programming, multi-quadrant circular interpolation, three axis interpolation, threading, and other advanced programming techniques are practiced. Geometry creation using CAD/CAM software will be presented and used in this class. The class format is similar to that of NCT 121. Students with experience equivalent to NCT 121 may contact the instructor for permission to waive the prerequisite.

NCT 249 CAD/CAM CNC Programming

4 credits

Level I Prerequisites: NCT 221 minimum grade “C-”, may enroll concurrently
 45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Students learn to use CAD/CAM software to design parts and generate CNC machine tool programs for part manufacture. Students practice the input of geometry as the basis for tool path generation. Both 2D and 3D wireframe geometry are practiced. Various methods of surface creation are presented and practiced. CNC machine tool programs are created for the manufacture of parts within the software. Drilling pocketing and contour milling are typical 2D machining applications presented. Students are provided time in the CNC machine tool laboratory.

Nursing

NUR

NUR 039 State Board Preparation 2 credits

Level I Prerequisites: NUR 231 and NUR 261 minimum grade "C-", may enroll concurrently; consent required
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course assists Nursing program graduates in preparing for the State Board of Nursing Examination. Emphasis is placed on reviewing learned materials and on taking a national competitive examination. Grading uses the satisfactory/unsatisfactory system.

NUR 101 Introduction to Nursing 1 credit

Level I Prerequisites: Admission to Registered Nursing Program
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This is the first course in the nursing sequence. Information which provides a foundation for other nursing courses is introduced. Topics include the roles of nurses, personal philosophy of nursing, an overview of nursing history. The course emphasizes associate degree nursing, the Code of Ethics for Nurses, universal precautions, basic legal issues, and medical terminology.

NUR 102 Fundamentals of Nursing 2 credits

Level I Prerequisites: NUR 104 minimum grade "C-"
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Theory which provides a foundation for other nursing courses is introduced, including Modeling and Role Modeling and the nursing process. Teaching and learning and the concepts of pain, sleep and cultural issues are included.

NUR 103 Fundamentals of Nursing - Lab Theory 1 credit

Level I Prerequisites: NUR 102 minimum grade "C-", may enroll concurrently
Corequisites: NUR 103C
Corequisites: NUR 103L
15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

Students will learn the procedures and rationale for specific basic nursing skills utilizing the nursing process as the theoretical framework.

NUR 103C Fundamentals of Nursing - Clinical 1 credit

Level I Prerequisites: NUR 103L pass with "P", may enroll concurrently
Level II Prerequisites: Clinical Calculation Competency = 90%
0 lecture, 0 lab, 45 clinical, 0 other, 45 total contact hours

Students will perform skills basic to nursing care in the clinical setting in extended care facilities. Emphasis will be on assessment skills and implementation of care using standard nursing care plans for commonly encountered nursing diagnoses, and evaluating the effectiveness of nursing interventions.

NUR 103L Fundamentals of Nursing - Lab Practice 1 credit

Level I Prerequisites: NUR 103 minimum grade "C-", may enroll concurrently
0 lecture, 45 lab, 0 clinical, 0 other, 45 total contact hours

Students will develop skills basic to nursing care in the nursing laboratory, utilizing knowledge obtained from lab theory and in preparation for the clinical experience.

NUR 104 Nursing of the Older Adult 2 credits

Level I Prerequisites: Admission to Registered Nursing Program and (NUR 101 minimum grade "C-", may enroll concurrently)
22.5 lecture, 22.5 lab, 0 clinical, 0 other, 46 total contact hours

This course uses the nursing process to promote self care for adults from mid-life to death. It focuses primarily on healthy, non-institutionalized older adults, their accommodations to normal changes, commonly encountered alterations in health maintenance, prevention and screening programs and national and state health systems. NUR 104 and NUR 105 have been combined to form a new NUR 104 course.

NUR 115 Pharmacology 3 credits

Level I Prerequisites: NUR 104 minimum grade "C-", may enroll concurrently
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course includes basic principles of pharmacology and major drug classifications using a body systems approach. General mechanisms of drug action, clinical indications for use, common adverse reactions, general nursing implications, and significant drug interactions are discussed. This is a required course in the nursing program, but may also be taken for transfer with consent of the instructor.

NUR 122 Nursing as a Societal and Interpersonal Profession 4 credits

Level I Prerequisites: Admission to Nursing Transfer Program; consent required
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

The purpose of this course is to provide students with a foundation in the scientific and social dimensions of nursing as a discipline and a health profession. Students will examine the historical development of nursing and assess the impact of that development on contemporary nursing. Cultural variables and personal values will be examined by the student. Finally, the social context within which nursing is practiced is reviewed, providing the student with an appreciation of the health care system, with particular emphasis on legal and ethical frameworks.

NUR 123 Acute Care Nursing I 3 credits

Level I Prerequisites: NUR 103C, NUR 115, and (HSC 220 may enroll concurrently) minimum grade "C-" or "P"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Students are introduced to principles and skills related to the care of clients/patients with problems of fluid and electrolyte balance, gas transport, inflammation and the immune responses and disorders. Using the nursing process as a framework, students learn preoperative, intraoperative and postoperative nursing care. Various nursing approaches which support an individual's adaptation to stressors are examined.

NUR 124 Acute Care Nursing I - Clinical Practice 2 credits

Level I Prerequisites: NUR 123 minimum grade "C-", may enroll concurrently
Level II Prerequisites: Clinical Calculation Competency = 90%
0 lecture, 12 lab, 78 clinical, 0 other, 90 total contact hours

This course builds on and supports skills learned in NUR 103: Fundamentals of Nursing Clinical Practice, and NUR 104: Older Adult Nursing. Students gain increased competence in assessment skills including the integration of diagnostic tests and procedures and their results. Planning individualized nursing care including discharge teaching, based on appropriate nursing diagnoses and collaborative problems will be introduced. This course is graded on a pass/no pass grading system.

NUR 130 Health Promotion and Risk Reduction 4 credits

Level I Prerequisites: Admission to Nursing Transfer Program and NUR 122 minimum grade "C"

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

Students gain an understanding of concepts of health, healthy lifestyle behavior, health promotion, levels of prevention, diversity, and risk; factors that influence health and healthy lifestyle behaviors; basic dynamics of behavioral change; and substantive content in nutrition, physical activity, and psychological well-being. Theoretical and empirical support for promoting health and reducing risk behavior is examined as a basis for understanding ways that diverse individuals can positively influence their own health and wellness. The role of professional nursing in promoting health behaviors will be examined. Using substantive content, exemplar behaviors of nutrition, physical activity, and coping and adaptive behaviors is examined from the student's perspective to gain an understanding of their contribution to health and wellness. Underlying dynamics such as self-efficacy and resilience, will be examined within the context of the theoretical and empirical literature and standards for the nursing profession. Students will examine potential strategies for influencing health behavior change. Students will participate in a service-learning experience, arranged by faculty that facilitates their understanding of factors that enhance health promotion and risk reduction behaviors.

NUR 131 Nursing of the Childbearing Family 3 credits

Level I Prerequisites: NUR 103C and NUR 115 minimum grade "C-" or "P"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces basic nursing care of the family during the childbearing process, including the antepartum, intrapartum, postpartum, and normal newborn period. Topics of fertility, infertility, and deviations from the normal maternity and newborn cycle will be addressed. Modeling and Role Modeling (nursing theory), development and characteristics of the human reproductive system, and conception and fetal development knowledge gained in prerequisite courses is part of the foundation for the study of the childbearing family.

NUR 132 Nursing of the Childbearing Family - Clinical Practice 2 credits

Level I Prerequisites: NUR 131 minimum grade "C-", may enroll concurrently

Level II Prerequisites: Clinical Calculation Competency = 90%
0 lecture, 0 lab, 90 clinical, 0 other, 90 total contact hours

Students use the nursing process to provide care for families in the childbearing cycle within the hospital setting. Use of family and wellness diagnoses is introduced. Emphasis is on health teaching to assist the family in adapting to parenting and recovery from childbirth. Some experience with high-risk mothers and newborns is provided. Students must have a current CPR card or pass HSC 131 before registering for this course.

NUR 160 Nursing in Peru 1 credit

Level I Prerequisites: Admission to Registered Nursing Program; consent required

Level II Prerequisites: NUR 102, NUR 103, NUR 103C, and NUR 103L minimum grade "C-" or "P"

0 lecture, 0 lab, 45 clinical, 0 other, 45 total contact hours

Students in the nursing program who have completed Fundamentals of Nursing will be able to work in a hospital in Peru performing basic nursing skills while experiencing a culture different from their current experiences.

NUR 201 Transition for LPNs 3 credits

Level I Prerequisites: Advanced Standing Admission to Nursing Program

37.5 lecture, 22.5 lab, 0 clinical, 0 other, 61 total contact hours

This course is limited to licensed practical nurses. The course content and competencies selected are those required for the first three semesters of the nursing program which are not generally covered in a practical nursing program. Guided laboratory experience will provide opportunity to demonstrate mastery of psychomotor skills with emphasis on physical assessment and application of the nursing process. Note: The English, biology and computer science requirements in the nursing program must either be taken before or concurrently with NUR 201.

NUR 222 Health Assessment Throughout the Lifespan 4 credits

Level II Prerequisites: RN, LPN, or RN student

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course provides the beginning knowledge needed to assess the health status of individuals from infancy through old age, including physical, developmental, psychological, cultural and spiritual dimensions. The laboratory experience provides students the opportunity for skill acquisition in history taking, assessment skills, and documentation of findings, focused on the adult client.

NUR 223 Acute Care Nursing II 3 credits

Level I Prerequisites: NUR 123, NUR 124, NUR 131, and NUR 132 minimum grade "C-" or "P"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course builds on principles and skills learned in NUR 123: Acute Care Nursing in the areas of fluid and electrolyte balance, biologic defense mechanisms, metabolism/nutrition and elimination patterns. Additional principles introduced include disturbances in the functional patterns of activity/exercise, cognitive/perceptual and sexual/reproduction. Students learn holistic care of individuals with complex medical/surgical problems. The nursing process is used as the integrating framework.

NUR 224 Acute Care Nursing II - Clinical Practice 2 credits

Level I Prerequisites: NUR 223 minimum grade "C-", may enroll concurrently

Level II Prerequisites: Clinical Calculation Competency = 90%
0 lecture, 0 lab, 90 clinical, 0 other, 90 total contact hours

This course builds on and supports skills learned in NUR 124: Acute Care Nursing I - Clinical Practice, with emphasis on progressive development of technical skills. Students learn to care for clients/patients with complex medical-surgical problems in the acute care setting. Nursing process focuses on individualized care planning and evaluation. This course is graded on a pass/no pass grading system.

NUR 231 Nursing of Children 3 credits

Level I Prerequisites: NUR 223, NUR 224, NUR 255, and NUR 256 minimum grade "C-" or "P"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on the care of children and their families during health and illness. Concepts learned in the previous semesters are applied to develop nursing interventions to care for this population. Principles of nursing care for children of all age groups experiencing health deviations and their adaptation to the stressors of hospitalization are addressed. Promoting health and fostering normal growth and development are emphasized.

NUR 232 Nursing of Children - Clinical Practice 2 credits

Level I Prerequisites: NUR 231 minimum grade “C-”, may enroll concurrently

Level II Prerequisites: Clinical Calculation Competency = 90%
0 lecture, 0 lab, 90 clinical, 0 other, 90 total contact hours

Clinical experience focuses on care of hospitalized children and support of their families in the acute care setting. Using the nursing process as a framework, students focus on incorporating growth and development assessment, as well as response to illness, into the development of nursing interventions appropriate for the specific child and family. Opportunities for interaction with the well child in community settings also is provided.

NUR 255 Mental Health Nursing 3 credits

Level I Prerequisites: NUR 123, NUR 124, NUR 131, and NUR 132 minimum grade “C-” or “P”

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course develops an understanding of common mental health problems and skills necessary to provide basic mental health nursing care to selected clients in hospital or community settings. The central focus is to help the student become more sensitive to human behavior and to use him/herself in a therapeutic manner. Prevention of mental illness and maintenance and restoration of mental health are discussed.

NUR 256 Mental Health Nursing - Clinical Practice 2 credits

Level I Prerequisites: NUR 255 minimum grade “C-”, may enroll concurrently

Level II Prerequisites: Clinical Calculation Competency = 90%
0 lecture, 0 lab, 90 clinical, 0 other, 90 total contact hours

This is the clinical component of mental health nursing and should be taken concurrently with NUR 255. Mental health nursing concepts are applied in hospital and community situations. Students gain experience with current methods of prevention, maintenance and treatment. This course is graded on a pass/no pass grading system.

NUR 261 Transition to the Registered Nurse Role 1 credit

Level I Prerequisites: NUR 223, NUR 224, NUR 255, and NUR 256 minimum grade “C-” or “P”

15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course assists students in planning the transition from the classroom to employment. Principles of management including delegation, quality assurance, cost effectiveness, and risk management are emphasized. Information useful in securing employment, membership in professional organizations, continuing education, and appropriate use of the Internet for the nursing professional will also be presented. This course meets two hours per week for half of the semester.

NUR 262 Transition to the Registered Nurse Role - Clinical Practice 3 credits

Level I Prerequisites: NUR 261 minimum grade “C-”, may enroll concurrently

Level II Prerequisites: Clinical Calculation Competency = 90%
0 lecture, 45 lab, 90 clinical, 0 other, 135 total contact hours

This course is intended to socialize students into the working role. Experience is provided for each student to function cooperatively with members of the health care team. Students are required to attend continuing education courses. Students will be introduced to delegation and the teamleading role.

NUR 263 Advanced Topics in Medical-Surgical Nursing 1 credit

Level I Prerequisites: NUR 223, NUR 224, NUR 255, and NUR 256 minimum grade “C-” or “P”

15 lecture, 0 lab, 0 clinical, 0 other, 15 total contact hours

This course expands on previous medical-surgical nursing theory learned in Acute Care Nursing I and II to understand and plan nursing care to more complex, multi-system, critical care problems encountered in the hospital environment. Emphasis will be on prioritizing life-threatening needs of the acutely or chronically ill adult. The role of the registered nurse in managing and coordinating patient care will be discussed.

Physical Education

PEA

PEA 102 Cardiovascular Training 1 credit

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

The purpose of this course is to develop a basic understanding of the equipment and physical requirements necessary for improved cardiovascular endurance and body fat reduction (caloric expenditure). Students are provided with an exercise recommendation based upon American College of Sports Medicine (ACSM) guidelines. Equipment includes treadmills, stairmasters, Nordic tracks, rowing ergometers, airdynes, bicycle ergometers, and elliptical machines.

PEA 103 Beginning Golf 1 credit

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course is designed for the beginning player who wants to learn the basics of golf. Priority is given to the general golf swing, chipping, putting, and course management. Students are given information on what type of equipment to use and how to use it, including proper warm up and stretches. Students in this course will pay greens fees and provide their own clubs.

PEA 104 Intermediate Golf 1 credit

Level I Prerequisites: PEA 103, No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course is designed for the intermediate player who wants to learn more about golf. Priority is given to golf etiquette, course management skills, golfing strategies, and golfing for conditions. Students will practice a variety of trouble shots and more advanced shots. Students in this course will pay greens fees and provide their own clubs. It is recommended that students have a golf score of 110 or less for 18 holes or have had PEA 103 before registering for this course.

PEA 105 Weight Training - Cybex/Free Weights 2 credits

Level I Prerequisites: No Basic Skills prerequisite

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

The purpose of this course is to develop basic weight training skills. Using Cybex and free weight equipment, students develop an understanding of the basic weight training exercises associated with each major muscle group. Emphasis is placed on understanding the proper form and technique necessary to train safely and effectively. (Free weight training is optional.)

PEA 109 Beginning Tennis**1 credit**

Level I Prerequisites: No Basic Skills prerequisite
0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

The purpose of this course is to introduce students to the game of tennis. The fundamentals of the game are taught in a progressive learning experience. Students are instructed in the areas of skill development and scoring. A tennis racquet and tennis shoes are required.

Power Equipment Technology**PET****PET 100 Power Equipment Repair I****3 credits**

45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

Through a combination of classroom and hands-on skills training, students are introduced to the career of the power equipment technician. This course provides students with the skills to maintain and repair a variety of two and four cycle engines and the related components that are used on foreign and domestic engines including motorcycles, snowmobiles, chainsaws, personal watercraft, all-terrain vehicles, mopeds, generators, lawn and garden equipment, and dirt bikes.

PET 110 Power Equipment Repair II**3 credits**

Level I Prerequisites: PET 100
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

Through a combination of classroom and hands-on skills training, students learn to repair and maintain the motorcycle engine, frame, and transmission. The course also emphasizes advanced power equipment electrical systems and troubleshooting techniques. Theory and testing of starting, charging, and ignition systems are presented. Theory and troubleshooting techniques used on the fuel-injected power equipment engine are introduced.

PET 120 Power Equipment Repair III**3 credits**

Level I Prerequisites: PET 110
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

Through a combination of classroom and hands-on skills training, students learn to diagnosis and repair transmissions-hydrostatic and mechanical and drivetrains used on power equipment. The student will also learn the diagnosis and repair on outboard motors and chainsaws.

PET 130 Power Equipment Repair IV**3 credits**

Level I Prerequisites: PET 120
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

The student will work in a shop-like setting and learn the skills necessary to troubleshoot and repair advanced power equipment problems. Projects will be assigned that will allow the students to utilize skills learned in previous courses and provide skills to successfully work in the power equipment business.

Philosophy**PHL****PHL 101 Introduction to Philosophy****3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The course introduces the general nature of philosophical thought, its basic methods, problems and goals. It includes representative philosophers and such classic philosophical problems as the meaning of existence, the nature of reality, criteria of morality and the nature of the human mind. The class also uses philosophical concepts to help understand oneself, other people and the world around us, and focuses on formulating and defending individual viewpoints and developing personal skills in abstract thinking. An honors section is sometimes scheduled for this course.

PHL 102 History of Philosophy**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course emphasized the historical development of philosophy. It begins by examining the early roots of philosophy in ancient Greece, and proceeds through the medieval and modern periods, concluding in the work of contemporary philosophers. Special attention will be paid to the development of empiricist and rationalist thought during the modern period. The philosophers to be studied may include Plato, Aristotle, Anselm, Augustine, Locke, Hume, Berkeley, Descartes, Malebranche, Spinoza, Leibniz, William James, Sartre, Wittgenstein, and Quine.

PHL 120 Philosophy of Work**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The purpose of this course is to help students to explore all the philosophical dimensions of 'work'; to cultivate critical thinking about a number of work-related concepts; to lead students to an understanding of a myriad of traditional, contemporary, and challenging perspectives on the nature, meaning, origin, and value of work; and finally to help students to form their own work-related beliefs with which they can lead more meaningful lives.

PHL 123 Critical Thinking**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course focuses on the practical side of logic and critical thinking. Students are expected to develop the ability to recognize and construct arguments of all kinds, and to identify and then correct errors in their reasoning. If some formal logic is included, it is used primarily as a tool for critical thinking in everyday life. Other topics include: the difference between thinking objectively and subjectively (and between thinking and feeling), overcoming prejudices, and learning how to learn.

PHL 200 Existentialism**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

A general introduction to the existentialist tradition of philosophy is provided as it is presented in the works of such representative thinkers as Nietzsche, Kierkegaard, Heidegger, Sartre and Camus. Special attention is paid to major existentialist themes; for example, authentic existence, integrity, freedom, anxiety, non-being, melancholy, death, guilt, conscience and values.

PHL 205 Ethics**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an overview of the discipline of ethics. Theories used to assist in ethical decision-making will be discussed, as will the relationship between fact and value. To assist in the understanding of the concepts and theories examined, these will be applied to current ethical debates surrounding issues such as abortion, euthanasia and assisted suicide, capital punishment, sexuality, and affirmative action.

PHL 244 Ethical and Legal Issues in Health Care 3 credits
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an introduction to issues arising from the application of philosophical ethics or moral theory to the health care context. Different models of ethical decision-making will be used to examine current issues in health care. These models will involve the use of philosophical concepts as well as values clarification exercises. This course also provides an overview of legal theory and responsibility as it applies to the health care context, with an emphasis on professional negligence, and an introduction to different aspects of moral psychology. Topics to be discussed will include patient rights, informed consent, confidentiality, experimentation procedures, genetics, treatment of impaired newborns, euthanasia and assisted suicide, and HIV/AIDS. Special issues surrounding moral and legal responsibilities toward colleagues will also be covered.

PHL 250 Logic 3 credits
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course offers an introduction to the nature of logical reasoning, especially as found in examples of everyday thought, and studies the role of language in reasoning and communication, the influence of emotions on logical thinking and the nature of inductive as well as deductive reasoning. Emphasis is on developing habits of good reasoning, as well as the ability to recognize and avoid bad reasoning.

Photography

PHO

PHO 090 General Photography 2 credits
 Level I Prerequisites: (COMPASS Reading = 70 or REA 070) and (COMPASS Writing = 81 or ENG 091) both courses may enroll concurrently
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a course for students wishing to understand basic photography and its processes. Primary emphasis is on understanding and using the camera and related equipment, picture taking, composition, lighting, film, etc. Students should own or have the use of some type of camera. No darkroom work is included in this course.

PHO 101 Photography and Environment 3 credits
 Level I Prerequisites: (COMPASS Reading = 70 or REA 070) and (COMPASS Writing = 81 or ENG 091) both courses may enroll concurrently
 30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This is a study of the methods of documenting various types of environments with the camera. This includes the recording of current environmental situations as well as presenting suggestions for improving undesirable conditions. Students must have their own 35mm or roll film camera and previous photo experience.

PHO 103 History of Photography 3 credits
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a study the chronology of photographic processes, the progression of social uses of the medium, and the history of photography as a technology and an art form.

PHO 111 Photography I 4 credits
 45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This is a first-term course in basic photography. Areas of study include: camera operation, lighting and composition, laboratory equipment and procedures, image processing, printing and final presentation techniques. Students must have their own manually adjustable camera and anticipate additional costs for materials for the course. Some sections are film based and are for students with 35mm film cameras. Other sections are digitally based and are for students with digital cameras. See the time schedule to choose the appropriate section.

PHO 116 Studio Portraits 3 credits

Level II Prerequisites: PHO 117
 30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This is an introductory, hands-on course in commercial and illustrative portrait techniques to create expressive portraits of people. Students learn to effectively utilize artificial light sources and examine the advantages of various camera formats, including high-end digital image capture. Students also experience a deeper exploration of color E-6 process films, C-41 process films, black and white films, filters, gels, diffusion, and light modulation tools. Business and legal issues regarding reproduction rights are also discussed.

PHO 117 Introduction to the Studio 4 credits

Level I Prerequisites: PHO 111 minimum grade "C-"
 Level II Prerequisites: PHO 127 minimum grade "C-"
 30 lecture, 0 lab, 0 clinical, 60 other, 90 total contact hours

This course is a comprehensive overview of photo-studio lighting with an emphasis on technical systems, which is inclusive of medium-format cameras, tungsten lights, and electronic strobes. Photo assignments incrementally investigate the tools of lighting along with color-photo media such as Polaroid films, E-6 films, and digital cameras. Emphasis is placed on studio-based compositional skills.

PHO 122 Darkroom Techniques 4 credits

Level I Prerequisites: PHO 111 minimum grade "C-"
 45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course teaches advanced methods for controlling tone and contrast using film, fiber-based paper and darkroom processes. Darkroom Techniques teaches students the craft of creating high-quality darkroom prints which maximize the expressive qualities of the original camera images and the resulting film negatives. Prior film and/or darkroom experience is not required.

PHO 127 Digital Photo Imaging I 4 credits

Level I Prerequisites: PHO 111 minimum grade "C-"
 45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course is a comprehensive overview of current digital photographic technologies. Students utilize image input devices, such as scanners and digital cameras, and imaging software applications to optimize output for print and electronic publication. Assignments investigate color theory, a variety of technical controls in Photoshop, and color management.

PHO 129 Black and White Digital Imaging 4 credits

Level I Prerequisites: PHO 127 minimum grade "C-"
 45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course explores a variety of methods and strategies for making monochrome and toned black and white images using digital processes. Students learn to prepare images for printing, digitize film for monochrome processing, use digital cameras to create black and white photographs, convert color images to monochrome, and utilize a variety of modern printing technologies.

PHO 174 PHO Co-op Education I 1-3 credits

Level I Prerequisites: consent required
 Level II Prerequisites: PHO 111
 0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

Students are placed in an approved industrial work experience to gain skills and knowledge offered by the employer. Together with the instructor and the employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experiences. This is the first of two possible co-op experiences.

PHO 204 Color Photo Design 3 credits

Level I Prerequisites: PHO 111 and PHO 127 minimum grades "C-"
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This is a continuation of color image workflow to produce images with strong color, composition, and impact. Students increase their proficiency with film and/or digital SLR camera systems and implement techniques of how to see, approach, and capture the dynamics of subject matter and color at different times of day. Emphasis is placed on output, creating images in-camera, and digitally processing them with a minimal amount of post-production manipulation, compositing, or collage. This course was previously PHO 124.

PHO 210 Alternative Processes 3 credits

Level II Prerequisites: PHO 122
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course is an investigation of alternative processes and new technologies currently in use by commercial and artistic photographers. Students employ a variety of traditional and non-traditional darkroom techniques including digital image manipulation, to create new and exciting photographs. Emphasis is placed on the exploration of new techniques to develop a broad sense of options in visual problem solving. Students are required to purchase photographic supplies.

PHO 211 Large Format Photography 3 credits

Level I Prerequisites: PHO 111 minimum grade "C-"
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course introduces students to monorail and flatbed large format cameras. Students learn to load and process sheet film, Polaroid film and learn to print large format negatives. Students also learn the use of perspective and depth of field controls and other topics unique to large format photography. Assignments will be completed both in black and white and color.

PHO 212 Large Format Photography II 3 credits

Level II Prerequisites: PHO 211
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course continues the exploration of large format photography. Topics include formats other than 4x5 roll film, contact printing, advanced methods of focus and perspective control, zone system controls, and various film types. Students are expected to pursue individual projects.

PHO 216 Environmental Portraiture 3 credits

Level II Prerequisites: PHO 117
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is an introductory course in commercial and illustrative portrait techniques to create expressive portraits of people on location. Students learn to effectively utilize natural and artificial light sources and examine the advantages of various camera formats. Students also experience a deeper exploration of color E-6 films, process films, C-41 process films, black and white films, alternative process films, filters, and light modulation tools.

PHO 219 Photographic Design 3 credits

Level II Prerequisites: PHO 111
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is an intensive review of photographic composition and design techniques with emphasis on design in the photographic image through lecture, demonstration, critique, and darkroom practices. Included is a survey of contemporary photographers and new directions in modern photographic images and design.

PHO 220 Advanced Studio Techniques 3 credits

Level II Prerequisites: PHO 117 and PHO 127
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

This course is a deeper exploration of medium and large format cameras utilized in a commercial studio with film and digital image capture technologies. An emphasis is placed on logistical coordination of the components needed to produce an image. Assignments range from studio still life to on-location fashion work, yet individual choice of subject is also encouraged.

PHO 227 Photojournalism 3 credits

Level II Prerequisites: PHO 111
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

In this course students receive a variety of photographic assignments involving newsworthy events, contemporary social issues, and human interest stories. Students work with black and white negative and color transparency films. An introduction to digital imaging technologies as they relate to photojournalism is included in the course. Students must own a manual electronic flash.

PHO 228 Digital Photo Imaging II 4 credits

Level II Prerequisites: PHO 127
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This course provides an advanced level of investigation into digital photographic tools and techniques. Students will expand their understanding of digital input devices, photo imaging software, and output devices. Students will be encouraged to work toward developing their own creative style. Students with experience equivalent to PHO 127 may contact the instructor for permission to waive the prerequisite.

PHO 230 Portfolio Projects 3 credits

Level I Prerequisites: consent required
Level II Prerequisites: PHO 111, PHO 117, PHO 122, PHO 124, and PHO 127 minimum grade "C-"
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course offers students the opportunity to work on an extended photographic project of the individual's choosing. Emphasis is placed on developing a personal style. Students improve their visual problem solving skills through researching the technical and aesthetic concerns for their projects and through individual and group critiques. Recommended as a corequisite with Portfolio Seminar.

PHO 231 Portfolio Seminar 4 credits

Level II Prerequisites: PHO 122, PHO 127, and PHO 211
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Students who are nearing completion of the program will develop a professional portfolio, resume, and query letter in this course. Contact is made with a potential employer, client or transfer school. Professional critiques will be conducted on individual portfolios. Students with equivalent experience may contact the instructor for permission to waive the prerequisites.

PHO 274 PHO Co-op Education II 1-3 credits

Level I Prerequisites: PHO 174; consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Pharmacy Technology

PHT

PHT 100 Introduction to Pharmacy and Health Care Systems 4 credits

Level I Prerequisites: Admission to Pharmacy Technology Program

Corequisites: PHT 101

Corequisites: PHT 103

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

In this course students become familiar with health care systems and various pharmacy systems provided within those systems. The role of the pharmacist and technician in providing pharmaceutical care is studied. Students gain an understanding of the interrelationships between pharmacy and technological advances, pharmacy business practices and the clinical applications of pharmaceuticals in patient care. Discussion includes legal and ethical responsibilities.

PHT 101 Pharmacology for Pharmacy Technicians 4 credits

Level I Prerequisites: Admission to Pharmacy Technology Program

Corequisites: PHT 100

Corequisites: PHT 103

60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

Students learn the purposes, actions, side effects, precautions and significant interactions of major drug classes with special attention on dosage forms and commonly used drug names. The student learns to describe the use of these agents in the management of disease states and their effects on body systems.

PHT 103 Pharmaceutical Calculations 2 credits

Level I Prerequisites: Admission to Pharmacy Technology Program

Corequisites: PHT 100

Corequisites: PHT 101

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Applications of pharmaceutical dosage calculation are presented in this course. Accuracy of calculations is stressed to assure that the patient receives the correct dose. This course prepares students for second semester laboratory and clinical course work.

PHT 140 Pharmacy Prescription Processing 2 credits

Level I Prerequisites: PHT 100, PHT 101, and

PHT 103 minimum GPA 2.0

Corequisites: PHT 150

Corequisites: PHT 198

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is an introduction to the operation of a pharmacy dispensing system. Students participate in practical exercises pertaining to prescription processing on a computer, relative to the pharmacy environment.

PHT 150 Pharmacy Operations and Compounding 3 credits

Level I Prerequisites: PHT 100, PHT 101, and

PHT 103 minimum GPA 2.0

Corequisites: PHT 140

Corequisites: PHT 198

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course, students will gain knowledge and hands-on experience in sterile and nonsterile compound product preparation, institutional pharmacy policies and procedures, drug information resources, telephone communication skills, fitting durable medical equipment, assessment of patient blood pressures and basic principles of robotic technology. Emphasis is on aseptic technique and parenteral product preparation where students develop skills in manipulation of parenteral drug products.

PHT 174 PHT Co-op Education I 1-3 credits

Level I Prerequisites: PHT 100, PHT 101, PHT 103, PHT 140, PHT 150, and PHT 198; consent required

0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course students gain skills from a new experience in an approved, compensated position related to their chosen field of study. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences courses.

PHT 198 Pharmacy Experience 4 credits

Level I Prerequisites: PHT 100, PHT 101, and

PHT 103 minimum GPA 2.0

Corequisites: PHT 140

Corequisites: PHT 150

0 lecture, 0 lab, 360 clinical, 0 other, 360 total contact hours

Skills and knowledge acquired in the first semester of the Pharmacy Technology program are applied in pharmacy practice settings. All experience is under the supervision of a registered pharmacist. Students will obtain experience with ambulatory care and acute care pharmacy skills that can be applied to a wide variety of pharmacy practice. The student will spend 3 days per week, 8 hours per day in each experience site assignment. This course is graded on a pass/no pass grading system.

PHT 274 PHT Co-op Education II 1-3 credits

Level I Prerequisites: PHT 100, PHT 101, PHT 103, PHT 140, PHT 150, PHT 174, and PHT 198

Level II Prerequisites: consent required

0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, the student gains skills from a new experience in an approved, compensated position related to the chosen field of study. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two possible co-op experiences.

Physics

PHY

PHY 059 Fundamentals of Physics 3 credits

Level I Prerequisites: College Level Entry Scores

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a course for students with no previous physics background. The emphasis is on acquiring the basic conceptual understanding necessary to succeed in later courses. The course is recommended for those students wishing to improve their physics background before taking 100 level physics courses, or students desiring an exposure to physics. Physics topics focus on mechanics and include motion, force, momentum, energy, rotation, and gravity.

PHY 100 Physics for Elementary Teachers 4 credits

60 lecture, 30 lab, 0 clinical, 0 other, 90 total contact hours

In this course students study the basic laws governing the physical universe. This course helps prospective educators learn to explain everyday physical phenomena in terms elementary students can understand. Students also learn to provide materials and instructions for hands-on activities that help students construct their own picture of our physical universe.

PHY 105 Conceptual Physics**4 credits**

Level I Prerequisites: COMPASS Pre-Algebra = 37 or MTH 090 minimum grade "C"

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Designed for both transfer and vocational students with no physics experience, but desiring a working knowledge of physics, PHY 105 surveys the major topics of motion, heat, waves, electricity, magnetism, light, and atomic energy using a conceptual approach with a minimum of mathematics.

PHY 110 Applied Physics**4 credits**

Level I Prerequisites: COMPASS Pre-Algebra = 37 or MTH 090 minimum grade "C"

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

Technical-Vocational students with no previous experience with physics should take this course to fulfill their program requirements. Topics covered are: properties of matter, motion, force, energy, machines, fluids, and heat. Laboratory exercises give students an opportunity to test theoretical principles.

PHY 111 General Physics I**4 credits**

Level I Prerequisites: COMPASS Algebra = 66 or MTH 169 minimum grade "C"

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

The topics of mechanics, wave motion and heat are presented to pre-professional and liberal arts students using algebra and trigonometry. Open physics laboratory exercises supplement students' understanding of the topics covered. PHY 111 usually represents the first part of a two-semester sequence in algebra-based physics required by many programs.

PHY 122 General Physics II**4 credits**

Level I Prerequisites: PHY 111 minimum grade "C"

45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

As the second part of a two-semester sequence in algebra-based physics, PHY 122 includes the topics of electricity, magnetism, light, and atomic physics. Open physics laboratory exercises are included to assist students' understanding of these topics.

PHY 211 Analytical Physics I**5 credits**

Level I Prerequisites: MTH 191 minimum grade "C" and (high school physics, PHY 105, or PHY 111) minimum grade "C"

60 lecture, 45 lab, 0 clinical, 0 other, 105 total contact hours

The first of a two-course sequence in calculus-based physics for students intending to major in science or engineering, PHY 211 develops the concepts of mechanics, heat, and wave motion. Laboratory exercises are included to assist students' understanding of these topics.

PHY 222 Analytical Physics II**5 credits**

Level I Prerequisites: PHY 211 minimum grade "C"

60 lecture, 45 lab, 0 clinical, 0 other, 105 total contact hours

This second part of a two-course sequence in calculus-based physics covers the concepts of electromagnetism, light, and modern physics extending the student's knowledge of physics learned in PHY 211.

Political Science**PLS****PLS 112 Introduction to American Government****3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class studies the forms and functions of American government with emphasis on national government. The decision-making process in Congress, the Presidency and the federal court system are studied. The course also examines the relationship of political parties and public opinion to the electoral process.

PLS 150 State and Local Government and Politics**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In the current political environment, many functions formerly performed by the national government are being shifted to the state and local governments examined in this course. Special emphasis on the governments of Michigan and Washtenaw County provide for an investigation of the challenges of making decisions and governing a society in response to the immediate needs of its citizens in a global society.

PLS 211 Introduction to Comparative Government**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class surveys the political systems of Great Britain, France, Italy, Germany, the former Soviet Union, and China. It is recommended that students take one course from the ANT, GEO, HST, or PLS disciplines or contact the instructor for permission before registering for this course.

PLS 218 International Studies in Political Science**2 credits**

0 lecture, 0 lab, 0 clinical, 30 other, 30 total contact hours

This course offers students an immersion in the political landscape of another country. Each year students in this course will visit a different country as a group, exploring the political environment of the country through visits to the centers of government, historical sites, and national institutions such as museums and stock exchanges. Meetings with national and local officials and attendance at political functions will expose students to the practical operation of other political systems. This course provides a practical component for students in the International Studies program, as well as other qualified students. One social science course should be taken prior to taking PLS 218.

PLS 220 Politics and the Media**3 credits**

Level I Prerequisites: PLS 112 minimum grade "C-"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to the role of the mass media in the political process. It critically examines the role of the mass media in shaping American political life, focusing on the historical development of the mass media in American society, the economic and political forces that shape news coverage of political leaders and institutions, the influence of the mass media on the American public, and normative assessments of how well the media promotes public deliberation in a democracy.

PLS 250 Campaigns and Elections**3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is an introduction to campaigns and elections in the United States. The purpose is to provide students with an intellectual understanding and practical working knowledge of the electoral process. The course will examine key actors in the electoral system: candidates, parties, interest groups, voters, and the mass media. Although the focus will be on national elections, both congressional and presidential, state and local elections will also be examined. This course will provide students with the knowledge that will equip them to become more informed and effective citizens in the electoral process.

Psychology

PSY

PSY 100 Introductory Psychology 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class provides an introduction to the scientific study and interpretation of human behavior surveying such topics as psychological development, learning, thinking, motivation, emotion, perception, intelligence, aptitudes and personality. Basic principles and their practical application are discussed.

PSY 107 African - American Psychology 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is organized around the premise that there is a distinctive Afro-American psychological frame of reference that is evident in the behavior and lifestyles of Black Americans. This is an attempt to build a conceptual model to help understand and explain the psychosocial behavior of Black Americans.

PSY 130 Alcoholism and Substance Abuse 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a presentation of information concerning most aspects of alcoholism and how it affects the afflicted physically, socially, psychologically, vocationally and spiritually. Also, its effect on the significant others in his/her life is discussed.

PSY 150 Psychology of Work 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides knowledge, tools, and experiences to facilitate students entering an organization and comprehending their role in it. Students will learn about the interdependency of the organization and the individual. The foundation of this course is based in Organizational Development, I/O Psychology, General Psychology, Social Psychology, and Personality Theory.

PSY 200 Child Psychology 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course stresses the child as an individual, his or her original nature and temperament and position as part of the group. Introduction of social raw materials is considered. In addition, such topics as the conditioning and reconditioning of behavior patterns and the individuality and similarity of responses are developed.

PSY 206 Life Span Developmental Psychology 4 credits
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course provides an overview of the biological, cognitive, social, and affective domains of human growth and development from the prenatal period until death. The course emphasizes the relationship of growth and development to behavior through the life span. Major theories of human development, as well as research methods, are reviewed and contrasted. The course is especially constructed and taught to be of value to those entering the fields of social work, elementary or secondary education, or nursing and various allied health fields.

PSY 207 Adolescent Psychology 3 credits
Level I Prerequisites: PSY 100 minimum grade "C-"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers the full spectrum of introductory topics in adolescent psychology. The area of greatest emphasis is on the psychological development of the adolescent. Major topics covered also include peer and adult interactions, self-image, teenage suicide, drugs, and depression. Resolution of the child/adult conflict, which is the essence of this developmental stage, is also discussed.

PSY 209 Psychology of Adjustment 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a study of the processes involved in the adjustment of the individual to the problems of everyday living. Emphasis is given to the study of the development of techniques or adjustment to meet conflict situations in the social environment. It includes consideration of adjustment mechanisms of major societal institutions.

PSY 210 Behavior Modification 3 credits
Level I Prerequisites: HSW 100 or PSY 100
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers basic behavioral principles and their applications to individuals with mental illness, developmental disabilities, closed head injuries, problems with aging, and problems of daily living. Students will learn to conduct psychosocial rehabilitation and psychoeducational groups.

PSY 220 Human Development and Learning 4 credits
Level I Prerequisites: PSY 100
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course covers developmental topics including cognitive and psychosocial development from birth through adolescence. Major emphasis is placed on the role of parents and teachers in fostering learning and development. The topics of readiness to learn, learning theory, and planning for and assessing learning outcomes are addressed. For students planning to transfer to EMU, it is recommended that FETE 201 is taken at Eastern Michigan University concurrently with PSY 220.

PSY 251 Education of Exceptional Children 3 credits
Level I Prerequisites: CCP 101, PSY 100, PSY 200, PSY 206, or HSC 147 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course presents an overview of the major categories of exceptionality. Methods for identifying and working with children in child care, recreational and educational settings are explored. Working with an interdisciplinary team and partnering with parents is a major focus. A working knowledge of resources, a comfort level for working with exceptional children and their families, and exploring the roles of professionals who work with exceptional populations are stressed.

PSY 257 Abnormal Psychology 3 credits
Level I Prerequisites: PSY 100
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a course dealing with the abnormalities of certain types of personalities, their origin, symptoms, developments and treatment, short of psychiatric competence. Main topics include: simple maladjustment; disturbances of emotional nature, of perception, memory, judgment, thought, disorders of mobility, speech, etc.; early symptoms of schizophrenia.

PSY 260 Introduction to Human Sexuality 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides a survey of the psychological research concerned with human sexuality. Areas presented include: research, anatomy, dysfunctions and their treatment, family planning methods, sexual communication, sexually transmitted diseases and sexual variation.

Radiography

RAD

RAD 100 Introduction to Radiography 2 credits

Level I Prerequisites: Admission to Radiography Program
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course includes the history of radiography, medical specialties, health care delivery, organizational structure of a radiology department, professional development and ethics. It is an introductory course for the beginning radiographer with emphasis on acquainting students with the goals, philosophies and organizations of the radiography program and radiology department.

RAD 101 Methods in Patient Care 2 credits

Level I Prerequisites: Admission to Radiography Program
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is designed to teach the radiographer how to interact with the patient, to provide for his or her physical and emotional needs and how to assist in moving patients by using various transfer methods. Included is some lab practice in basic techniques such as taking vital signs, blood pressure, venipuncture, and airway management.

RAD 110 Clinical Education 2 credits

Level I Prerequisites: Admission to Radiography Program and RAD 112 minimum grade "C-", may enroll concurrently
0 lecture, 0 lab, 240 clinical, 0 other, 240 total contact hours

This course provides structured clinical experience in the application of knowledge and skill in positioning the upper extremity, chest, and abdomen. Students gain knowledge about professional ethics, courtesy, and empathy in handling patients, film processing, and radiographic equipment.

RAD 111 Fundamentals of Radiography 2 credits

Level I Prerequisites: RAD 100
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Imaging is the key to the primary responsibility of a radiographer. The intent of this course is to describe the various imaging modalities so that application of principles to produce optimum diagnostic radiographic images are understood.

RAD 112 Radiographic Positioning I 3 credits

15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course introduces general principles relating to radiographic terminology, positioning, preliminary steps in radiography, operation of the control panel, and processing radiographs. Students will learn the routine procedures for producing and critiquing radiographs of the chest, abdomen, and upper extremity.

RAD 113 Radiographic Processing 2 credits

Level I Prerequisites: RAD 111
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course covers the principles of processing including discussion on darkroom design, radiographic film characteristics, processing chemistry, trouble shooting, maintenance, evaluation of radiographic films to determine diagnostic inadequacies resulting from artifacts and to correct or compensate for the cause.

RAD 120 Clinical Education 2 credits

Level I Prerequisites: Admission to Radiography Program, RAD 110, and RAD 123 minimum grades "C-", both courses may enroll concurrently

0 lecture, 0 lab, 240 clinical, 0 other, 240 total contact hours

This course provides a structured clinical experience in the application of knowledge and skill in positioning the upper and lower extremities, chest, abdomen, spinal column, bony thorax, and selected contrast studies. The student will demonstrate knowledge in professional ethics, courtesy and empathy in handling patients, film processing and radiographic equipment.

RAD 123 Radiographic Positioning II 3 credits

Level I Prerequisites: RAD 112

Corequisites: RAD 120

15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course covers the routine radiographic projections for the lower extremity, vertebral column, and bony thorax. Students will learn routine patient positioning methods and how to critique radiographs.

RAD 124 Principles of Radiographic Exposure 3 credits

Level I Prerequisites: Admission to Radiography Program and RAD 101 minimum grade "C-"

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course includes a comprehensive study of radiographic exposure techniques, radiographic quality, the use of radiographic accessory devices, and how to select and apply this equipment in the clinical setting.

RAD 125 Radiographic Procedures and Related Anatomy 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers radiographic procedures in which a contrast medium is used for demonstrating structures which are not well visualized on routine radiographs.

RAD 127 Principles of Radiographic Exposure Laboratory 1 credit

7.5 lecture, 22.5 lab, 0 clinical, 0 other, 31 total contact hours

This course provides structured laboratory experience designed to illustrate film response to various exposure techniques. Emphasis is on evaluation of exposure techniques used in obtaining diagnostic information on x-ray film.

RAD 135 Pathology for Radiographers 3 credits

Corequisites: RAD 200

Corequisites: RAD 225

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a survey of basic pathology and includes a study of the disease process and how various diseases alter the appearance and function of human organisms, including infectious diseases, tumors, chemical injuries and the conditions of illness involving the systems of the body.

RAD 150 Clinical Education 4 credits

Level I Prerequisites: Admission to Radiography Program and RAD 120 minimum grade "C-"

0 lecture, 0 lab, 440 clinical, 0 other, 440 total contact hours

This course provides a structured clinical experience in the application of knowledge and skill in positioning all upper and lower extremities, chest, abdominal procedures, spinal column, bony thorax, and selected contrast studies. Clinical rotations will be established to provide a broader experience in positioning the geriatric, pediatric, and trauma patient. Students will demonstrate knowledge in professional ethics, patient care, film processing, and radiographic equipment.

RAD 200 Physical Foundations of Radiography 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers the theoretical and practical application of radiation physics with an emphasis on electromagnetic radiation, electricity, magnetism, x-ray circuitry, radiation production, and radiation's interaction with matter.

RAD 215 Radiography of the Skull 2 credits
Corequisites: RAD 217
15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

Anatomy and radiography of the skull are studied so that students can correlate the relationship of external landmarks and positioning lines to specific internal structures. The course includes laboratory experience in skull positioning.

RAD 217 Clinical Education 3 credits
Level I Prerequisites: Admission to Radiography Program, RAD 150, RAD 215 minimum grades "C-", (RAD 215 may enroll concurrently)
0 lecture, 0 lab, 336 clinical, 0 other, 336 total contact hours

This course provides structured clinical experience in the application of knowledge and skills in positioning the upper and lower extremities, chest, abdomen, spinal column, contrast studies, and skull. Students demonstrate their knowledge in the design and operational characteristics of equipment and accessories in diagnostic radiography. Students participate in surgical procedures that require diagnostic imaging and demonstrate competency in operating portable radiography units.

RAD 218 Radiation Biology and Protection 4 credits
Level I Prerequisites: Admission to Radiography Program; consent required
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to acquaint students with the effects of ionizing radiation on the cells which form human tissue. The interaction of radiation with matter and the effect of exposure factors on radiation dose, biological effects, unit of measurement, dose limiting recommendations and exposure monitoring are covered.

RAD 225 Clinical Education 3 credits
Level I Prerequisites: Admission to Radiography Program, RAD 135, RAD 200, and RAD 217 minimum grades "C-", RAD 135 and RAD 200 may enroll concurrently
0 lecture, 0 lab, 360 clinical, 0 other, 360 total contact hours

This course provides structured clinical experience in the application of knowledge and skills in positioning the upper and lower extremities, chest, abdomen, spinal column, contrast studies, skull, surgical procedures, and portable radiography. Students will demonstrate their knowledge in the design and operational characteristics of equipment and accessories in diagnostic radiography.

RAD 240 Clinical Education 2 credits
Level I Prerequisites: Admission to Radiography Program and RAD 225 minimum grade "C-"
0 lecture, 0 lab, 225 clinical, 0 other, 225 total contact hours

This course provides structured clinical experience in all areas of radiography. Elective rotations in specialized areas of the diagnostic imaging are explored (i.e., ultrasound, computed tomography, magnetic resonance imaging, radiation therapy, and mammography).

RAD 280 Radiographic Critique 2 credits
Level I Prerequisites: RAD 112, RAD 123, RAD 124, and RAD 127
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course identifies and examines the technical factors that contribute to the formation of the radiographic image. Through discussion and demonstration, student learn how to critically analyze a radiograph and to determine how to modify the technical factors used in order to improve the quality.

RAD 290 International Studies in Radiography 2 credits
Level I Prerequisites: consent required
5 lecture, 25 lab, 0 clinical, 0 other, 30 total contact hours

This course offers students in radiography the opportunity to use their radiography training in a new and exciting venue. Each year the students will travel to Peru to do field work and research on mummies, human and animal bones, pottery, and other artifacts. Students will also get the opportunity to compare the cultural differences between Peru and the United States, and will visit various historical sites within Peru.

Reading**REA****REA 040 Elements of Reading 6 credits**
Level I Prerequisites: COMPASS Reading = 36 and below; or consent required
90 lecture, 0 lab, 0 clinical, 0 other, 90 total contact hours

Elements of Reading is designed for students who don't understand what they read and have trouble sounding out new words. Students meet for 12 hours each week and benefit from a combination of classroom instruction and sustained guided reading. Satisfactory/unsatisfactory grading is used. Successful completion is determined by achieving a passing grade in the class or a score of 37 or higher on the COMPASS reading test. Successful students may not repeat this course. Unsuccessful students may repeat it once.

REA 050 Reading Comprehension I 4 credits
Level I Prerequisites: COMPASS Reading = 37-52, REA 040 pass with "S" grade, or consent required
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

Reading Comprehension I is designed for students who read but don't understand the passage. Students meet as a group for 7 hours each week and benefit from a combination of classroom instruction and sustained guided reading time. Satisfactory/unsatisfactory grading is used. Successful completion is determined by achieving a passing grade in the class or a score of 53 or higher on the COMPASS reading test. Successful students may not repeat this course. Unsuccessful students may repeat this course once.

REA 070 Reading Comprehension II 3 credits
Level I Prerequisites: COMPASS Reading = 53-67, REA 050 pass with "S" grade, or consent required
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

Reading Comprehension II is designed for students who want to better understand what they read. Students meet as a group for 5 hours each week and benefit from a combination of classroom instruction and sustained guided reading time. Satisfactory/unsatisfactory grading is used. Successful completion is determined by achieving a passing grade in the class or a score of 68 or higher on the COMPASS reading test. Successful students may not repeat this course. Unsuccessful students may repeat the course once.

Real Estate

RES

RES 100 Real Estate Principles and Prelicensure 4 credits
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This is an introductory survey course in real estate principles, practices, and concepts. Students see a broad overview of the real estate field including varieties of residential and commercial brokerage, property financing, appraisal, investment, property management, land planning, property description, legal documents and contracts, title insurance, construction, condominiums, fair housing, civil rights, Board of Realtor functions, and State licensure and regulation. The course can begin an academic foundation in real estate, provide information to homeowners and investors, determine a career interest in real estate, or meet the State course prerequisite to taking the State of Michigan exam for a Real Estate Salesperson's license. This course is approved by the State of Michigan.

RES 120 Real Estate Finance 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers methods of financing residential, commercial, and income properties. Includes sources of funds, affordability issues, applications for loans, lender processing and risk analysis, creative financing, government programs, tax considerations, and secondary marketing. This course can help satisfy the State of Michigan education requirements for Real Estate Brokers. It is recommended, but not required, that RES 100 be taken before RES 120.

RES 130 Real Estate Appraisal 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers the nature of value, foundations of appraisal, valuation processes (including cost, market, income approaches, capitalization theory, and discounted cash flow). Also covered are appraisal ethics and reporting, and uses of the computer in residential and commercial appraising and valuation consulting. This course helps satisfy the State of Michigan course requirements for Real Estate Broker and Real Estate Appraiser licenses. It is recommended, but not required, that RES 100 be taken before RES 130.

RES 140 Real Estate Law 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers the laws and legal principles involved in residential and commercial real estate. Topics include evidence of title, deeds, financing, sale contracts, legal position of brokers, leases, zoning, fair housing and real estate taxes. This course helps satisfy the State of Michigan requirements for Real Estate Appraiser and Real Estate Broker licenses. It is recommended, but not required, that RES 100 be taken before RES 140.

RES 150 Real Estate Investment 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course covers investment in and development of land, homes, apartments, office buildings retail centers, warehouses and hotels. Examples from the community and other states are used to illustrate the course objectives. Topics include financing, taxation and exchanges. This course helps satisfy the State of Michigan Real Estate Broker education prelicensure requirement. It is recommended, but not required, that RES 100 be taken before RES 150.

RES 160 Real Estate Property Management 3 credits
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an introduction to all the subfields of real estate property management including apartments, office, retail, and warehouse management. Materials used in this course are from the Institute for Real Estate Management (IREM), which is part of the National Association of Realtors (NAR) and other sources. This course helps satisfy the State of Michigan Real Estate Broker education prelicensure requirement. It is recommended, but not required, that RES 100 be taken before RES 160.

Robotics

ROB

ROB 121 Robotics I 4 credits
45 lecture, 45 lab, 0 clinical, 0 other, 90 total contact hours

This is the first course in a four-course series. This is a beginning level course exposing students to various aspects of industrial robots and automated manufacturing. This includes an introduction to hands-on programming. Emphasis is placed on application of flexible automation, types of programming, sensors, and types of robots. Field trips to local manufacturing firms using robotic equipment help the student understand and witness concepts presented in class.

ROB 170 FIRST Robotics Competition 4 credits
10 lecture, 0 lab, 0 clinical, 80 other, 90 total contact hours

In this capstone course, students participate in the For Inspiration and Recognition in Science and Technology (FIRST) competition. Students work together in teams with mentors to design and create a robot, and enter the robot in a regional competition. Course activities build skills in project management, teamwork, problem solving, and communication.

ROB 174 ROB Co-op Education I 1-3 credits
Level I Prerequisites: Consent required
0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

ROB 212 Robotics II 4 credits
Level I Prerequisites: ROB 121
30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This class concentrates on programming techniques for industrial robots. Students learn to program different types of robots incorporating inputs and outputs into their programs. The course is based on a series of student projects that, step by step, introduce each new command or concept. Students spend most of the class time in the lab and are expected to spend extra hours during scheduled open labs. Students with experience equivalent to ROB 121 may contact the instructor for permission to waive the prerequisite.

ROB 222 Robotics Simulation 2 credits
Corequisites: ROB 223
15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an introduction to Robotic Simulation using the IGRIP software. Students learn how to build computer simulated models of robotic workcells. Programming and running these simulations are also covered. Hands-on use of the software is an integral part of the course.

ROB 223 Robotics III 2 credits

Level I Prerequisites: ROB 212
Corequisites: ROB 222
 15 lecture, 30 lab, 0 clinical, 0 other, 45 total contact hours

Students learn to work with peripheral devices in various robotic workcells. Labs include part recognition, sorting, counting, measuring, and palletizing. Programmable controllers are used to interface robots with other automated equipment. Students are introduced to automated conveyors, vision systems, bar coding, and automated welding. It is recommended that students complete ELE 224 Programmable Controllers before taking this course.

ROB 224 Robotics IV 4 credits

Level I Prerequisites: ROB 223
 30 lecture, 60 lab, 0 clinical, 0 other, 90 total contact hours

This course involves advanced programming of robots and programmable controllers in an integrated workcell. Problems related to maintenance and trouble-shooting constitute a major segment of the course. A group project involving the design and construction of a workcell that simulates some industrial process is an enjoyable conclusion to this program.

ROB 274 ROB Co-op Education II 1-3 credits

Level I Prerequisites: ROB 174; consent required
 0 lecture, 0 lab, 0 clinical, 120 other, 120 total contact hours

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Science

SCI

SCI 101 The Nature of Science 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course allows students to acquire an appreciation of the importance of the natural sciences to everyday life. The emphasis is on science as a way to evaluate the validity of scientific information in the media and on the Internet. The goal is for students to be able to apply the basic laws, concepts, and themes that underlie our natural world in order to place important public issues such as the environment, energy, and medical advances in a scientific context.

SCI 102 Applied Science 3 credits

Level I Prerequisites: Member of the United Association
 45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course prepares members of the pipe trades to accurately apply principles of physics to their work. Five major areas are studied: water and steam; hydraulics and pneumatics; mechanics; metals, alloys, synthetics; and corrosion. Within each of these areas, apprentices will develop their understanding of the concepts underlying the various aspects of their trade so that they can perform to accepted standards. This course is open only to apprentices in the United Association.

Sociology

SOC

SOC 100 Principles of Sociology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines human interaction and the products of that interaction which include social structure and institutions, culture, social order, conflict and change. Emphasis is placed on the connection between self and society: that we think, feel and act as we do largely because of social forces that pressure us to conform or to deviate from social expectations.

SOC 155 Hip-Hop Culture and Society 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course offers a critical analysis of Hip-Hop culture through an application of sociological and psychological concepts. Theories will be applied to current ethical and social issues as expressed through Rap lyrics. Topics to be examined include race, class, gender, materialism, alienation, crime, religion, sex, and misogyny. Biographical studies of Rap artists will investigate the relationship between Hip-Hop culture and the larger society.

SOC 201 Medical Sociology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines social and behavioral factors that account for the social differences in getting sick, getting care, getting well and staying well. Emphasis is placed on the socio-cultural definitions and distributions of illness, lifestyle, stress and illness, taking the sick role, seeking and using health care services, socialization of health workers, consumer-provider interaction, organization and distribution of services. Some issues which are examined pertain to the cost of care and health insurance, prevention, self-help movement, underserved groups, bio-medical technology and the quality of life.

SOC 202 Criminology 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

An examination is provided of the theories which attempt to explain criminal behavior. Punishment versus rehabilitation schools of thought is dealt with as well as capital punishment. Attention is also given to the functioning of police and court systems.

SOC 203 Aging and Society 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines social and social-psychological principles, practices, and problems of the aging process. Topics include the social and personal attitudes toward aging, ageism, role changes in mid-life to later life, and adaptive challenges of retirement: needs and problems relevant to housing, health care, finances, social support systems, and community services. Other issues such as political activity and cross-cultural differences are addressed.

SOC 205 Race and Ethnic Relations 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an examination of the basic concepts of racial and ethnic relations and the concept of race. It examines and analyzes the course of oppression and suppression, superiority and inferiority, and majorities and minorities in racial subgroups.

SOC 207 Social Problems 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines how social forces can create and maintain or prevent major social problems that result from people's efforts to meet their growth and survival needs. Emphasis is placed on the structural, institutional, technological and social-psychological causes, consequences, and solutions of problems relevant to inequality, institutional crises, deviance and social control, population pressures and ecological problems.

SOC 225 Family Social Work 3 credits

Level I Prerequisites: HSW 100 or SOC 100 minimum grade "C"
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to the theory and practice of social work with families. Students will learn how to analyze American families as social systems, and to identify common patterns in their structure and functioning. Common problems and special circumstances in family functioning will be addressed. Students will learn how to engage families and how to conduct a family intake assessment. Beginning theory on how to intervene with families will be addressed.

SOC 230 Marriage and Family 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the principles, practices, and problems of mate selection, marriage, family and singleness. Emphasis is placed on how socio-cultural changes are reshaping lifestyle, choices, parenting, communication building and maintaining relationships.

SOC 250 Juvenile Delinquency 3 credits

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

The growing-up process of late childhood and adolescence from a sociological and cultural viewpoint is a focus of this class. Problems of the individual in his/her social environment, group forces which lead to maladjustment and sociological principles for working with youth from the viewpoint of parent, teacher, police and youth organization leader are analyzed.

Spanish**SPN****SPN 109 Beginning Conversational Spanish I 2 credits**

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

Conversational in approach, this course assumes that the student has no previous knowledge of the language. It is designed for those who want to practice the fundamentals of spoken Spanish to enhance their travel enjoyment in Spain and Latin America. The course also promotes an appreciation of the Hispanic world. This course does not satisfy four-year college language requirements. This course was previously SPN 120.

SPN 110 Beginning Conversational Spanish II 2 credits

Level I Prerequisites: SPN 109 or one semester college Spanish
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This is a continuation of SPN 109. This course is designed to further develop the skills acquired in Spanish 109. It is for students interested in expanding their speaking and comprehension skills, and their knowledge of Spanish grammar and Hispanic culture. This course does not satisfy four-year college language requirements. This course was previously SPN 121.

SPN 111 First Year Spanish I 5 credits

75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

This is a beginning and transferable course in Spanish which emphasizes the communicative approach. Classroom work and aural/oral practice sessions, assist the student in progressing effectively in the four language skills of listening, speaking, reading, and writing. Cultural aspects of the Spanish-speaking world are also highlighted.

SPN 119 Spanish Language Adventures 1 credit

0 lecture, 0 lab, 0 clinical, 15 other, 15 total contact hours

This course of independent study can be undertaken during any of the college field trip "Adventures" to Spanish-speaking countries. Students live in the host country for the duration of the Adventure, visit and study first-hand the outstanding cultural attractions, and have the opportunity to practice Spanish throughout their stay.

SPN 122 First Year Spanish II 5 credits

Level I Prerequisites: SPN 111
75 lecture, 0 lab, 0 clinical, 0 other, 75 total contact hours

A continuation of SPN 111. This is a transferable course which emphasizes basic conversation tools and grammatical structures. Classroom work and aural/oral practice sessions assist the student in developing communicative competence in the target language. Cultural aspects of the Spanish-speaking world are also highlighted.

SPN 211 Intermediate Conversational Spanish 2 credits

Level I Prerequisites: SPN 110
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This flexibly structured course provides vocabulary expansion and cultural insights through total student involvement in the conversation practice sessions. Students with experience equivalent to SPN 110 may contact the instructor for permission to waive the prerequisite.

SPN 213 Second Year Spanish I 3 credits

Level I Prerequisites: SPN 122
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an intermediate course in Spanish that covers all of the basic grammar. Emphasis is on the written form through composition. Students with experience equivalent to SPN 122 may contact the instructor for permission to waive the prerequisite.

SPN 224 Second Year Spanish II 3 credits

Level I Prerequisites: SPN 213
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a continuation of SPN 213 with special attention to reading and translating Spanish and Latin American short stories, essays, poetry, etc. Students with experience equivalent to SPN 213 may contact the instructor for permission to waive the prerequisite.

Tax**TAX****TAX 101 Income Taxes for Individuals 3 credits**

45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is a beginning course in Individual Tax Return preparation covering both Federal and Michigan taxes that affect individuals. Students receive practical experience in preparation of an income tax return, both manually and using tax return computer software. The course is the beginning of a series of courses designed for those seeking employment as paraprofessionals in the tax field. Individuals who simply wish to understand their own taxes can benefit as well. Students must be able to work with numbers and computer applications. It is recommended that students complete MTH 163 or have a minimum COMPASS Algebra score of 46.

United Association Service Technicians UAE

UAE 140 Introduction to HVACR Service 3 credits

This course is the introduction to HVACR for new apprentices. Course topics include the Heritage Program, Use and Care of Tools, Pipe, Fittings, Valves, Supports and Fasteners, Job Safety and Health and Soldering and Brazing. Related safety is covered in all topics. Limited to United Association students.

UAE 142 Soldering and Brazing 3 credits

The preparation and joining of the cup type copper tube is covered in detail in this course both by the soldering and the brazing methods. The student is taught the proper and safe use of tools, torches, solders, filler metals and fluxes used in making a soldered/brazed joint. Related safety is included in every topic. Limited to United Association students.

UAE 144 Refrigeration 2 credits

This is the introductory refrigeration course. Topics include basic physics, basic electricity, and the basic refrigeration cycle of reciprocal, centrifugal, rotary, screw, and absorption systems. Control and sequence of operation of the above systems is included. Introduction to environmental impact of refrigerant handling is included. Related safety is covered in each topic. Limited to United Association students.

UAE 146 Air Conditioning 2 credits

This course covers air conditioning systems, installation, and service. Topics include: psychrometric properties of air, building heating and cooling load calculations, control applications, energy conservation and heat recovery, in addition to a review of basic science. Limited to United Association students.

UAE 148 Electrical Controls 2 credits

The purpose of this course is to teach fundamental theory and operation of electric/electronic controls used in starting, stopping, and cycling electro-mechanical equipment encountered in the HVACR field. Related safety is included in each topic. Limited to United Association students.

UAE 150 DC Electronics 2 credits

This course covers the fundamentals of direct current applications in control theory and basic electronics. Limited to United Association students.

UAE 152 Advanced Electrical Controls and Pneumatic Controls 3 credits

The pneumatic controls portion of the course is a presentation of basic pneumatic control principles. Theory of operation, basic principles, and troubleshooting are included. Related safety is included in each topic. Limited to United Association students.

UAE 154 Advanced Air Conditioning & Refrigeration 3 credits

This course presents special topics in air conditioning and refrigeration. Topics may include introduction to building automation, load calculations, duct sizing, Universal CFC certification, and air distribution. Limited to United Association students.

UAE 156 Air and Water Balancing and Motor Alignment 3 credits

This course covers principals of balancing forced air systems, balancing flow in hydronic loops, pumps, principles of alignment, and vibration elimination. Limited to United Association students.

UAE 158 Advanced HVACR Practices 3 credits

Special topics covered in this course may include advanced building automation, leadership/supervision, customer relations, importance of clear and concise reporting (work orders), and safety. Limited to United Association students.

United Association Pipefitters UAF

UAF 102 Introduction to Arc Welding, Soldering, and Brazing 3 credits

This is the introductory course in welding, soldering, and brazing. Topics include: Safety in Welding, Cutting and Allied Processes, Oxyacetylene Cutting and Welding, Procedure for Setting Up Oxy-Fuel Cutting and Welding Equipment. Related safety is covered in all topics. Limited to United Association students.

UAF 120 Introduction to Pipefitter Practices 3 credits

This course is the introduction to pipefitting for new apprentices. Course topics include the Heritage Program, Use and Care of Tools, Pipe, Fittings, Valves, Supports and Fasteners, Job Safety and Health and Soldering and Brazing. Related safety is covered in all topics. Limited to United Association students.

UAF 122 Drawing Interpretation and Plan Reading 2 credits

This is an introductory course in drawing and reading blueprints. Course topics include: Introduction to Basic Drawing Tools, Measuring Tools, Lettering Skills, Three-view, Plan View, Elevation View Drawings, Graphic Symbols for Pipe Fittings and Valves, Interpretation of Technical Diagrams, Piping Drawings, and Interpretation of Building Plans and Building Specifications. Limited to United Association students.

UAF 124 Oxy Fuel Cutting and Shielded Arc Welding 2 credits

This is an intermediate course in Shielded Metal-Arc Oxy-Fuel Cutting and Welding leading to certification. Limited to United Association students.

UAF 126 Hydronic Heating and Steam Systems 2 credits

This course is concerned primarily with the technical aspects of design and installation of several types of hydronic systems found in the pipe trades. Topics also include information concerning the installation of high-efficiency heating and cooling systems, low and high temperature, radiant heat and solar hot water heating systems. The steam system portion of the course includes: generating steam, installing steam piping and accessories and troubleshooting all types of steam systems. Limited to United Association students.

UAF 128 Refrigeration and Electrical Controls 2 credits

This course covers the basic principles of air conditioning and refrigeration. The basic components of the refrigeration cycle are identified. Topics include operation and proper installation of the devices and equipment required to control the flow of refrigerant in air conditioning and refrigeration systems. Limited to United Association students.

UAF 130 Advanced SMAW Welding 3 credits

This advanced Shielded Metal-Arc Welding course leads to Shielded Metal-Arc Welding Certification. Limited to United Association students.

UAF 132 Advanced Pipefitter Topics 3 credits

This course covers special topics for pipefitters. Topics may include customer relations, appearance, and on-the-job conduct, and effective leadership/supervision. Related safety is included in all topics. Limited to United Association students.

UAF 134 Controls and Instrumentation 3 credits

The purpose of this course is to teach the fundamentals of basic electricity and the fundamentals of electrical controls found in mechanical equipment installations such as air conditioning, heating, fuel burning, water heating, and refrigeration. Safety is stressed. Limited to United Association students.

UAF 136 GTAW Welding 3 credits

The Gas Tungsten Arc Welding (GTAW) process provides a method of joining difficult-to-weld metals. This course shows how this process has been adapted to the welding of carbon steel and stainless steel pipe. The course covers equipment, shielding gases, tungsten electrodes, etc. along with safe work practices unique to this type of welding. Limited to United Association students.

UAP 108 Water Supply and Drainage 2 credits

Water Supply topics include: Water Treatment, Water Mains and Services, Building Water Supply Systems, and Hot Water Supply. The course provides a detailed description of the purpose and function of the various components of a water supply system. The Drainage portion of this course presents the various types of drainage systems installed and maintained by pipe trades journeyworkers. The course includes: Sewage Disposal, Sewers and Drains, Building Drainage Systems, The Plumbing Trap, and Venting

UAP 110 Customer Service Techniques 2 credits

This training encompasses all aspects of customer service. Topics include customer relations, appearance, and on-the-job conduct. Limited to United Association students.

UAP 112 Plumbing Fixtures and Appliances 3 credits

This course presents the handling and installation of the various types of plumbing fixtures and appliances including information on accessories and fixture controls (flushmeters, faucets, etc). Limited to United Association students.

UAP 114 Plumbing Codes and Regulations 3 credits

This course covers Plumbing Code Construction, General Use of Codes, and Code Application. Appropriate State, Local or Provincial Codes are reviewed. Limited to United Association students.

UAP 116 Medical Gas and Backflow Prevention Techniques 3 credits

This course provides introduction to the concepts and procedures of Medical Gas installation. Topics include certification procedures and requirements for installers of medical gas systems, including brazer qualification. This course also presents the importance of backflow prevention and the dangers of cross connections. Topics include guidelines for acceptable testing practices, annual inspection and repair, and maintenance of backflow prevention assemblies used in modern plumbing installations. Limited to United Association students.

UAP 118 Advanced Plumbing Practices 3 credits

This course addresses advanced plumbing practices including supervision/leadership, pipe systems design, and advanced drawing procedures. Limited to United Association students.

United Association Plumbers UAP

UAP 100 Introduction to Plumbing Practices 3 credits

This course is the introduction to plumbing for new apprentices. Course topics include the Heritage Program, use and care of tools, pipe, fittings, valves, supports and fasteners, job safety and health, and soldering and brazing. Related safety is covered in all topics. Limited to United Association students.

UAP 102 Introduction to Arc Welding, Soldering, and Brazing 3 credits

This is the introductory course in welding, soldering, and brazing. Topics include: safety in welding, cutting and allied processes, oxyacetylene cutting and welding, procedure for setting up oxy-fuel cutting and welding equipment. Related safety is covered in all topics. Limited to United Association students.

UAP 104 Drawing Interpretation and Plan Reading 2 credits

This is an introductory course in drawing and reading blueprints. Course topics include: introduction to basic drawing tools, measuring tools, lettering skills, three-view, plan view, elevation view drawings, graphic symbols for pipe fittings and valves, interpretation of technical diagrams, piping drawings, and interpretation of building plans and building specifications. Limited to United Association students.

UAP 106 Oxy Fuel Cutting and Shielded Arc Welding 2 credits

All phases of welding are covered in this course beginning with oxyacetylene and oxy-fuel cutting and welding progressing through shielded metal-arc welding test procedures. Topics include tools, equipment, types of rod, weld positions, proper gaps, bevels, and the various types of lap and butt joints. Safety is stressed throughout. Limited to United Association students.

United Association Sprinkler Fitters UAR

UAR 160 Introduction to Sprinkler Fitter Practices 3 credits

This course covers introductory topics for new Sprinkler fitter apprentices including: job safety and health, heritage in the pipe trades, and use and care of tools. Limited to United Association students.

UAR 162 Basic Drawing and Introduction to Automatic Sprinklers 3 credits

Basic drawing covers preparation of working drawings including orthographic projection, dimensioning, illustrating pipe threads, section views and isometric drawings. Introduction to Automatic Sprinklers includes the fundamentals of sprinkler protection and the standards governing systems. Topics also include the hazard categories specified in NFPA 13, wet and dry systems, flushing sprinkler systems, and the fundamentals of inspecting and testing systems. Limited to United Association students.

UAR 164 Reading Automatic Sprinkler Piping Drawings **2 credits**

This course familiarizes the student with the drawings most often found in the sprinkler trade. Topics include standard sprinkler system drawings, common symbols, and abbreviations found on the drawings. Limited to United Association students.

UAR 166 Installation of Sprinkler Systems **2 credits**

This course covers the installation regulations governing fire protection systems, which includes design, installation and testing. Other topics include the regulations with respect to piping, fittings, and other appurtenances for fire protection systems. Limited to United Association students.

UAR 168 Architectural Working Drawings and Blueprint Reading for Sprinkler Fitters **2 credits**

Architectural Working Drawings and Blueprint Reading covers reading the types of prints found in a complete set of working drawings. The course includes correcting or compensating for inconsistencies found in drawings. Limited to United Association students.

UAR 170 Sprinkler Water Supply and The Automatic Sprinkler **2 credits**

The Automatic Sprinkler portion of the course includes how sprinklers operate, regulations applicable to sprinklers, recognizing and installing the proper sprinkler, modifying sprinklers to address specific needs. The Water Supply portion of this course addresses water supply requirements for sprinkler systems. Topics include the relationship of occupancy classifications to water supply requirements, the installation of fire service mains, pumps, controllers, and tanks. Limited to United Association students.

UAR 172 Types of Fire Protection Systems and Alarms **3 credits**

This course covers various types of fire protection systems which include wet pipe and anti freeze systems. Topics include the design principles, specification, installation, and operation of fire protection systems. Limited to United Association students.

UAR 174 Special Application Sprinkler Systems and Hydraulics **3 credits**

The Special Application Sprinkler Systems course addresses a wide range of systems found in the field. The course covers: latch clapper and differential type valves, pilot line systems, and preaction systems. The hydraulics portion of the course covers pressure, total force, specific gravity/density, pressure generation, flow rate, sprinkler system design, pressure loss and calculated systems. Limited to United Association students.

UAR 176 Human Relations **3 credits**

This course is an overview of the most important aspects of the role of foreman. Topics include the primary duties of the foreman, understanding what it takes to work well with others, and communicating effectively with others. Limited to United Association students.

UAR 178 Technical Writing **3 credits**

Technical Writing covers the basic reports and forms used in the fire protection industry. Topics include specific instructions on how to complete reports and forms in a manner acceptable to others in the fire protection industry. Limited to United Association students.

United Association Supervision **UAS**

UAS 111 Introduction to Construction Supervision I **3 credits**
Level I Prerequisites: Admission to Construction Supervision Program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course concentrates on the management and supervisory skills needed by new first-line supervisors. The course has practical applications taken from common workplace situations. Because employees generally receive promotion to supervision based on their technical expertise, this course provides the new management and people skills that add to these technical abilities.

UAS 122 Construction Supervision II **3 credits**
Level I Prerequisites: Admission to Construction Supervision Program and UAS 111
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This supervision course helps the student develop practical, operational management skills in the functional areas of planning, organizing, leading and controlling construction projects.

UAS 211 Construction Supervision III **3 credits**
Level I Prerequisites: Admission to Construction Supervision Program and UAS 111
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class covers basic human resources activities applicable to the construction industry. It covers employment techniques, wages and hours, job evaluation, training, employee performance reviews, collective bargaining, employment counseling and collateral benefits such as pensions and fringe benefits. The course also focuses on skills required to manage work habits and a career. It offers a system of goal management and tools for development, refining, and building interpersonal skills.

UAS 222 Project Management in the Construction Industry **3 credits**
Level I Prerequisites: Admission to Construction Supervision Program, UAS 122, and UAS 211
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course examines the various stakeholders of the construction project and their relationship to each other, with an emphasis on the balance maintained among the competing needs of these parties. Students become familiar with the basic functions of a project and how the activities performed contribute to the overall profitability and health of the project as a whole. The course prepares students to handle conflict in the workplace. Emphasis is on the impact at work and how to choose and apply approaches for resolving conflict. The course examines problem-solving techniques and methods.

UAS 226 Legal Aspects of Construction **3 credits**
Level I Prerequisites: Admission to Construction Supervision Program and UAS 111
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course provides an in-depth study of the legal aspects of the construction industry. Students explore contracts and the law of the contract at large, obligations of the parties, remedies under the contract, administration of the contract, warranties, bonds, payments, and subcontracting. Operational liabilities are also covered and include topics such as liabilities for defective structures, limitations of actions, claims processing, and dispute resolution.

United Association Training

UAT

UAT 111 Introduction to Industrial Teacher Training 3 credits
Level I Prerequisites: Admission to Industrial Training Program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on the principles of learning, elements of trade teaching and the methods of teaching an applied technical skill.

UAT 121 Industrial Teacher Training II 3 credits
Level I Prerequisites: Admission to Industrial Training Program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on developing instructional objectives, planning and presenting related information lessons and the methods of teaching a second applied technical skill.

UAT 131 Industrial Teacher Training III 3 credits
Level I Prerequisites: Admission to Industrial Training Program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on the development of written tests, an elective professional skill, and a third teaching demonstration in a technical skill area.

UAT 141 Industrial Teacher Training IV 3 credits
Level I Prerequisites: Admission to Industrial Training Program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on discussion and interaction techniques, an elective professional skill and the teaching methods in a fourth technical skill area.

UAT 151 Industrial Teacher Training V 3 credits
Level I Prerequisites: Admission to Industrial Training Program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on innovations and problems in trade teaching, an elective professional skills, and methods of teaching in a fifth technical skill area.

UAT 161 Technical Seminar 3 credits
Level I Prerequisites: Admission to Industrial Training Program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on the methods of teaching a technical skill area. Special approval required and will replace UAT 121, 131, 141, or 151.

UAT 171 Professional Seminar 3 credits
Level I Prerequisites: Admission to Industrial Training program
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course will focus on instructional methodology and practices for the trade-related instructor. Special approval required and will replace UAT 121, 131, 141, or 151.

UAT 201 Advanced Instructor Training I 3 credits
Level II Prerequisites: UAT 151
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for graduates of the 5-year UA instructor training program. Trade teachers will expand their skills and knowledge in teaching techniques and methodologies, as well as technological concepts. The student will select one 45 hour module or two 22 1/2 hour modules from unit one or unit two.

UAT 202 Advanced Instructor Training II 3 credits
Level II Prerequisites: UAT 151
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for graduates of the 5-year UA instructor training program. Trade teachers will expand their skills and knowledge in teaching techniques and methodologies, as well as technological concepts. The student will select one 45 hour module or two 22 1/2 hour modules from unit one or unit two.

UAT 203 Advanced Instructor Training III 3 credits
Level II Prerequisites: UAT 151
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for graduates of the 5-year UA instructor training program. Trade teachers will expand their skills and knowledge in teaching techniques and methodologies, as well as technological concepts. The student will select one 45 hour module or two 22 1/2 hour modules from unit one or unit two.

UAT 204 Advanced Instructor Training IV 3 credits
Level II Prerequisites: UAT 151
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for graduates of the 5-year UA instructor training program. Trade teachers will expand their skills and knowledge in teaching techniques and methodologies, as well as technological concepts. The student will select one 45 hour module or two 22 1/2 hour modules from unit one or unit two.

UAT 205 Advanced Instructor Training V 3 credits
Level II Prerequisites: UAT 151
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed for graduates of the 5-year UA instructor training program. Trade teachers will expand their skills and knowledge in teaching techniques and methodologies, as well as technological concepts. The student will select one 45 hour module or two 22 1/2 hour modules from unit one or unit two.

UAT 276 Orbital Tube Welding 1.5 credits
15 lecture, 7.5 lab, 0 clinical, 0 other, 23 total contact hours

Introduction to orbital fusion butt welding (no filler wire) as used in semiconductor, pharmaceutical, biotechnology, and food and beverage plants. This course is designed for students with a TIG welding background. Limited enrollment permits "hands-on" welding time on the equipment. Journeypersons selecting this course should come to class in safe working clothes.

UAT 277 GTAW - Wire Feed Machine Welding 1.5 credits
15 lecture, 7.5 lab, 0 clinical, 0 other, 23 total contact hours

This course provides the welder/operator a basic understanding of the orbital pipe welding process. The course introduces the theory of operation, technology comparison of analog and microprocessor-controlled systems, equipment set-up, and safety issues. The course features the Liburdi/Dimetric GTAW wire fed machine welding equipment.

UAT 279 UA Certified Machine Cutting, Severing, and Beveling 1.5 credits
15 lecture, 7.5 lab, 0 clinical, 0 other, 23 total contact hours

This course is designed to teach the Journeyperson how to machine the many different joint designs used in our industry today. Each student is required to have a calculator, ruler, paper and pencil, safety glasses, and attend class in safe working clothes. To receive UA certification in this course, each journeyperson is required to pass a practical and written exam.

UAT 280 Aluminum Pipe Welding (GTAW) 1.5 credits
 15 lecture, 7.5 lab, 0 clinical, 0 other, 23 total contact hours

This course covers the GTAW aluminum pipe welding at the highest level of technology currently in use in the field. The equipment manufacturers and the UA have provided the skill to establish standard procedures which are unique to aluminum pipe welds. Enrollment is limited to those who have a minimum of five (5) years of GTAW experience.

Video Production

VID

VID 101 Video Production I 3 credits
 Corequisites: VID 110
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This is an introductory course that teaches students the basics of video production. Students are guided through a series of demonstrations and hands-on exercises to develop their skills. A brief overview of the history and language of production is included.

VID 102 Video Production II 3 credits
 Level I Prerequisites: VID 101 and VID 110
 Corequisites: VID 112
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is designed to develop and expand skills learned in VID 101. More in-depth study of storyboarding, shot lists, scriptwriting, budgeting, videography, lighting, audio, and more advanced production techniques are covered. Through a combination of lecture and hands-on exercises, students develop skills to produce various styles of productions. Depending on the students' interest, they may produce a finished informational, public service, advertisement, narrative, or artistic video production.

VID 110 Digital Video Editing I 3 credits
 Corequisites: VID 101
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course introduces students to non-linear digital editing (computer editing). A brief overview of the editing process is covered. Students learn the basics of importing (digitizing) video, basic editing techniques, trimming clips, basic effect palettes, overlaying audio with video, recording narration and music, and saving the finished production to digital tape as well as QuickTime file.

VID 112 Digital Video Editing II 4 credits
 Level I Prerequisites: VID 101 and VID 110
 Corequisites: VID 102
 60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

Students learn advanced editing techniques using Final Cut Pro software on a Mac G4 computer. Students study and develop skills in system configuration and language, rough cut editing, editing for effect, match frame editing, printing to video/multimedia or web, as well as editing their own footage from VID 102. A combination of lecture and hands-on experience are combined to develop editing skills.

VID 276 Advanced Video Graphics I 3 credits
 Level I Prerequisites: VID 112 or GDT 140 minimum grade "C"; or consent required
 45 lecture, 0 lab, 0 clinical, 15 other, 60 total contact hours

This course introduces students to motion graphics composition for film/video and internet distribution. Students learn the role of motion graphics in these media. Adobe After Effects is used as the main tool to create motion graphics compositions. Students learn the basics of visual effects terminology, effect keying and transparency, keyframing, synchronizing compositions to music, compression codecs required for output optimization, and saving the finished composition to a variety of film/video and internet ready formats such as Apple QuickTime. Lecture, hands-on experience and creative mentoring are combined to develop motion graphics compositing skills. Students gain a working knowledge of After Effects and are exposed to examples of work from industry professionals for inspiration. This course was previously VID 299.

VID 277 Advanced Video Graphics II 3 credits
 Level I Prerequisites: VID 276 minimum grade "C"
 45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

In this course students expand upon the basic skills learned to produce advanced motion graphics compositions. Adobe after Effects is used as the main tool to create motion graphics compositions. Students will create original work based on advanced concepts such as color-screen keying, particle effects, three-dimensional space, and geometric motion. Students will expand their ability to create motion graphics through critical review of work from industry professionals.

VID 280 DVD Authoring 3 credits
 Level I Prerequisites: COMPASS Pre-Algebra = 37 and (GDT 140, INP 152, or PHO 127) minimum grade "C"
 45 lecture, 0 lab, 0 clinical, 15 other, 60 total contact hours

DVD authoring will give students the skills to create interactive DVD's using digital video, graphic files, photographs and any other multi-media formats. With the use of menus, buttons, subtitles, alternate languages and sound tracks, this course will be an excellent way for students to create a portfolio and add an additional skill on their resume.

Welding & Fabrication

WAF

WAF 100 Fundamentals of Welding 2 credits
 Level I Prerequisites: (COMPASS Reading = 70 or REA 070 may enroll concurrently) and (COMPASS Writing = 81 or ENG 091 may enroll concurrently)
 15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is a basic combination welding course dealing with oxy-acetylene and arc welding designed to meet the needs of students enrolled in Auto Body Repair, Auto Mechanics, Detailer Draftsman, etc. Typical applications are made in a laboratory setting.

WAF 101 Acetylene Welding 2 credits
 Level I Prerequisites: (COMPASS Reading = 70 or REA 070 may enroll concurrently) and (COMPASS Writing = 81 or ENG 091 may enroll concurrently)
 15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

Designed for students who need a knowledge of oxy-acetylene welding and a degree of skill required by industry. Primarily for students whose occupations are associated with welding.

WAF 102 Basic ARC Welding **2 credits**
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This introductory course in arc welding covers theory and practice, and proper procedures for various welding positions. Topics include A.C. and D.C. welding, electrode identification, classification and proper applications to typical operations.

WAF 103 Heli-ARC Welding **2 credits**
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

Instruction is given in tungsten, inert gas, and shielded arc welding. Manually operated torches are used on such metals as aluminum, stainless and mild steels; includes theory directly related to the composition and properties of these metals.

WAF 104 Soldering and Brazing **2 credits**
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This course is designed to provide basic knowledge of soft soldering, brazing, silver soldering, copper tubing and fittings, brazing of steel, silver soldering of copper and stainless. Practical application included.

WAF 105 Welding for Art and Engineering **2 credits**
15 lecture, 45 lab, 0 clinical, 0 other, 60 total contact hours

This is a basic welding class. No welding experience is necessary. Oxy-acetylene (welding and cutting), arc welding and soldering and brazing are explored with hands-on training provided. Students work on class competencies, at their own pace, beginning with safety practices and set-up in each area. The welding lab has individual work stations for a no waiting to work and a safe atmosphere. Students are given personalized instruction on every class objective to help with their mastery of the art of welding.

WAF 106 Blueprint Reading for Welders **3 credits**
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This class is designed for the welders who are responsible for properly locating weld on the weldment and determining weld size, contour, length, type of filler metal and any applicable welding procedures.

WAF 111 Welding I Oxy-Acetylene **4 credits**
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course focuses on the use of oxy-acetylene equipment to perform such operations as butt, lap, and fillet welds using filler rods; flame cutting, brazing and silver soldering. Safety procedures and practices of gas welding are emphasized.

WAF 112 Welding II Basic ARC **4 credits**
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course involves the use of arc welding equipment both A.C. and D.C. to perform such operations as butt, lap and fillet welds using bare and shielded electrodes, all-purpose and special electrodes. Study of electrical welding, power supplies and electrodes is included. Safety procedures are stressed.

WAF 123 Welding III Advanced Oxy-Acetylene (OAW) **4 credits**
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Advanced instruction is provided in oxy-acetylene welding with emphasis on out of position welded joints. Procedures are covered and put in practice for fabricated welded joints on steel plate and pipe. Related theory is included.

WAF 124 Welding IV Advanced ARC (SMAW) **4 credits**
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

Advanced instruction is provided in arc welding using both A.C. and D.C. arc welding equipment. Emphasis is on out of position welded joints in mild steel, alloy steels and procedures covered for cutting, beveling and fabricating various welded joints. Related theory, codes and standards are included.

WAF 200 Layout Theory Welding **3 credits**
30 lecture, 45 lab, 0 clinical, 0 other, 75 total contact hours

This course involves layout problem solving for the welder including techniques using layout die, combination squares, protractors, center heads, trammel points, dividers, and straightedges. Template making for pipe cutting and joining is emphasized. A basic math review and the properties of a circle such as radius, chords, and degrees of angularity for jobs done in the field are included.

WAF 201 Special Topics in Welding **1-8 credits**
Level I Prerequisites: WAF 105, WAF 111, WAF 112, or WAF 227
0 lecture, 0 lab, 15 clinical, 120 other, 135 total contact hours

The focus of this course varies, depending on students' individual goals and objectives. Some students may use this course to construct a project, others may wish to brush up their skills for a welding certification. Credits and contact hours will vary for each student. Students complete a "plan of work" during the first class.

WAF 205 Plumbing and Pipefitting I **3 credits**
Level I Prerequisites: COMPASS Pre-Algebra = 24 or MTH 039
45 lecture, 0 lab, 0 clinical, 0 other, 45 total contact hours

This course is a practical study of plumbing and pipefitting fundamentals as well as the classifications and functions of boilers, steam, and hot water heating systems. Heating code is also covered.

WAF 206 Plumbing and Pipefitting II **4 credits**
Level I Prerequisites: WAF 205
60 lecture, 0 lab, 0 clinical, 0 other, 60 total contact hours

This course is a continuation of Plumbing and Pipefitting I. Participants learn about water supply, waste disposal, drainage, venting, unit sanitation equipment, and plumbing codes. Students with equivalent experience may contact the instructor for permission to waive the prerequisite.

WAF 210 Welding Metallurgy **3 credits**
45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

This course focuses on identification of metal properties through testing. It also covers the effects of alloying elements, specification use, and application of steel alloys and stainless steel. The principles of heat treatment of metals in various welding applications are included.

WAF 215 Welding V Advanced GTAW and GMAW **4 credits**
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course involves tungsten-inert gas shield arc welding with manually operated torch on such metals as aluminum, mild steel and stainless steel. Technical theory directly related to T.I.G. welding including the composition and properties of metals.

Welding & Fabrication – Yoga

WAF 226 Specialized Welding Procedures **4 credits**

Level I Prerequisites: WAF 123, WAF 124, and WAF 215 minimum grade "C"; or consent required
30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course involves specialized oxy-acetylene welding, inert gas-shield arc and GMAW MIG welding. Emphasis is given to aluminum, stainless steel, high alloy steels and cast iron. Procedures for welding of the exotic metals such as titanium, columbium, zirconium, and molybdenum are included.

WAF 227 Basic Fabrication **3 credits**

Level I Prerequisites: WAF 105
30 lecture, 30 lab, 0 clinical, 0 other, 60 total contact hours

For advanced welders planning to use their welding skills in manufacturing, this class teaches the skills necessary to design, cut and fit pieces to be welded. Welders are trained in the use of modern machines for bending, punching, cutting and shaping. Each student takes a self-chosen project and carries it through from blueprints to actual assembly. Estimation of material and labor costs is included.

WAF 229 Shape Cutting Operations **3 credits**

45 lecture, 15 lab, 0 clinical, 0 other, 60 total contact hours

Students learn the shape-cutting process with oxy-acetylene and plasma cutting torches. With the use of the optical eye and Burny IV N.C. control, students learn how to cut mild steel, aluminum and stainless steel parts.

WAF 289 MIG Welding **4 credits**

30 lecture, 90 lab, 0 clinical, 0 other, 120 total contact hours

This course focuses on the use of MIG equipment to perform such operations as BUTT, LAP, and fillet welds. The course emphasizes all weld positions using solid and flux cored wires.

Yoga

YOG

YOG 101 Introduction to Hatha Yoga **2 credits**

30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course provides an introduction to the philosophy and practice of Hatha Yoga.

YOG 102 Philosophy and Practice of Yoga **2 credits**

Level I Prerequisites: YOG 101
30 lecture, 0 lab, 0 clinical, 0 other, 30 total contact hours

This course is a continuation of Yoga 101, Introduction to Hatha Yoga.



■ Curriculum Changes for Fall 2005

Course Changes: Code, Title, and Credit Changes

WAS			IS NOW		
Course	Title	Credit	Course	Title	Credit
ACS 070	Vocabulary and Comprehension	4	REA 070	Reading Comprehension II	3
ACS 106	Speed Reading	2	ACS 110	Speed Reading.....	2
ART 150	Monuments from Around the World	3	ART 150	Monuments and Cultures.....	3
ENG 030B	Intermediate ESL Grammar	4	ENG 032	Intermediate ESL Grammar	4
ENG 061B	Advanced ESL Grammar	4	ENG 061	Advanced ESL Grammar	4
ENG 100	Communication Skills	4	ENG 100	Written Communication	4
ENG 199	Scientific/Technical Communication Internship	1-3	ENG 199	Technical Writing Internship.....	1-3
HSW 200	Introduction to Interviewing and Assessment Techniques	3	HSW 200	Interviewing and Assessment	3
INP 272	Web Animation 1.....	3	INP 176	Web Animation I	3
PHO 117	Introduction to the Studio	3	PHO 117	Introduction to the Studio	4
PHO 122	Photography II	4	PHO 122	Darkroom Techniques	4
PHO 124	Color Photography	4	PHO 204	Color Photo Design	3
PHO 129	Black and White Digital Imaging	3	PHO 129	Black and White Digital Imaging	4
REA 050	Reading Comprehension	5	REA 050	Reading Comprehension I	4

COURSE CHANGES



New Courses

Course	Title	Credit	Course	Title	Credit
ABR 251	Custom Cars and Concepts I	3	UAE 154	Advanced Air Conditioning and Refrigeration	3
ABR 252	Custom Cars and Concepts II	3	UAE 156	Air and Water Balancing and Motor Alignment	3
ABR 253	Custom Cars and Concepts III	3	UAE 158	Advanced HVACR Practices	3
ABR 254	Custom Cars and Concepts IV	3	UAF 102	Introduction to Arc Welding, Soldering, and Brazing	3
ABR 255	Car Show Participation	6	UAF 120	Introduction to Pipefitter Practices	3
ACS 100	Introduction to Online Learning	1	UAF 122	Drawing Interpretation and Plan Reading	2
ANI 145	Concept Development for Animation	2	UAF 124	Oxy Fuel Cutting and Shielded Arc Welding	2
ANI 150	3D Animation I: Modeling	4	UAF 126	Hydronic Heating and Steam Systems	2
ANI 155	Textures and Lighting for Animation	4	UAF 128	Refrigeration and Electrical Controls	2
ANI 230	Motion and Sound	2	UAF 130	Advanced SMAW Welding	3
ANI 250	3D Animation II	4	UAF 132	Advanced Pipefitter Topics	3
ANI 260	3D Animation III	4	UAF 134	Controls and Instrumentation	3
ART 121	Ceramics I	4	UAF 136	GTAW Welding	3
CPS 115	Introduction to Programming with 3D Animation	3	UAP 100	Introduction to Plumbing Practices	3
CPS 277	Game Programming	4	UAP 102	Introduction to Arc Welding, Soldering, and Brazing	3
CSS 212	Fundamentals of Secure Wireless Local Area Networks ..	4	UAP 104	Drawing Interpretation and Plan Reading	2
DRA 180	Theatre Appreciation	3	UAP 106	Oxy Fuel Cutting and Shielded Arc Welding	2
DRA 204	Improvational Acting for the Theatre	3	UAP 108	Water Supply and Drainage	2
GDT 270	Web Site Design	4	UAP 110	Customer Service Techniques	2
HST 260	History of England to 1688	3	UAP 112	Plumbing Fixtures and Appliances	3
HSW 225	Family Social Work	3	UAP 114	Plumbing Codes and Regulations	3
MUS 241	Rock Guitar	2	UAP 116	Medical Gas and Backflow Prevention Techniques	3
MUS 244	Rock Guitar: Tones and Techniques	2	UAP 118	Advanced Plumbing Practices	3
NUR 160	Nursing in Peru	1	UAR 160	Introduction to Sprinkler Fitter Practices	3
ROB 170	FIRST Robotics Competition	4	UAR 162	Basic Drawing and Introduction to Automatic Sprinklers ..	3
SOC 155	Hip-Hop Culture and Society	3	UAR 164	Reading Automatic Sprinkler Piping Drawings	2
SOC 225	Family Social Work	3	UAR 166	Architectural Working Drawings and Blueprint Reading for Sprinkler Fitters	3
UAE 140	Introduction to HVACR Service	3	UAR 170	Sprinkler Water Supply and the Automatic Sprinkler	2
UAE 142	Soldering and Brazing	3	UAR 172	Types of Fire Protection Systems and Alarms	3
UAE 144	Refrigeration	2	UAR 174	Special Application Sprinkler Systems and Hydraulics ..	3
UAE 146	Air Conditioning	2	UAR 176	Human Relations	3
UAE 148	Electrical Controls	2	UAR 178	Technical Wiring	3
UAE 150	DC Electronics	2	VID 277	Advanced Video Graphics II	3
UAE 152	Advanced Electrical Controls and Pneumatic Controls ..	3			

Discontinued Courses

Course	Title	Credit	Course	Title	Credit
ACS 070	Vocabulary and Comprehension Skills	4	JUG 092	Advanced Pipe Welding	1
BOS 112	Introduction to Medical Transcription	2	JUG 098	Foreman Leadership	3
BOS 220	Medical Transcription II.....	4	MTH 010	Arithmetic	3
CON 105A	Construction IIA - Fastrak	3	MTH 011	Solving Equations	3
CON 105B	Construction IIB - Fastrak	3	MTH 012	Geometric Figures.....	3
CON 126	Residential Painting Materials and Methods	3	MTH 013	Graphs and Elementary Statistics	3
ENG 030A	Intermediate ESL Grammar.....	4	MTH 014	Interest and Taxes.....	3
ENG 030B	Intermediate ESL Grammar.....	4	MTH 016	Right Triangles	3
ENG 060A	Advanced ESL Grammar	4	NTR 110	Seasonal D.N.R. Park Officer Training.....	8
ENG 060B	Advanced ESL Grammar	4	PHO 225	Digital Cameras.....	3
ENG 250	Advanced Composition	3	TRI 103	Sheet Metal Blueprint Reading and Layout	4
FMA 109	Facilities Planning and Project Management.....	2	TRI 115	Blueprint Facilities Maintenance	3
HRM 174	HRM Co-op Education I.....	1-2	TRI 171	Woodworking Machines & Processes I	2
HSC 128	Therapeutic Nutrition	1	TRI 174	TRI Co-op Education I	1-3
INP 272	Web Animation I	3	TRI 189	Study Problems	1-8

COURSE CHANGES



New Programs

Program Title	Code	Degree/Certificate
Automation Technology	CTAMTC	Certificate
Custom Cars and Concepts	CTCCC	Certificate
Industrial Training	ASINDT	Associate in Science
3D Animation	CTANIM	Associate in Applied Science

Program Changes: changes in title, code, and degree/certificate awarded

This list does not include changes in program requirements.

Previous Code and Title	Current Code and Title
APJPIM Journeyperson Industrial	APJPIM Journeyman Industrial

Discontinued Programs

Program Title	Program Code	Degree/Certificate
Auto Restoration and Hot Rod Fabrication	CFAR	Certificate
Illustration	APILU	Associate in Applied Science
Pre-Engineering Science Transfer	ASPET	Associate in Science
Web Programming Tools	CTWPTC	Certificate

Personnel



Personnel

This is a partial list. For a comprehensive list of personnel, refer to the WCC Staff Directory.

Board of Trustees

Member	Term Expires
Diana McKnight-Morton, Chair	December 31, 2006
Jerry Jernigan, Vice Chair	December 31, 2008
Richard J. Landau, Secretary	December 31, 2006
Pamela Horiszny, Treasurer	December 31, 2010

Member	Term Expires
Richard W. Bailey, Trustee	December 31, 2008
Stephen J. Gill, Trustee	December 31, 2010
David Rutledge, Trustee	December 31, 2008

Executive Officers

Whitworth, Larry L.1998 <i>President</i> B.A. - Adrian College M.B.A. - Duquesne University Ed.D. - University of Pittsburgh
Palay, Roger1975 <i>Vice President for Instruction</i> B.S. - University of Chicago M.S. - University of Wisconsin
Wojnowski, Judith L.1978 <i>Vice President of Administration and Finance</i> B.S. - Canisius College C.P.A. - State of Michigan
Flowers, Damon1994 <i>Associate Vice President of Facilities Development and Operations</i> B.S. - Lawrence Technological University M.S. - Central Michigan University
Kruzal, Douglas P.2001 <i>Associate Vice President of Human Resources</i> B.S. - University of Toledo M.B.A. - University of Toledo
Lawson, Wendy2003 <i>Associate Vice President of Development, Grants and Governmental Relations</i> B.A. - The University of Michigan M.B.A. - Eastern Michigan University
Ladha, Aminmohamed J.1995 <i>Chief Information Officer</i> B.S. - Eastern Michigan University M.B.A. - Eastern Michigan University
Williams, Calvin1969 <i>Associate Vice President of Student Services</i> A.B. - Western Michigan University A.M. - The University of Michigan Ph.D. - The University of Michigan

Deans

Abernethy, Bill1993 <i>Dean of Humanities and Social Sciences</i> B.A. - University of Oregon M.A. - University of Oregon Ph.D. - University of Wisconsin
Blakey, Linda S.1988 <i>Dean of Enrollment Services</i> B.S. - The University of Michigan M.S. - The University of Nevada at Las Vegas M.A. - The University of Michigan
Dries, Cathie1989 <i>Dean of Continuing Education and Community Services</i> A.A. - Delta Community College B.A. - Michigan State University M.A. - Central Michigan University
Lee, Granville W.1990 <i>Dean of Health and Applied Technologies</i> B.S. - New York University M.B.A. - University of Dayton Ed. Spec. - Wayne State University
Showalter, Martha1980 <i>Dean of Math, Natural and Behavioral Sciences</i> B.S. - Ohio State University B.A. - Ohio State University M.Ed. - University of Houston
Taylor, Patricia A.2002 <i>Dean of Academic Placement, Counseling, and Support Services</i> B.A. - Central Michigan University M.A. - Central Michigan University Ed.D. - Eastern Michigan University
Wilson, Rosemary1986 <i>Dean of Business and Computer Technologies</i> B.S. - Milligan College M.B.A. - University of Notre Dame

Faculty/Professional Staff

- Abella, Mohammed**1999
Faculty: Mathematics
 B.S. - University of Bradford, England
 M.S. - University of Miami
 Ph.D. - University of Miami
- Abrams, Terry**1990
Faculty: Visual Arts
 B.F.A. - Maryland Institute College of Art and Design
 E.D.M. - Boston University
 Certificate - Agfa-Gevaert
- Adler, Sally**1993
Faculty: Behavioral Science
 B.S. - Pennsylvania State University
 M.S. - Pennsylvania State University
 Certificate - PA Dept of Education
- Aeilts, Larry**1999
Director of Enrollment: Enrollment Services
 B.B.A. - Cleary College
 M.S. - Walsh College
- Allison, Lynn M.**1988
Faculty: Business Office Systems
 A.D. - Washtenaw Community College
 B.B.A. - Eastern Michigan University
 M.B.E. - Eastern Michigan University
- Anders, Derek F.**1999
Specialist: Information Technology
 Certificate - Washtenaw Community College
 A.A. - Lansing Community College
 A.A. - Washtenaw Community College
- Anderson, Laurice A.**1998
Faculty: Performing Arts
 B.A. - Butler University
 M.F.A. - The University of Michigan
- Atkinson, John H.**1997
Faculty: Public Service Training
 B.A. - The University of Michigan
 J.D. - Detroit College of Law
 M.P.A. - Eastern Michigan University
- Avinger, Charles**1992
Faculty: English / Writing
 B.S. - University of Alabama
 M.A. - University of Alabama
- Babcock, H. Lind**1994
Faculty: Visual Arts Technology
 B.F.A. - Michigan State University
 M.A. - Central Michigan University
 M.F.A. - Kent State University
- Bailey, Rosanne**2003
Annual Fund Manager: Development, Grants and Governmental Relations
 B.A. - Purdue University
- Baker, Gerald A.**1975
Faculty: Allied Health / Radiography
 A.A.S. - Wayne County Community College
 B.S. - Ferris State University
 M.Ed. - The University of Michigan
- Baker, Jennifer L.**1995
Faculty: Visual Arts Technology
 A.D. - Washtenaw Community College
 A.B. - The University of Michigan
 M.F.A. - Rhode Island School of Design
- Baker, Mark E.**1994
Firearms Range Master: Public Service Training
 A.D. - Henry Ford Community College
- Barrie, Maryam**2002
Faculty: English / Writing
 B.S. - The University of Michigan
 M.A. - Eastern Michigan University
- Bartha, Paula**2001
Adult Transitions: Career Education Coordinator
 B.S. - Wayne State University
- Batell, Mark F.**1984
Faculty: Mathematics
 B.A. - Knox College
 M.A. - The University of Michigan
 M.A. - The University of Michigan
- Bayer, Deborah K.**1994
Faculty: English / Writing
 B.A. - Michigan State University
 M.A. - Michigan State University
- Beattie, Melinda**2005
Intake & Administrative Assistant: Small Business Technology Development Center
 A.D. - Washtenaw Community College
- Beauchamp, Jillaine**1976
Faculty: Culinary and Hospitality Management
 B.S. - Eastern Michigan University
 M.S. - The University of Michigan
- Benin, Michelle**1998
Specialist: Human Resource Management
- Bhattacharyya, Nilotpal**1999
UNIX Administrator: Information Technology
 B.M.S. - University of Gaubati
- Biederman, Rosalyn L.**1967
Faculty / Department Chair: Foreign Languages
 B.A. - Ohio State University
 M.A. - Ohio State University

- Bieszka, Rita**1999
Budget Analyst: Financial Services
- Bila, Dennis W.**1969
Faculty/Department Chair: Mathematics
 B.S. - Central Michigan University
 M.A. - Wayne State University
- Bishop, Todd**2001
Facilities Project Manager: Facilities Management
 Certificate - State of Michigan
- Bogue, Robert A.**1984
Instructional Lab Assistant: Automotive Services
 A.D. - Washtenaw Community College
 Certificate - State of Michigan
 B.S.Ed. - The University of Michigan
 Certificate - A.S.E.
- Bracco, Patrick**2000
Manager, Systems Development: Information Technology
 B.S.E. - The University of Michigan
 M.S.E. - The University of Michigan
- Brandenburg, Elaine M.**1997
Director: Contract Training Project
 B.S. - Michigan State University
- Brown, Kate M.**1988
Specialist: Student Resources/Women's Center
 A.D. - Washtenaw Community College
 B.S.W. - Eastern Michigan University
- Brunt, Jennifer**2000
Associate: Human Resource Management
 A.D. - Washtenaw Community College
- Burgen, Clarence**1997
Manager: Mechanical Systems
- Burke, Starr**2000
Faculty/Department Chair: Behavioral Sciences
 B.A. - Wayne State University
 M.A. - Eastern Michigan University
 Ph.D. - California Coast University
- Butcher, Kathleen**1989
Faculty: Physical Science
 B.S. - St. Mary's College
 M.S. - Wayne State University
- Byrne, Cheryl**2002
Faculty: Business/Accounting
 B.S. - Ohio State University
 M.B.A. - Pepperdine University
 Ph.D. - Claremont Graduate University
- Byrne, Heather**2000
Director of Student Development and Activities
 B.A. - The University of Michigan
 M.B.A. - Goldengate University
- Carlson, Elizabeth**2002
Director: Curriculum and Assessment
 B.A. - University of Michigan
 M.A. - The University of Michigan
 Ed.D. - The University of Michigan
- Chatas, Kristin**2001
Faculty: Mathematics
 B.A.Ed. - University of Michigan
 M.A. - University of Notre Dame
- Cheiman, Dina**2003
Faculty/Program Director: Pharmacy Technology
 B.S. Ferris State University
 Ph.D. Ferris State University
- Chiappetta, Lorraine**2003
Faculty: Nursing
 B.S. College of New Jersey
 M.S. State University of New York Buffalo
 R. N. The State of Michigan
- Chisholm, Arnett**1988
Associate Counselor: Counseling, Career Planning and Placement
 B.S. - The University of Michigan
 M.A. - Eastern Michigan University
- Clark, Diana**1989
Counselor: Humanities and Social Sciences
 A.D. - Washtenaw Community College
 B.S. - Eastern Michigan University
 M.A. - Eastern Michigan University
- Cleary, William T., Jr.**1983
Faculty: Electricity/Electronics
 A.S.E.E.T. - University of Maine
 B.E.E.T. - University of Maine
 M.B.A. - University of Maine
- Cocco, Richard**2000
Classroom Technical Coordinator: Media Services
 A.D. - Washtenaw Community College
- Colone, Erica**2005
Web Programmer II: Web Services
 B.S. - University of Michigan
- Concannon, Breege**2003
Faculty: Physical Sciences
 B.S. - University of Ulster - Northern Ireland
 Ph.D. - University of South Carolina
- Crean, Patricia K.**1996
Director of Lifelong Education: Continuing Education and Community Services
 B.A. - Western Michigan University
 M.A. - Michigan State University

Croake, Edith M.1966 <i>Faculty: English / Writing</i> B.A. - The University of Michigan M.A.T. - Northwestern University M.A. - Northwestern University D.A. - The University of Michigan	Ennes, Steven M.1987 <i>Faculty/Department Chair: Business/Accounting</i> A.A.S. - Macomb Community College B.S. - Western Michigan University
Culver, Rosalyn1989 <i>Faculty: Business Office Systems</i> B.S. - Michigan State University M.A. - Michigan State University	Evans, Gwen2003 <i>Director: Access Services</i> M.A. - University of Chicago M.S. - University of Illinois
Currie, Kathy1989 <i>Coordinator: Enrollment Services</i> A.D. - Washtenaw Community College	Everin, William J.1997 <i>Research Analyst: Institutional Research</i> B.S. - Northwestern University M.S. - Purdue University
Czinski, Margo1999 <i>Faculty: English / Writing</i> B.A. - Michigan State University M.A. - The University of Michigan	Farrackand, Jamal1997 <i>Security Patrol Officer: Campus Security</i> A.D. - Washtenaw Community College
Daniels, Cheryl1990 <i>Employment Specialist: Human Resource Management</i> A.A. - Schoolcraft College B.A. - Concordia College	Faulkner, Mary K.1983 <i>Administrative Assistant to the Board of Trustees</i> A.D. - Washtenaw Community College B.B.A. - Eastern Michigan University
Dedhia, Hiralal1987 <i>Clinical Instructor: Respiratory Therapy</i> A.D. - Washtenaw Community College B.S. - University of Poona M.S. - Madonna College	Fauri, Greta1977 <i>Student Services Advisor: Children's Center</i> B.A. - Adrian College
Deinzer, Carol1999 <i>Faculty: Culinary & Hospitality Management</i> A.C. - Monroe County Community College	Fayaz, Amir2000 <i>Faculty: Physics</i> B.S. - Eastern Michigan University M.S. - Eastern Michigan University
Donahay, Jeffrey1984 <i>Faculty: Industrial Technology</i> B.S. - The University of Michigan	Fenty, Joseph1999 <i>Manager: Academic Testing, Entry Assessment, and New Student Orientation</i> B.B.A. - Pace University M.A. - The University of Michigan M.A. - University of Northern Iowa
Downen, Gary W.1983 <i>Faculty/Department Chair: Electricity/Electronics</i> B.G.S. - The University of Michigan M.A. - Eastern Michigan University	Ferguson, Russell2000 <i>Faculty: Automotive Services</i> B.S. - Central Michigan University M.L.S. - Eastern Michigan University A.S.E. - Certified Master Automobile Technician
Downey, Patrick1994 <i>Manager: Conference Services</i>	Fielding, Elaine2000 <i>Research Associate: Foundation / Public Relations & Marketing</i> B.A. - Smith College M.S. - University of Wisconsin Ph.D. - University of Wisconsin
Eby, David1999 <i>IT Support Specialist: Information Technology</i> A.S. - Northwestern Michigan College B.S. - Lake Superior State University	Fillinger, Barbara2001 <i>Budget Director, Financial Analyst: Financial Services</i> B.S. - Oakland University M.S. - Walsh College
Egan, James1989 <i>Faculty: Mathematics</i> B.A. - Case Western Reserve University B.S. - Case Western Reserve University M.S. - The University of Michigan M.S. - The University of Michigan	Figg, William1972 <i>Faculty/Department Chair: Welding and Fabrication</i> A.D. - Washtenaw Community College

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Faculty/Program Director: Dental Assisting
 A.A. - Grand Rapids Junior College
 C.D.A. - Dental Assistance National Board
 R.D.A. - Michigan Board of Dentistry
 B.S. - The University of Michigan
 M.S. - The University of Michigan
- Finkbeiner, Charles A.**1975
Faculty: Computer Information Systems
 A.D. - Washtenaw Community College
 B.S. - The University of Michigan
 M.S. - The University of Michigan
- Fitzpatrick, David J.**1996
Faculty: Social Science
 Ph.D - The University of Michigan
 A.M. - The University of Michigan
 B.S. - United States Military Academy
- Flack Jr., Joseph L.**1990
Faculty: Business/Accounting
 B.A. - Eastern Michigan University
 M.B.A. - University of Detroit
 J.D. - Detroit College of Law
- Foster, Brenda**1997
Faculty: Mathematics
 A.A. - Seattle Central Community College
 B.A. - The University of Washington
 M.A. - The University of California
- Foster, Connie S.**1990
Faculty/Department Chair: Allied Health/Radiography
 A.D. - Washtenaw Community College
 B.S. - Central Michigan University
 M.A. - Eastern Michigan University
- Frye, Iota H.**1975
Counselor: Counseling, Career Planning and Placement
 B.S. - Eastern Michigan University
 M.A. - Eastern Michigan University
- Galea, Michael**1998
Faculty: Computer Information Systems
 B.S. - Wayne State University
 M.A. - Wayne State University
- Galvin, Ralph H.**1984
Director: Public Service Training
 B.S. - Nazareth College
- Garcia, Anne**2002
Faculty: Behavioral Sciences
 M.S. - San Diego State University
 Ph.D. - University of California, San Francisco
- Garey, Michelle**2001
Faculty: Foreign Languages
 B.A. - The University of Michigan - Flint
 M.A. - Ohio State University
- George-Sturges, Cassandra**2003
Faculty: Behavioral Sciences
 M.A. - Eastern Michigan University
 M.A. - Wayne State University
 Ph.D. - California Coast University
- Gerhardt, Laura**1985
Counselor: Business and Computer Technologies
 B.A. - Eastern Michigan University
 M.A. - Eastern Michigan University
- Gerlitz, Frank**1991
Faculty: Drafting
 B.S. - University of Wisconsin
 M.S. - University of Wisconsin
 Ph.D. - University of Wisconsin
- Geyer, Philip**1998
Faculty/Department Chair: Computer Information Systems
 B.S. - The University of Michigan
 M.S. - The University of Michigan
- Ghrist, William**1996
Manager: Maintenance
 A.D. - Washtenaw Community College
- Gibson, Maxine**1990
Faculty: English/ Writing
 B.S. - Eastern Michigan University
 M.A. - The University of Michigan
- Gilgenbach, Catharine H.**1998
Manager: Student Resources/ Women's Center
 B.S. - University of Wisconsin- Madison
 M.A. - Eastern Michigan University
- Glass, Michael K.**1991
Student Services Advisor: Club Sports
 B.S. - Eastern Michigan University
 M.A. - Eastern Michigan University
 M.S. - Eastern Michigan University
- Glowski, Susan K.**1988
Faculty: English/ Writing
 B.A. - Beloit College
 M.A. - San Francisco State University
- Glushyn, Diana R.**1979
Supervisor: Clerical Services
- Gmeiner, May**2002
Director Labor/Employee Relations: Human Resource Management
 B.B.A. - Saginaw Valley State University
 M.S. - Central Michigan University
 S.P.H.R. Certificate - Senior Professional Human Resources
- Goldberg, David**1977
Faculty: Mathematics
 B.S. - The University of Michigan

- Gracie, Cheryl D.**1989
Faculty: Business/Accounting
 B.B.A. - Eastern Michigan University
 M.B.A. - Eastern Michigan University
 J.D. - University of Oregon
 C.P.A. - The State of Michigan
- Grabel, Ray**2001
Program Manager: Department of Lifelong Education
 B.B.A. - University of Toledo
 M.B.A. - University of Toledo
- Greashaber, Anne L.**1997
Professional Services Personnel: Adult Transitions
 B.A. - The University of Michigan
 M.A. - The University of Michigan
- Green, Margaret**2001
Faculty: English/Writing
 B.A. - The University of Michigan
- Griffith, Michael**2000
Coordinator UA/Target Marketing: Admissions
 B.A. - University of Toledo
- Grimes, William L.**1991
Faculty: Business/Accounting
 B.A. - University of Southern California
 M.A. - The University of Michigan
 M.B.A. - University of California - L.A.
- Groce, Kimberly**1999
Specialist II: Student Resources/Women's Center
 B.S.W. - University of Detroit
 M.A. - Eastern Michigan University
 L.P.C. - State of Michigan
- Grossman, Esta**1975
Faculty/Department Chair: Life Sciences
 B.A. - Pembroke College in Brown University
 M.A. - The City College of New York
 M.S.W. - The University of Michigan
- Grotrian, Paulette**1980
Faculty/Department Chair: Humanities
 B.A. - Valparaiso University
 M.A. - Valparaiso University
 M.A. - Eastern Michigan University
- Grzegorzczuk, Phyllis**1978
Faculty: Nursing
 B.S. - The University of Michigan
 M.S. - The University of Michigan
 S.A. - The University of Michigan
 Ph.D. - The University of Michigan
- Guastella, C. Dennis**1980
Faculty/Department Chair: Visual Arts Technology
 A.A. - Macomb County Community College
 B.F.A. - Wayne State University
 M.F.A. - Eastern Michigan University
- Gudsen, Neil**2000
Program Manager: CIS/BOS
 J.D. - University of Detroit
- Guerrero, Debra**2002
Director: Learning Support Services
 B.A. Wayne State University
 M.A. California State University, San Bernadino
- Hackmann, Bruce**1999
Faculty: Humanities
 Certificate - Pennsylvania Department of Education
 B.A. - Adrian College
- Hageman, Rebecca**2000
Information Systems Support Specialist: Information Technology
 A.A.S. - Washtenaw Community College
 B. B. A. - Cleary College
- Hagen, Trudi**2003
Director: Children's Center
 B.S. - Eastern Michigan University
 M.S. - Eastern Michigan University
- Hagood, Robert M.**1997
Faculty/Department Chair: Physical Science
 B.S. - Eastern Michigan University
 M.S. - Eastern Michigan University
- Hall, Clyde**1978
Faculty: Welding and Fabrication
 A.D. - Washtenaw Community College
 B.S. - The University of Michigan
 A.W.S. - Certified Welding Inspector
- Halliday, Geoffrey B.**1997
Network Administrator: Information Technology
 A.D. - Washtenaw Community College
- Hammond, Linda**1987
Director of Business and Industry Services: Continuing Education/Community Services
 B.A. - The University of Michigan
 M.A. - The University of Michigan
- Hann, David F.**1986
Director of Accounting Services: Financial Services
 B.S. - Brigham Young University
 M.A. - Eastern Michigan University
- Hardy, Steven**2001
Controller: Financial Services
 B.B.A. - Eastern Michigan University
 M.B.A. - Eastern Michigan University
- Hargrave, Ralph**1995
Counselor: Health and Applied Technology
 B.D. - Payne Seminary University
 B.S. - Eastern Michigan University
 M.A. - Eastern Michigan University

- Harris, Sally D.**.....1981
Associate Counselor: Counseling/Career Planning
 A.D. - Washtenaw Community College
 B.A. - Concordia College
 M.A. - Eastern Michigan University
- Hasselbach, Clarence**.....2000
Faculty: Computer Information Systems
 B.S. - Michigan State University
 M.S. - University of Southern California
 M.A. - University of California Berkeley
- Hatcher, Robert**.....2000
Faculty: Mathematics
 B.A. - The University of Michigan
 M.S. - The University of Michigan
- Hatcher, Ruth**.....1981
Faculty: English/Writing
 A.B. - Earlham College
 M.A. - The University of Michigan
- Hawkins, Janet L.**.....1977
Coordinator, Public/Community Relations: Public Relations and Marketing Services
 A.D. - Washtenaw Community College
 B.B.A. - Eastern Michigan University
 M.A. - Eastern Michigan University
 A.P.R. - Public Relations Society of America
- Heidebrink, Gregg S.**.....1995
Faculty/Department Chair: Social Science
 B.A. - Iowa State University
 M.A. - Southern Methodist University
- Heise, Anne E.**.....1993
Faculty: Life Sciences
 B.A. - Swarthmore College
 M.S. - University of Vermont
- Hemsteger, Thomas**.....1991
Faculty/Department Chair: Automotive Services
 A.A.S. - Ferris State University
 B.S. - Eastern Michigan University
 M.A. - Eastern Michigan University
- Herrera, Terri**.....2002
Faculty: Culinary & Hospitality Management
 B.A. - Siena Height College
- Hommel, Judith C.**.....1992
Executive Associate to the President
 A.A. - Cottey Junior College
 B.S. - University of Oklahoma
 B.F.A. - Eastern Michigan University
- Hopkins, Lisa**.....2002
Events Coordinator: Student Activities
 B.A. - The University of Michigan
- Horne, Beth**.....1997
Laboratory Assistant: Culinary & Hospitality Management
 A.A.B. - University of Toledo
 Certificate - University of Toledo
- Hosier, Deborah**.....2000
Manager of Student Accounting: Financial Services
 B.B.A. - Cleary College
- Hoth, Bradley**.....1987
Coordinator of Academic Advising
 A.A. - Henry Ford Community College
 B.A. - Michigan State University
 M.A. - Eastern Michigan University
- Howard, Nancy**.....2001
Program Manager: Department of Lifelong Education
 A.A. - Niagara County Community College
 B.S. - Buffalo State College
 M.S. - Buffalo State College
 Ed. Sp. - University of Missouri-Columbia
- Hower, Guy W.**.....1966
Director: Financial Aid
 B.B.A. - The University of Michigan
 M.A. - The University of Michigan
- Hughes, Patrick**.....2000
Manager of Network/Communications: Information Technology
 A.S. - Henry Ford Community College
 B.S. - Madonna College
- Hurns, Kimberly**.....2003
Faculty: Business
 B.B.A. - Eastern Michigan University
 M.B.A. - Loyola University
- Jackson, Jennifer**.....2002
Faculty: Communications
 B.A. - Concordia University
 M.S. - Eastern Michigan University
- Jackson, Lawrence**.....1998
Laboratory Instructor: Public Service Training
 Certificate - State of Michigan
 B.S. - Wayne State University
- James, William E.**.....1994
Faculty: English/Writing
 B.A. - The University of Michigan
 M.A. - Wayne State University
- Jemison, Harriette**.....2002
Faculty: Behavioral Sciences
 B.A. - Tuskegee University
 M.A. - Loyola University - Chicago
- Jenkins, Joyce**.....1998
Training and Support Specialist: Information Technology
 B.S. - Michigan State University
 M.L.S. - Eastern Michigan University

Jett, Sukanya J1992 <i>Assistant Director: Enrollment Services</i> A.A. - Cottey Junior College B.A. - Radford University M.S.A. - Central Michigan University	Kenyon, Barbara H2000 <i>Coordinator of Basic Skills: Instructional Administration</i> B.A. - Rutgers University M.A. - University of California at Los Angeles
Ji, Shiping1999 <i>Database Administrator: Systems Administration</i> B.S. - Eastern Michigan University Certified Database Administrator- Oracle7.3 Certified Database Administrator- Oracle8	Kerr, John1993 <i>Faculty: Social Science</i> B.S.Ed. - Central Michigan University M.A. - Western Michigan University M.A. - Western Michigan University
Jindal, Usha R1982 <i>Faculty: Internet Professional</i> B.S. - Delhi University B.S. - Pennsylvania State University M.S. - Pennsylvania State University	Kibens, Maija1976 <i>Faculty: Humanities</i> B.A. - Mount Holyoke College M.A. - The University of Michigan Ph.D. - The University of Michigan
Johnson, Charles1998 <i>Faculty: Humanities</i> B.A. - Oakland University M.A. - Michigan State University Ph.D. - Michigan State University	Kier, G. Daniel2001 <i>Faculty: Visual Arts Technology</i> B.A. - Michigan State University M.A. - Eastern Michigan University
Johnston, Mark1990 <i>Faculty: Business/Accounting</i> B.B.A. - Eastern Michigan University M.S. - Walsh College	Kilgore, Robert2002 <i>Instructional Lab Assistant: Electricity/Electronics</i> A.S - Washtenaw Community College
Jones, Katherine L1992 <i>Administrative Associate: Business and Computer Technology</i> B.F.A. - Denison University M.A. - Eastern Michigan University	King, Linda1998 <i>Director: Special Community Group Education</i> A.B. - The University of Michigan A.M. - The University of Michigan
Jordan, Cole L1978 <i>Counselor: Counseling, Career Planning and Placement</i> A.D. - Washtenaw Community College B.A. - Wayne State University M.A. - Eastern Michigan University	King, Michael2002 <i>Faculty: Mathematics</i> B.A. - Western Michigan University M.Ed. - Wayne State University
Jozwik, Deborah L1998 <i>Support Specialist: Information Technology</i> A.D. - Washtenaw Community College	Kirkland, Robert W1988 <i>Faculty: Humanities</i> B.A. - The University of Michigan M.A. - The University of Michigan
Kalmbach, John2000 <i>Director of Media Services: Learning Resources Division</i> B.A. - University of Toledo M.Ed. - University of Toledo Ed.D. - University of Toledo	Kish, Glenn2003 <i>Systems Analyst II: Systems Development</i> B.B.A. - University of Toledo
Kapp, George1970 <i>Faculty: Physical Science</i> A.D. - Washtenaw Community College B.S.E. - The University of Michigan	Kissel, Julie2004 <i>Faculty: English/Writing</i> B.S. - Eastern Michigan University M.A. - Eastern Michigan University
Keller, Laurel2002 <i>Distance Learning Coordinator: UA Administration</i> B.A. - Michigan State University	Knox, Thomas2003 <i>Network Technician II, Information Technology</i> A.A.S - Washtenaw Community College
	Komarmy, Tracy L1993 <i>Faculty/Department Chair: Performing Arts</i> B.S. - Eastern Michigan University M.A. - Eastern Michigan University

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Faculty/Department Chair: English/Writing
 B.S. - Edinboro University Pennsylvania
 M.A. - Bowling Green State University
- Krieg, Laurence J.**.....1983
Faculty: Internet Professional
 B.A. - College of Wooster
 M.A. - The University of Michigan
 Ph.D. - The University of Michigan
- LaHote, Randy**1992
Faculty: Social Science
 B.A. - University of Toledo
 M.A. - University of Toledo
- LaPointe, Cheryl**2003
Compensation Specialist: Human Resource Management
 A.A. - Monroe County Community College
 B.A. - Spring Arbor University
 PHR Certificate - Society for Human Resource Management
- Lawrence, John**2003
Faculty: Performing Arts
- Lee, Michael N.**.....1998
Coordinator of Computer Labs: Business Division
 A.A. - Washtenaw Community College
- Lewis, James**.....2000
Faculty: Electronics
 B.S. - Southern Illinois University
 M.A. - Eastern Michigan University
 CISSP, CCNA, CCAI, CEH, CCE
 Computer Systems Technology- Keesler School of Applied Aerospace Science
 Graduate Certificate- Oregon State University- Computer Forensics
- Lippens, Joan**1993
Faculty: Academic Skills
 B.A. - Queen's University, Kingston
 B.Ed - Queen's University, Kingston
 M.A. - Eastern Michigan University
- Liu, Victor**.....1991
Interim Dean: Learning Resources Center
 B.A. - University of South Carolina
 M.A. - Michigan State University
 M.I.L.S. - The University of Michigan
- Lockard, John M.**1970
Faculty: Humanities
- Lozano, Birgitte**.....1986
Accountant for Cash Management: Financial Services
 B.A. - The University of Michigan
 CTP – Association of Finance Professionals
- Lu, Yin**.....1994
Faculty: Mathematics
 B.S. - National Taiwan University
 M.S. - National Taiwan Normal University
 Ph.D. - State University of New York, Buffalo
- Lukiewski, Linda**.....2000
Faculty: Nursing
 A.D.N. - Henry Ford Community College
 R.N.C. - State of Michigan
- Lutz, Geoffrey A.**.....1986
Systems Analyst III: Information Technology
 B.S. - The University of Michigan
- Lyjak, Laura A.**2000
Editor: Public Relations and Marketing Services
 B.A. - The University of Michigan
 M.A. - Eastern Michigan University
- MacGregor, Sherry S.**.....1994
Faculty: Nursing
 B.S.N. - The University of Michigan
 M.S.N. - Wayne State University
 D.I.P. - Henry Ford Hospital School of Nursing
- Mann, John B.**1971
Faculty: Automotive Services
 B.S. - Eastern Michigan University
 M.A. - The University of Michigan
 A.S.E. - National Auto Technical Certification
- Mansour, Khaled**.....2000
Faculty: Computer Information Systems
 M.S. - Western Michigan University
 B.S. - Yarmouk University
- Marinkovski, Elizabeth**1999
Human Resource Specialist: Human Resource Management
 A.D. - Washtenaw Community College
 B.A. - Eastern Michigan University
- Markell, Dawn**.....2005
Coordinator, Northern Area: Regional Services
 B.S. - Ferris State University
 M.S.A. - Central Michigan University
- Maroney, Laurie**.....2003
Program Manager-Apprenticeships/Business: Continuing Education
 A.A. - Washtenaw Community College
 B.B.A. - Eastern Michigan University
- McCarthy, Sandra**1999
Professional Librarian: Learning Resource Center
 B.A. - Wayne State University
 M.L.S. - Wayne State University
 M.A. – University of Detroit Mercy

McCracken, Alexandra2000 <i>Coordinator: MTIES</i> A.D. - Washtenaw Community College B.B.A. - The University of Michigan, Flint	Mourad, Roger1996 <i>Director: Institutional Research</i> B.A. - The University of Michigan J.D. - The University of Michigan M.S. - The University of Michigan Ph.D. - The University of Michigan
McGraw, Michael1993 <i>Faculty: Drafting</i> A.D. - Washtenaw Community College B.S. - Eastern Michigan University M.S. - Eastern Michigan University	Moy, William1968 <i>Faculty: Behavioral Sciences</i> B.A. - Valparaiso University
McGuire, Belinda G.1988 <i>Faculty: Drafting</i> A.S. - Monroe County Community College B.F.A. - Eastern Michigan University M.Ed. - The University of Toledo	Mullen, Marjorie1980 <i>Manager of Payroll: Financial Services</i>
McLane, Matthew2002 <i>Support Specialist: IT/User Support</i> B.S. - Eastern Michigan University CCNA - Cisco Certified Network Administrator MCP - Microsoft Certified Professional	Naylor, Michael L.1994 <i>Faculty: Performing Arts</i> B.M. - The University of Miami M.M. - The University of Miami M.A. - The University of Michigan Ph.D. - The University of Michigan
McMahon, Mitzi1977 <i>Program Manager: Automotive Services, Welding/Fabrication, and HVAC</i> A.D. - Washtenaw Community College B.B.A. - Cleary University B.O.S. Certificate- Washtenaw Community College	Nelson, Lisa2002 <i>Curriculum Development Specialist: Curriculum and Articulation Services</i> B.A. - Marygrove College
McPherson, Paul D.1990 <i>Faculty/Department Chair: Culinary and Hospitality Management</i> B.A. - Madonna College M.S.A. - Central Michigan University Certificate - American Culinary Federation	Nelson, William H.1992 <i>Clinical Instructor: Allied Health/Radiography</i> A.D. - Washtenaw Community College B.S. - Western Michigan University M.A. - The University of Michigan
Meissner, Michelle2001 <i>Coordinator of Distance Learning</i> B.A. - Eastern Michigan University	Nestorak, Theresa1989 <i>Faculty/Department Chair: Nursing</i> B.S.N. - The University of Michigan REGIS - State of Michigan M.S.N. - Eastern Michigan University
Mihaly, Chris2003 <i>Employment Manager: Human Resource Management</i> B.S. - Indiana University of Pennsylvania PHR Certificate - Society for Human Resource Management	Nevers, William B.1975 <i>Faculty/Department Chair: Life Sciences</i> B.S. - Wayne State University D.D.S. - The University of Michigan School of Dentistry
Miller, Jean1989 <i>Faculty: English/Writing</i> B.A. - Marygrove College M.A. - University of Tulsa	Norwood, Mimi Y.1993 <i>Faculty: Behavioral Sciences</i> A.D. - Washtenaw Community College B.S. - Wayne State University M.S.W. - The University of Michigan M.A. - Morehead State University
Morris, Aveia2002 <i>Tech Prep Articulation Coordinator: Curriculum & Assessment</i> B.A. - Metropolitan State University M.P.A. - The University of Michigan, Dearborn	Nwokeji, Lindamarie1999 <i>Director, Compensation/Benefits: Human Resource Management</i> B.A. - Florida State University M.B.A. - Butler University
Moulton, Maxine1989 <i>Faculty: Nursing</i> B.S.N. - The University of Michigan REGIS - State of Michigan M.S.N. - Eastern Michigan University	Ong, Boon Neo Juliana1992 <i>Systems Analyst II: Information Technology</i> B.B.A. - Eastern Michigan University M.B.A. - Eastern Michigan University Oracle Certified Application Developer, Oracle Developer Release 2 - Oracle Corp

- Orbits, Elizabeth**.....2001
Specialist: Student Resources/Women's Center
 B.A. - University of Michigan
 M.A. - Eastern Michigan University
 M.A. - Eastern Michigan University
 LPC- State of Michigan
 NCC- National Board for Certified Counselors
- Ortega, Maria**1992
Faculty: Behavioral Sciences
 B.S. - Central Michigan University
 M.A. - Michigan State University
- Ostrowski, Arista**.....2003
Financial Aid Specialist: Financial Aid
 A.G.S. - Washtenaw Community College
- Paas, Cecilia**.....1998
Counselor: Counseling/Career Planning and Placement
 A.D. - Washtenaw Community College
 License - State of Michigan
 B.S. - Eastern Michigan University
 M.A. - Eastern Michigan University
- Pardon, Joshua**.....2000
Coordinator: Campus Events & Media Productions Media Services: Learning Resources Division
 B.S. - Eastern Michigan University
- Parker, Karen J.**1989
Other Funds Accountant: Financial Services
 A.D. - Washtenaw Community College
 B.B.A. - Eastern Michigan University
- Pawloski, Judith A.**.....1994
Faculty: Nursing
 B.S.N. - Wayne State University
 M.S.N. - Wayne State University
 D.I.P. - Mercy School of Nursing - Detroit
- Peck, Joshua P.**.....1996
Support Specialist: Information Technology
 A.D. - Washtenaw Community College
- Penird, Thomas**.....2000
Faculty: Industrial Technology
 A.T.S. - Washtenaw Community College
 B.S. - Eastern Michigan University
- Penner, Charles A.**.....2002
Director: Small Business Technology Development Center
 B.A. - Hampshire College
 M.P.P.M. - Yale University
- Perez, Laura**.....1993
Faculty: Mathematics
 B.S. - Bowling Green State University
 M.A. - Bowling Green State University
- Perkins, Thornton**.....2002
Faculty: Social Sciences
 B.A. - Wayne State University
 M.A. - California State University - Los Angeles
- Petty, Dale**1994
Faculty: Electricity/Electronics
 B.S.E.E. - State University of New York at Buffalo
 M.S.C.E. - Case Western Reserve
- Phibbs, John**1969
Manager: Records Management
 A.D. - Washtenaw Community College
 B.B.A. - Eastern Michigan University
- Phillips, Robert J.**1998
Support Specialist: Information Technology
 A.D. - Washtenaw Community College
- Pierce, Les**.....1984
Director: Technical Education
 A.A. - Polk Community College
 B.A. - University of Florida-Gainesville
 B.A.E. - University of Florida-Gainesville
 M.Ed. - University of Florida-Gainesville
- Pinnamaneni, Jagadeesh**.....1999
Systems Analyst II: Information Technology
 B.A. - Nagarjuna University, India
 B.S. - The University of Michigan
- Pleitner, Peter**2001
Faculty: Automotive Services
 B.S. - The University of Michigan
 M.A. - The University of Michigan
- Popovich, James**.....1999
Faculty: Industrial Technology
 B.S. - LeTourneau College
 M.S. - Ferris State University
- Pullins, Les**.....2003
Faculty: Heating, Ventilation, Air-Conditioning
 A.A.S. - Ferris State University Michigan
 Construction Code Licenses - Mechanical Contracting and Journeyman Plumbing
- Quail, Michael E.**1994
Faculty: Mathematics
 B.A. - Wayne State University
 M.A. - Eastern Michigan University
 M.S.W. - The University of Michigan
- Rader, Rosemary**1994
Faculty: Physical Science
 B.S. - The University of Wisconsin-Oshkosh
 Ph.D. - Purdue University

- Redondo, Juan C.**1994
Faculty: Humanities
 M.A. - University Complutense - Madrid
 M.A. - University of California at Berkeley
 M.A. - The University of Wisconsin
- Reed, Tom**2000
Manager: Web Services
 B.A. - Kansas State University
 M.S. - University of Kansas
 Ph.D. - The University of Michigan
- Reichert, William**2002
Faculty: Electricity/Electronics
 B.S. - Purdue University
- Remaley, Dana**2003
Systems Analyst III: Systems Development
 B.S. - The University of Michigan
- Remen, Janet M.**1982
Faculty: Mathematics
 B.S. - University of Durham
 M.S. - The University of Michigan
- Rigg, Mary Lou**2002
Student Services Advisor/Coordinator: Extension Center Administration
 B.S. - Eastern Michigan University
- Rinke, John**1992
Director: Counseling, Career Planning and Placement
 B.S.Ed. - Central Michigan University
 M.A. - Michigan State University
 Ed.S. - Central Michigan University
 Ed.D. - Western Michigan University
- Rinn, John**1980
Faculty: Computer Information Systems
 A.A. - Port Huron Junior College
 A.B. - The University of Michigan
 M.S. - The University of Michigan
- Rivers, Lynn**2004
Faculty, Social Science
 B.A. - The University of Michigan
 J.D. - Wayne State University
- Robinson, Todd**1996
Supervisor: Custodial Services
 Certificate - U.S. Air Force
- Rombes, Lisa**2002
Faculty: Mathematics
 M.Ed. - Penn State University
 B.S.Ed. - Bowling Green State University
- Roof, Rex**2000
Unix Administrator: Information Technology
- Roome, Lori**1999
Coordinator: Conference Services
 B.S. - Michigan State University
- Roque, Francisco**1999
Unix Administrator: Information Technology
- Rumsey, Krissa**2003
Grant Writer Administrator: Development, Grants and Governmental Relations
 B.A. - Concordia University
 M.S. - The University of Michigan
- Rush, Joseph**2002
Faculty: Social Sciences
 B.A. - Pennsylvania State University
 M.Litt. - University of St. Andrews - Scotland
 Ph.D. - University of Oregon
- Rutley, Lillie**2001
Supervisor: Custodial Services
 A.A. - Washtenaw Community College
- Salter, Vickie**1999
Faculty: Nursing
 A.S.N. - Wayne County Community College
 B.S.N. - Wayne State University
 M.S.N. - University of Phoenix
 Ph.D. - Capella University
 R.N. - State of Michigan
- Schebil, Ronald**2001
Director: Safety and Security
 B.B.A. - The University of Michigan
- Schultz, Gary L.**1984
Faculty/Department Chair: Industrial Technology
 A.D. - Washtenaw Community College
 B.S. - Eastern Michigan University
 M.S. - Eastern Michigan University
- Schuster, William**1989
Faculty: Automotive Services
 B.A. - Wayne State University
 M.A. - Eastern Michigan University
- Scott, Kathleen**1971
Librarian: Learning Resource Center
 B.A. - University of Iowa
 M.A. - University of Iowa
- Shepherd, Kimberly**2002
Faculty: Reading
 M.A.T. - Michigan State University
- Shier, David**1990
Faculty: Life Sciences
 B.S. - Cornell University
 Ph.D. - The University of Michigan

- Shuldin, Julia**2001
Network Administrator: Information Technology
B.S. - Dnepropetrovsk St. University, Ukraine
- Siehl, Chris**1995
Faculty: Behavioral Sciences
B.A. - Wittenberg University
M.A. - Northwestern University
M.S.W. - Michigan State University
- Smillie, Catherine**2001
Director: Public Relations and Marketing Services
B.A. - The University of Michigan
M.A. - The University of Michigan
- Sobbry, William (Gary)**2003
Faculty: Automotive Services
Mastery Certificate: Auto Repair Washtenaw
Community College
- Sprague, Kristina**2003
Faculty: Dental
B.S. - Central Michigan University
CDA- Certified Dental Assistant
RDA- Registered Dental Assistant
- Stadtfeld, Kathleen A.**1982
Director: Educational Services
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University
- Stafford, Kathryn**2001
Information Officer: Enrollment Services
A.A. - Kellogg Community College
A.B. - University of Michigan
M.B.A. - Michigan State University
- Stanford, Adrian**1987
Student Services Advisor: Club Sports
B.S. - Eastern Michigan University
- Strayer, Ross**1989
Faculty: Life Sciences
B.S. - Eastern Michigan University
M.S. - Eastern Michigan University
- Strnad, Kathleen B.**1998
Counselor: Math, Natural and Behavioral Sciences
A.B. - Mercy College of Detroit
M.A. - The Fielding Institute
M.A. - Goddard College
Ph.D. - The Fielding Institute
- Stuth, John**2003
Foreman: Residential Construction Program
Builders License - State of Michigan
- Susnick, Stuart B.**1969
Faculty: Social Science
B.A. - Brooklyn College, CUNY
- Swan, Barry**1994
Faculty: Drafting
A.A.S. - Oakland Community College
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University
- Swan, Judith**1989
Director: Extension Services and Distance Learning
B.A. - Eastern Michigan University
M.A. - Eastern Michigan University
- Talley, Dana L.**1993
Benefit Specialist: Human Resource Management
- Tanguay-Hoover, Julie**1994
Graphic Services Coordinator: Public Relations and Marketing Services
B.A. - College for Creative Studies
- Taylor, Daniel R.**2000
Coordinator of Public Computing: Learning Resources
A.A. - Washtenaw Community College
B.S. - Eastern Michigan University
M.L.S. - Eastern Michigan University
Graduate Certificate - Eastern Michigan University
- Teevens, James**1989
Faculty/Department Chair: Drafting
A.A.S. - Schoolcraft College
B.Arch. - University of Detroit
M.Ind.Ed. - Eastern Michigan University
- Tepley, Philip**2000
Technology Business Consultant: Small Business & Technology Development Center
B.A. - The University of Michigan
- Tew, Bonnie E.**1994
Faculty: Humanities
A.A. - Kellogg Community College
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University
- Thoburn, Elisabeth**1995
Faculty: Humanities
B.A. - The University of Michigan
M.A. - The University of Michigan
- Thomas, David**1980
Faculty: Physical Sciences
A.S. - Macomb Community College
B.S. - Eastern Michigan University
M.S. - Eastern Michigan University
- Thomas, Martin**1995
Manager: Warehouse Services
- Thompson, Doreen**1975
Faculty: Behavioral Science
B.A. - Atlantic Union College
M.P.H. - The University of Michigan

Thompson, Dosye1993 <i>Faculty/Department Chair: Business Office Systems</i> B.S. - Wayne State University M.B.E. - Eastern Michigan University	VanMarter, Kristy1994 <i>Program Specialist: Learning Support Services</i> B.B.A. - Cleary University
Tom, Kimberly1988 <i>Manager, User Support Services: Information Technology</i> A.D. - Washtenaw Community College B.A. - The University of Michigan	Veasey, Lisa K.1999 <i>Faculty: English/Writing</i> B.A. - Eastern Michigan University M.L.S. - Eastern Michigan University
Townsend, Henry1991 <i>Faculty: Public Service Careers</i> B.A. - The University of Michigan, Flint M.A. - Eastern Michigan University	Velarde, Gloria A.1990 <i>Faculty: Nursing</i> B.S.N. - Eastern Michigan University M.S.N. - Wayne State University
Trame, John1989 <i>Faculty: Electricity/Electronics</i> B.S. - University of Houston M.S. - University of Houston Sp.A. - Eastern Michigan University	Wagner, Robin L.1995 <i>Financial Systems Analyst: Financial Services</i> B.A. - Siena Heights College M.B.A. - Walsh College
Tran, Michael D.1998 <i>IT Support Specialist: Information Technology</i> B.B.A. - Eastern Michigan University	Wagner, Sandra L.1997 <i>Help Desk Specialist: Information Technology</i> General Office Specialty Certificate - Washtenaw Community College Certificate - Brockton Institute A.D. - Washtenaw Community College
Trapp, Lori J.1996 <i>Assistant Director: Financial Aid</i> B.A. - Michigan State University	Wahab, Hanan A.2000 <i>Faculty: Mathematics</i> M.S. - Michigan State University M.S. - Michigan State University
Travis, Susan2000 <i>Counselor: Health Programs</i> B.A. - Concordia College M.A. - Eastern Michigan University	Walline, Cynthia1987 <i>Student Advisor: Orientation</i> B.A. - Eastern Michigan University
Trosch, Diane J.1979 <i>Counselor: Counseling, Career Planning and Placement</i> A.D. - Washtenaw Community College B.A. - Concordia College M.A. - Eastern Michigan University	Walsh, Ruth Anne1987 <i>Faculty/Department Chair: Public Service Careers</i> B.A. - University of Toledo J.D. - University of Toledo
Turelli, Diane2001 <i>Faculty: Mathematics</i> B.S. - Purdue University M.A. - Purdue University	Warkoczeski, Brian2000 <i>Coordinator: Web Services</i> B.B.A. - Grand Valley State University
VanderVeen, Sister Judith1976 <i>Faculty: Nursing</i> S.A. - Wayne State University S.A. - The University of Michigan Diploma - Mercy Central School of Nursing REGIS - State of Michigan B.S.N. - Mercy College of Detroit M.A. - The University of Michigan	Warner, Elizabeth1988 <i>Faculty/Department Chair: Academic Skills</i> B.A. - The University of Michigan M.A. - San Francisco State University
VanGenderen, Gary L.1982 <i>Faculty: Physical Sciences</i> B.S. - The University of Michigan M.S. - Eastern Michigan University	Warsinske, Thomas G.1998 <i>Database Analyst/Administrator: Information Technology</i> B.S. - The University of Michigan B.S. - Eastern Michigan University
	Waskin, David2003 <i>Manager of Student Media: Student Activities</i> B.A. - The University of Michigan M.A. - University of Miami

- Wasserman, Donna**.....2002
Faculty: Social Science
 B.A. - Hamilton College
 M.A. - Georgetown University
 Ph.D. - The University of Michigan
- Weber, Kathleen**.....2002
Faculty: Dental
 A.D. - Washtenaw Community College
 B.A.S. - Siena Heights University
- Wegrzyn, Nancy D.**.....1985
Purchasing Coordinator/Buyer: Purchasing/Auxiliary Services
 B.S. - Eastern Michigan University
 Certificate - Eastern Michigan University
- Welch, Daniel J.**.....1997
Program Administrator: United Association
 B.A. - University of Detroit
 M.Ed - Wayne State University
- Werthmann, Donald**.....2000
Faculty: Visual Arts Technology
 B.F.A. - Wayne State University
 M.A. - Wayne State University
- Westcott, Richard**.....1984
Manager: Grounds/Fleet and Equipment Maintenance
- Wiederhold, Holly**.....2004
Facilities Project Coordinator: Facilities Management
 B.S. - Ball State University
- Wilkins, Barry L.**.....1982
Director: Facilities Management
 A.D. - Washtenaw Community College
- Willimann, Kristine**.....1999
Faculty: Visual Arts Technology
 B.A. - Michigan State University
- Williamson, Anthony**.....2002
Coordinator, Harriet Street Center: Adult Transitions
 A.A. - Washtenaw Community College
 B.S. - Eastern Michigan University
 M.S.W. - Eastern Michigan University
- Wilson, Elaine**.....2003
Faculty: Humanities
 B.A. - Washington University
 M.A. - Yale University
- Withrow, Jason**.....2001
Faculty/Department Chair: Internet Professional
 B.A. - Capital University
 M.A. - University of Akron
 M.S.I. - University of Michigan
- Woehlke, Laura A.**.....1993
Director: Purchasing and Auxiliary Services
 A.D. - Davenport College of Business
 B.S. - Aquinas College
 M.S. - Ferris State University
- Wood, John D.**.....1984
Student Advisor: Career Development
 B.S. - Michigan State University
- Worrell, Sandra M.**.....1998
Associate Professional Services Personnel: Workplace Learning Center
 B.S. - New York State University
 M.Ed. - Northeastern University
- Wurster, Allen J.**.....1995
Technician: Testing Center
 A.D. - Washtenaw Community College
- Yong, Howard**.....1999
IT Macintosh Support Specialist
 B.S. - Eastern Michigan University
- Young, Colette**.....1987
Faculty: Business
 B.A. - Michigan State University
 M.A. - Michigan State University
- Young, Mary Etta**.....1975
Counselor: Counseling, Career Planning and Placement
 B.R.E. - Detroit Bible College
 B.A. - Eastern Kentucky University
 M.A. - Eastern Kentucky University
- Zimmerman, Thomas**.....2002
Faculty: English/Writing
 B.A. - University of Iowa
 M.A. - University of Iowa

Program Advisory Committees

Members of program advisory committees work closely with WCC faculty to improve the curriculum, keep instructors current on market trends, and provide advice for updating equipment and facilities. These individuals, all local community volunteers, represent a wide and diverse spectrum of the business, industry, professional, and educational agencies of the region. The College depends on the advice and assistance of these representatives to continually maintain the highest quality educational programs, courses, and services. Deans and department chairs are ex officio members of committees in their areas.

Program Advisory Committees 2005-2006

Architectural Drafting Advisory Committee

Tom Buresh	University of Michigan
Charles Cooper	Ann Arbor Architects Collaborative
Anne M. Cox	
Larry Darling	International Masonry Institute
John Hinkley	Hobbs & Black Architects
Margaret Jarvis	Student, WCC
Andrew Johnston	Student, WCC
Edward Kelly	
Daniel Mallot	
Robert Miller	Student, WCC
David Pacifico	Pacifico Associates, Inc.
Ken Perkins	Hobbs & Black Architects
Hardie L. Richardson	Ypsilanti Construction & Maint.
Justin Wagoner	Student, WCC
Kirk Waterbury	
Lee Yaros	Henry Ford Community College

Automotive Mechanics Advisory Committee

Allen Day	Mobil Maintenance
John Hochrein	Gardner Inc.
Dan Hoffenbecher	Side Street Garage
Matt Kelley	Saline Dodge
Darryl Kooperman	Koops Super Sharp
Dave Suydam	Moto 1 Cycle
Tom Tower	Varsity Ford
Phil Valrance	D&H Auto

Business Office Systems Advisory Committee

Artemis Alex	Ypsilanti High School
Lillie Carter	University of Michigan
Lori Casterton	Manpower Staffing Services
Linda Hoyer	Student, WCC
Georgia Jennings	St. Joseph Mercy Health System
Camille Moberg	Sallie Hamilton Personnel
Shelly Piper	University of Michigan
Carol Sturtevant	Pfizer Research & Development
Darcelle D. White	Eastern Michigan University

Child Care Advisory Committee

Carrie Anderson	Morning Star Child Care Center
Martha Baiyee	Eastern Michigan University
Linda Coon	Child Care Network
Liz Galimore	Saline High School
Trudi Hagen	WCC Children's Center
Peretz Hershbein	Jewish Community Center
Rick Leyschok	WISD
Beth Marshall	High/Scope Educational Research
Dawn Murrell	Baker College
Carmen Parson	Washtenaw County Head Start
Diane Sheffrey	St. Francis School
Lillie Winkeljohn	Gretchen's House VI

Computer Information Systems Advisory Committee

Daniel Bethuy	Booth Computer Division
Dennis Carmichael	Cimulus, Inc.
Clif Flynt	Noumena Corporation
Terence P. Gliedt	University of Michigan
Kathy Gourlay	Software Developer
Nancy Howard	Lifelong Education, WCC
Eric D. Maes	ParishSOFT, LLC
Andrew Sallie	Software Developer
Roy Schmidt	Nordic Technologies
Patricia Schumaker	Schumaker and Company, Inc.
Hun-Lian Tang	Eastern Michigan University
Victor Volkman	EDS PLM Solutions
Leon Wilson	Federal-Mogul

Computer-Aided Drafting/Industrial Design Advisory Committee

David Mayer
Robert Schwartzberger
William Stewart

Computer Networking/Electricity/Electronics Advisory Committee

Frank Carlisimo	University of Michigan
Ben Fauber	University of Michigan
Kurt Hillig	University of Michigan
Ron Murphree	ADP

Computer Security Advisory Committee

Elena de la Calle	Student, WCC
Douglas Cox	Info Tech Consultants
Joe Duke	Drive Spies, LLC
Derrek Gabbard	Arbor Networks
Kurt Hillig	University of Michigan
Paul Howell	University of Michigan
Stephanie Miller	Hewlett Packard
Jose Nazario	Arbor Networks
Terry Weadock	Dominant Systems

Program Advisory Committees

Culinary and Hospitality Management Advisory Committee

Milissa Ackron	Student, WCC
Jim Bitzinger	Campus Inn Hotel
Bill Collins	Barton Hills Country Club
Frank Corollo	Zingermans Bakehouse
Jane Cuthbert	Ann Arbor Hospice
Joni Eastworth	RCTC Culinary Arts Instructor
Bob Hacker	Comfort Inn
Debbie Hanchett	HDS Services
Kevin Hill	Howell High School
David Kabat	Haabs Restaurant
Kyle Kooyers	Student, WCC
Shiley Lapp	Lenawee High School
Debbie Locke-Daniel	YV&CVB
Mark Lloyd	Marriott
Michael J. Maynard	Angel Food Catering
Dorothy McLeod	Mainstreet Ventures
Bonnie Miles	AACVB
Isabella Nicoletta	Paesano's Restaurant
Judy Radant	South & West Consortium
Marilyn Sauter	Ann Arbor Public Schools
Scott Storbeck	St. John's Golf & Conference
Chuck Usztics	Romulus High School
Janna Wyrick	Wendy's International

Dental Assistant Advisory Committee

Daniel Balbach	Private Practitioner
Daniel H. Cox	Private Practitioner
J. Michael Dibble	Private Practitioner
Gwen Graham-Feldkamp	Michigan Prison Systems
John Fleszar	Private Practitioner
Jed Jacobson	Delta Dental
John Logan	Private Practitioner
Jody Neuman	Practitioner
Stephen J. Stefanac	School of Dentistry, University of Michigan
Gina Taylor	Practitioner
Kay L. Wilson	Wilson and Associates
Carl T. Woolley	Private Practitioner

Entrepreneurship Advisory Committee

Riyadh Bahkali	Ann Arbor Academy
Kathi Boyle	Center for Ergonomic Empowerment & Development
Pradeep Chowdhry	Eastern Michigan University Center for Entrepreneurship
Teresita Dela Fuente	Ann Arbor Chamber of Commerce
Cathie Dries	Washtenaw Community College
David Dugger	Washtenaw Technical Middle College
Ray Grabel	Washtenaw Community College
John E. Lawrence	Washtenaw Community College

Charlie Penner	MI--SBTDC
Preston Peterson	Astral Associates, LLC
Kelly Stapleton	Alumnus, WCC
Diane Stocker-Bendersky	Huron High School
Jason Withrow	Washtenaw Community College

Graphic Design Advisory Committee

Susan Amstutz	Graphic Designer
David Bloom	Factotem
Mark Riley LaBay	Simulation Solutions
Ed McDonald	Rogue Nation
Chad Taylor	Western Creative, Inc.
Nick Watts	Out Loud Creations

Human Services Advisory Committee

Ken Behmer	Washtenaw Community College
Nicole Hammer	Community Corrections
Linda Haywood	Community Supports & Treatment
Nan Holmes	Retired, WCC
Linda King	Washtenaw Community College
Patricia LaGrand	Head Start
John Rinke	Washtenaw Community College
Eva Taylor	Eastern Michigan University

Internet Professional Advisory Committee

Tom Allison	University of Michigan
Steve Beyer	Freelance Web Developer
Constance Colthorp	Enlighten
Amy Garber	University of Michigan
Catherine Hayes	Inner Circle Media
Austin McLean	ProQuest Information & Learning
Dave Mitropoulos-Rundus	Compuware Corporation
Peter Morville	Semantic Studios, LLC
Karen Schwallie	Fry, Inc.
David White	Arbortext

Machine Tool Technology Advisory Committee

Frank Bennett
Roger Dick
Dennis Horton
Tom Martin

Management Supervision Advisory Committee

Amelia Chan	Eastern Michigan University
Jennifer Brandt	NuStep, Inc.
Gary Evans	Beyond Interactive
David Horowitz	The Creative Department
Deborah Jones	Comerica Bank
Toni Morell	Zingerman's Mail Order
Dilip Mullick	East West Industrial Engineering
Charlie Penner	MI--SBTDC
Jay Richards	Denison Consulting
Steve Schneider	Weidmayer, Schneider, Raham & Bennett, CPA

Candace Shavalia Buschs Inc.
Nursing Advisory Committee
 Tracy Bevier Glacier Hills
 Cyndy Brown Saline Evangelical Home
 Kenya Drew Heartland Health Center
 Scott Eldridge Beaumont Hospital
 Kathleen Fischer University of Michigan Health System
 Pam McCoy VA Medical Center
 Cathy Mitchell University of Michigan School of Nursing
 Michael Murphy St. Joseph Mercy Hospital
 Angela Poppe Washtenaw Community College
 Jennifer Schultz St. Joseph Mercy Hospital
 Detria Williams VA Medical Center
 Michael Williams Eastern Michigan University

Pharmacy Technology Advisory Committee
 Jamie Curry Daimler Chrysler
 Dennis Delonnay VA Medical Center
 Diane Gaul University of Michigan Pharmacy Services
 Marie Leonard St. Joseph Mercy Hospital
 Ronald Lukasiewicz Oakland Community College
 Kiela Samuels K-Mart Corporation
 Deb Sizemore Home Med
 Leza Taylor University of Michigan Pharmacy Services
 Beth Weaver McKesson Pharmacy Systems

Police Academy Advisory Committee
 George Basar Ypsilanti Police Department
 William Bess University of Michigan Department of Safety
 Darnell Blackburn MCOLES
 Paul Bunten Saline Police Department
 Brian Mackie Washtenaw County Prosecutor
 Dan Minzey Washtenaw County Sheriffs Dept.
 Daniel Oates Ann Arbor Police Department
 John Phillips Pittsfield Township

Radiography Advisory Committee
 Betty Allen Veterans Administration Hospital
 Susan Aris Chelsea Community Hospital
 Dawn Baker Oakwood Anapolis Hospital
 Tim Baker Veterans Administration Hospital
 Deborah Burch University of Michigan Medical Center
 Cindy Corredine St. Mary Mercy Hospital
 Jody Dennison Wyandotte General Hospital
 Peggy Goodman Chelsea Community Hospital
 Karen Hartman St. Joseph Mercy Hospital
 Amy Helton Foote Hospital
 Bernadette Nareski Wyandotte General Hospital

Willie McLaughlin Veterans Administration Hospital
 Dianna Redman Monroe Mercy Memorial Hospital
 Tracey Santure Saline Community Hospital
 James Shields St. Joseph Mercy Hospital
 Lisa Springsteen St. Joseph Mercy Hospital
 Dorene Stegink University of Michigan Health Services
 Kim Tackett Oakwood Anapolis Hospital
 Athlious Tinsley St. Joseph Mercy Hospital

Technical Writing Advisory Committee
 Nancy Allen Eastern Michigan University
 Ruth Blough Open Door Communications, Inc.
 Maryann Bowen Independent Contractor
 Alison Buno Pfizer
 Mary Carabello Student, Eastern Michigan University
 Michael Dailey Independent Contractor
 Andrea Frazier Creative Solutions, Inc.
 Laurie Kantner Tec-Ed, Inc.
 Heather Keeler Skipping Stones
 Tony McReynolds Student, Eastern Michigan University
 Sally Paul Creative Solutions, Inc.
 Gray Reynolds Compuware
 Deb Stacy Creative Solutions, Inc.
 Catherine Titta Crystallize, Inc.

Visual Arts Technology Advisory Committee
 Bob Aikenhead Part-Time Faculty, WCC
 Brian Broughton Mamiya America Corporation
 Jennifer Davis Photo Lab Technician, WCC
 Bob Foran Commercial Photographer
 Ann Keesor Portrait Photographer
 Julia Gordon Foto 1 Photo/Digital
 Kyle Yaeger Photo Lab Technician, WCC

Glossary of terms used at WCC

Academic Caution

The first step in the Academic Intervention Program. Students must work with a counselor before they will be allowed to register, or drop/add. Students who improve and meet the criteria of the Program will move out of the Academic Intervention Program and into Good Standing. Otherwise, students will remain in Academic Caution or move into Academic Warning, depending on their performance.

Academic Honors

Honors bestowed upon a student who has achieved a high level of academic success. Honors may be based upon performance over one or more semesters (Dean's Honor Roll) or for cumulative performance at the time of graduation (Graduation Honors).

Academic Intervention Program

A program designed to identify and assist students who are showing signs of significant academic struggle. Students in this program must work with a counselor to develop an academic plan before they will be allowed to register. After three semesters, students who make no progress will be suspended.

Academic Suspension

Students involved in the Academic Intervention Program who have been unsuccessful at improving their performance will be suspended for the Fall or Winter semester or for an Academic year, in keeping with the criteria of the Program. Academic Suspension would occur no sooner than the end of the student's third semester.

Academic Warning

The second step in the Academic Intervention Program. Students must work with a counselor before they will be allowed to register, or drop/add. Students whose grades improve and meet the criteria of the Program will move out of Academic Warning and either up to Academic Caution status or back into Good Standing. Otherwise, students will remain in Academic Warning or be put on Academic Suspension, depending on their performance.

Accreditation

Recognition that the College or a College program has met standards or requirements set up by an external organization.

Add

Adding a class to the student's schedule by registering for it by the Add deadline for the session.

Admission

Acceptance of an applicant for enrollment in the College.

Articulation

The process of arranging instructional programs so that students may progress from one educational level to another without loss of credit.

Assessment

The process of determining a student's interests or level of competence.

Audit

To enroll in a College academic credit-bearing course on a non-credit basis. Such credits as the course normally carries are not included as part of the total credit load, however, tuition is assessed like a credit registration. An auditor ("AU") grade is issued and posted to the transcript.

College Withdrawal

The process by which a student discontinues enrollment in all courses.

College Work-study

An award of employment (i.e., an opportunity to work for paid wages on the campus) given to a student based on financial need.

Continuing Education Units (CEU's)

A nationally recognized recording device for substantive non-credit learning experiences. One CEU is defined as ten contact hours of participation in an organized continuing education experience with responsible sponsorship, capable direction, and qualified instruction.

Co-requisite

An additional course which is required to be taken during the same semester with another course.

Course Load/Overload

The total number of credit hours a student is officially registered for in a given semester. A Full-time Student is one who enrolls in 12 or more credit hours per semester; a Part-time Student is one who enrolls in less than 12 credit hours per semester; a Half-time Student is a Part-time student enrolled in at least 6 credit hours per semester. Students enrolling in more than 18 credit hours per semester are considered to be carrying a Course Overload.

Credit Hours

The number of hours of credit granted for a particular course. The number of credit hours is normally equal to the number of lecture hours that a class meets each week e.g., a 3 credit hour class will meet for 3 hours each week for a 15-week semester.

Cumulative Grade-Point Average

A measure of a student's scholastic success, which includes all coursework attempted at the College. The average is obtained by dividing the total grade points by semester hours of credit attempted.

Curriculum

A group of courses, sequences of subjects, or planned learning experiences.

Drop

Term used when a student removes a class from his/her schedule by the 100% refund deadline for the session. The refund deadlines are published in the printed Academic Class Schedule or on the Web. The student receives a refund for tuition paid minus any fee that may apply to the particular class. This class will not show on the student transcript. Students on financial aid may owe the government money back if they drop a course.

Educational Goal

A student's statement of the goal he/she intends to achieve by attending WCC.

Elective Course

A course which a student may choose to take from a number of alternative courses in order to fulfill a program requirement (see Open Elective and Restricted Elective).

Emeritus Program

A program for county residents who are at least sixty-five years of age which offers tuition-free participation in WCC credit and credit-free courses, workshops and seminars.

Fees

Charges assessed to students other than tuition charges.

Financial Hold

Students are placed on financial hold when they have not met their financial obligations to the College. Students placed on financial hold are not allowed to register for courses, cannot receive their College Certificate, Associate Degree or transcript and are not eligible to receive College services of any kind.

Freshman/First Year Student

A student who has completed fewer than 31 credit hours.

GED Examination

The General Education Development examination is a comprehensive test used to appraise the educational development of adults who have not completed a high school education. By achieving satisfactory scores on the GED adults may earn a high school equivalency certificate.

General Education Requirements

A body of learning areas which are incorporated into every WCC degree program of study. At WCC these areas include writing, speech, mathematics, natural sciences, social and behavioral sciences, arts and humanities, and computer information literacy.

Grade Point Average

The number of grade points earned divided by the semester hours of credit attempted.

Grant

An award of money given to a student based on financial need. Grants do not need to be repaid.

Instructor Permission

If an instructor grants a student permission to register for a class, the instructor will issue the approval electronically so that the student can register online by the published Add deadline. Notification of approval to register will be sent to the student's WCC e-mail account.

Level Change

Moving from one level of a course to another level because of a recommendation by an instructor. For instance, an instructor may recommend a move from Math 097 to Math 062.

Loan

An award of money given to a student based on financial need. Loans must be repaid once a student leaves the College or does not continue at the college on at least a half-time basis.

Open Elective

A course that may be chosen from any credit course offered at WCC and applied to a program of study. The credit hours for elective courses will be counted toward the total hours required for program or certificate completion.

Orientation

A presentation for new WCC students to acquaint them with College facilities, programs, services and procedures.

Post-secondary Education

Education beyond the high school level.

Prerequisite

Requirements that must be met or courses which must be successfully completed prior to enrolling in a specific course or program.

Program Advisory Committees

A committee made of local community volunteers representing business, industry, professional and educational agencies that provide advice and assistance to WCC's educational programs.

Registration

The process of officially enrolling in a course (or courses). Upon registration and payment, the course(s) are entered onto the student's permanent record.

Residency

The official home address of a student which is used to determine the tuition rate charged and, if applicable, program admission priority. Residency classifications are In-District, Out-District, Out-State, and Out-of-Country.

Restricted Elective

A course that must be chosen from a specific list or a specific discipline in order to fulfill program requirements. The credit hours for elective courses will be counted toward the total hours required for program or certificate completion.

Section Change

Moving from one section to another section of the same course in order to get a different time or instructor.

Self-paced Instruction

Instruction using a workbook, textbook, or computer, which helps the student attain a specified level of performance. Students proceed at their own pace through a series of steps, working with the instructor, as he/she finds necessary.

Scholarship

An award of money and/or special recognition given to a student for certain types of proficiency, such as academic, or because of financial need. Scholarship monies do not need to be repaid.

Sophomore/Second Year Student

A student who has completed 31 or more credit hours but has not received an Associate Degree or has not qualified for upper division classification in a four-year college or university.

Transfer Agreements

Written agreements between WCC and four-year institutions, which specify transferring of WCC earned credits to the specific four-year institution.

Transfer Credit

Credit that has been taken at another accredited academic institution that is accepted by the College for use toward a College Certificate or Associate Degree.

Transcript

A transcript lists all courses taken by a student, showing the final grade received for each course. The official transcript is housed in the Student Records Office.

Tuition

The monetary charge a student must pay at the time of registration for each semester hour of academic credit. The tuition rate is based on the student's residency classification.

Undergraduate

A student in a higher education institution who has not yet achieved the Bachelor's, or first professional, degree in a field of study.

Waitlist

The waitlist is created when a particular section of a class is full and students add themselves to the waitlist during the online registration process. The student may gain a space in the class if another student drops, the class size is increased, another section is opened, or if the instructor grants electronic permission to register.

Withdrawal

Term used when a student removes a class from their schedule after the 100% refund deadline for the session. The refund deadlines are published in the printed Academic Class Schedule or on the Web. The student is responsible for all of the tuition and fees associated with the course, and the course will be listed on the student transcript with a W (Withdrawal). Students on financial aid may owe the government money back if they withdraw from a course. Withdrawing from a course may also jeopardize the student's status related to the Academic Intervention Program; and any students receiving financial aid may not achieve the required Satisfactory Academic Progress.



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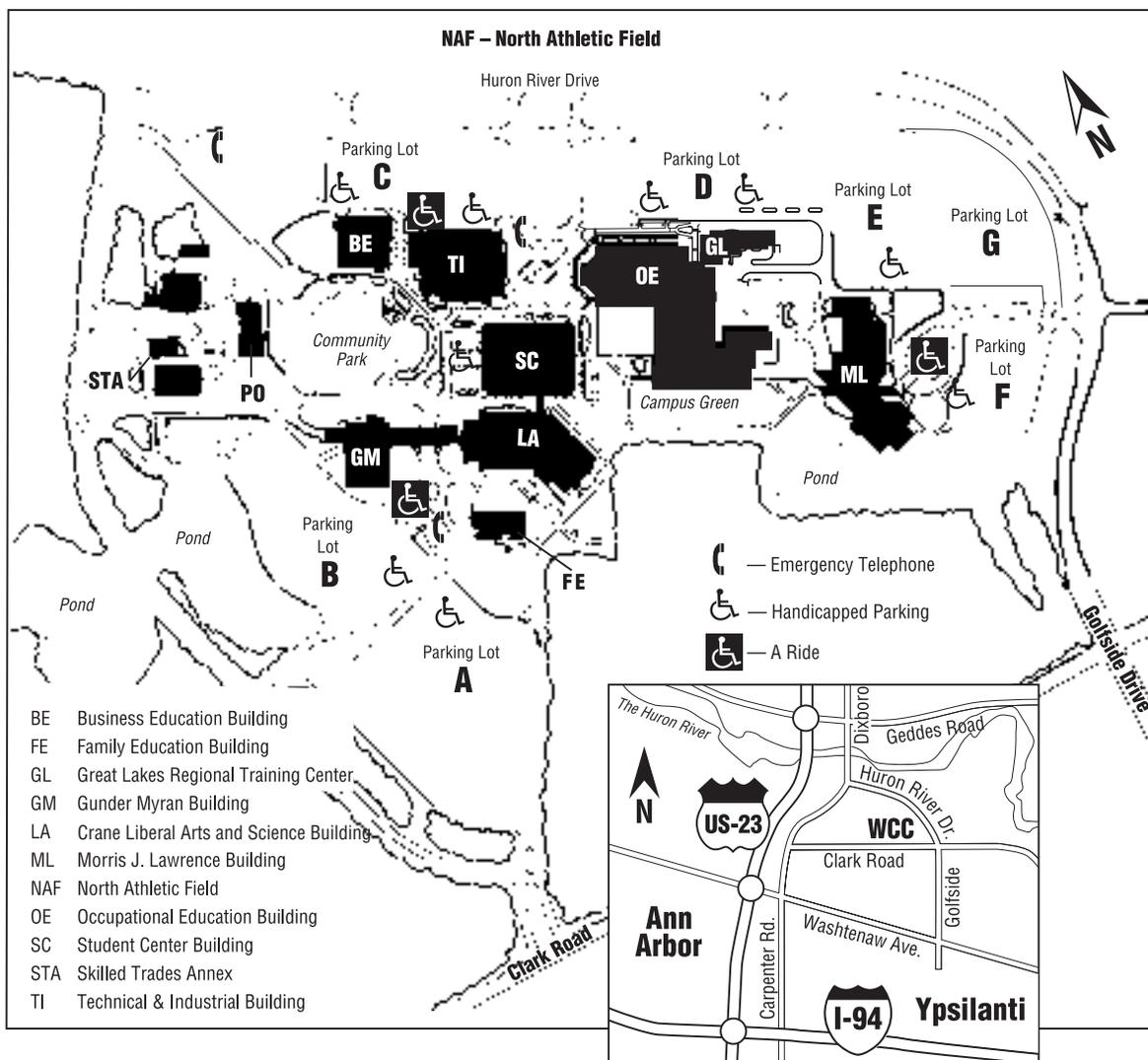
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Campus Map



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Disclaimers

- This document is for informational purposes only and is not to be construed as a binding offer or contract between the College and the student. This document was prepared in June, 2005 and is subject to change without prior notice.
- This document is intended to be used with the Academic Class Schedule, which provides the latest information on courses offered for each semester. Get it online at www.wccnet.edu

ADA/EEO/Title IX/Section 504 Compliance Statements

Washtenaw Community College does not discriminate on the basis of race, sex, color, religion, national origin, age, disability, height, weight, marital status, or veteran status in provision of its educational programs and services or in employment opportunities and benefits. WCC is committed to compliance in all of its activities and services with the requirements of Title IX of the Educational Amendments of 1972, Public Act 453, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964 as amended, Public Act 220, and the Americans with Disabilities Act of 1990.

Inquiries concerning programs and services under Title IX and Section 504, and the Americans with Disabilities Act should be directed to the Office of the Associate Vice President of Student Services, Room SC 275A, Student Center Building, 734-973-3536. Inquiries regarding compliance in employment should be directed to the College Affirmative Action Officer in the Office of Human Resource Management, Room 120, Business Education Building, 734-973-3497. Inquiries concerning access to facilities should be directed to the Director of Plant Operations, Plant Operations Building, 734-677-5300.

Title II Student Right to Know and Campus Security Act Compliance Statement

The Student Right to Know and Campus Security Act of 1990 is a federal law that mandates the disclosure by all institutions of higher education of the rates of graduation, the number of incidents of certain criminal offenses, and the default rate for student loans. The law also mandates that information be provided on the type of security provided on campus, the pertinent policies regarding security on campus, and policies that record and deal with alcohol and drug abuse. Washtenaw Community College is in full compliance with these provisions and provides the required information annually through college publications. Inquiries concerning the Student Right to Know and Campus Security Act should be directed to Washtenaw Community College, Office of the Associate Vice President of Student Services, Room SC 275A, Student Center Building, Ann Arbor, MI 48106 (telephone 734-973-3536).