Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	191	MTH 191 08/18/2025-Calculus I
College	Division	Department
Math, Science and Engineering Tech	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Mohammed Abella
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes
   Winter 2023

2. Briefly describe the results of previous assessment report(s).

   Students met the standard of success for all outcomes.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   The previous assessment report indicated that all sections would be assessed as one group using a common final, instead of assessing face-to-face and virtual sections separately from distance learning (DL) sections. All sections were assessed using embedded questions in the final exam.

II. Assessment Results per Student Learning Outcome

Outcome 1: Solve and compute limit problems.

- Assessment Plan
  - Assessment Tool: Outcome-related common departmental exam questions
  - Assessment Date: Winter 2026
  - Course section(s)/other population: All

- Number students to be assessed: All
- How the assessment will be scored: Departmentally-developed rubric
- Standard of success to be used for this assessment: 75% of the students will score 75% or higher.
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2024		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
370	329

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

In my own sections, some did not take the exam, because they were failing the class. This is a possible reason in other sections as well.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections. All populations were given questions from this outcome.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Outcome-related questions were added to the final exam. Those questions were assessed separately. Exams were given on paper – I tallied them together into a final results sheet. Outcome 1 is aligned with questions 1 and 2.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

For this outcome there were two questions. 535 out of a total of 658 answers earned 75% or higher. This represents 81.31% correct.

For Question 1, 270/329 students (82.01%) met the standard of success.

For Question 2, 265/329 students (80.55%) met the standard of success.

The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

This was a good success rate at 81%.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Even though, the standard of success was met, there is always room for improving how "limits and continuity" topics are presented.

Outcome 2: Solve differentiation problems and related application problems.

- Assessment Plan
  - Assessment Tool: Outcome-related common departmental exam questions
  - Assessment Date: Winter 2026
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored: Departmentally-developed rubric
  - Standard of success to be used for this assessment: 75% of the students will score 75% or higher.
  - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2024		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
370	329

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

In my own sections, some did not take the exam, because they were failing the class. This is a possible reason in other sections as well.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections. All populations were given questions from this outcome.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Outcome-related questions were added to the final exam. Those questions were assessed separately. Exams were given on paper – I tallied them together into a final results sheet. Outcome 2 is aligned with question 3.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For this outcome. 262 out of 329 students scored 75% or higher. This represents 79.64% of the population. The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The success rate for this outcome was nearly 80%.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

We need to continue reinforcement of this topic, and remind all new instructors of the importance of differentiation in calculus.

Outcome 3: Solve integration problems.

- Assessment Plan
    - Assessment Tool: Outcome-related common departmental exam questions
    - Assessment Date: Winter 2026
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 75% of the students will score 75% or higher.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2024		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
370	329

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

In my own sections, some did not take the exam, because they were failing the class. This is a possible reason in other sections as well.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections. All populations were given questions from this outcome.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Outcome-related questions were added to the final exam. Those questions were assessed separately. Exams were given on paper – I tallied them together into a final results sheet. Outcome 3 is aligned with question 4.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For this outcome 247 students of 329 scored 75% or higher. This represents 75.08% students meeting the standard of success.. The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The success rate for this outcome was barely 75 %.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

This outcome has the lowest success rate. One reason is that integration topics are generally more difficult. We need to continue to emphasize the importance of these topics.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

It was helpful to standardize the assessment questions for all sections.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

The course is meeting the students' needs for skills related to Limits, Differentiation, and Integration

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

It will be shared during a department meeting during In-Service

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
No changes intended.			

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

Faculty/Preparer:	Mohammed Abella	**Date:** 08/18/2025
Department Chair:	Nichole Klemmer	**Date:** 08/18/2025
Dean:	Tracy Schwab	**Date:** 08/19/2025
Assessment Committee Chair:	Jessica Hale	**Date:** 07/20/2026

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	191	MTH 191 05/21/2023-Calculus I
College	Division	Department
Math, Science and Engineering Tech	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Mohammed Abella
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes

   Fall 2019

2. Briefly describe the results of previous assessment report(s).

   The standard of success was met for all outcomes:

   Below is data from Winter 2017 -

   For outcome 1, 89% of the students met the standard of success

   For outcome 2, 89% of the students met the standard of success

   For outcome 3, 69.7% of the students met the standard of success

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   Place more emphasis on integration. That was first implemented as a result of an earlier assessment report.

II. Assessment Results per Student Learning Outcome

Outcome 1: Solve and compute limit problems.

- Assessment Plan

- Assessment Tool: Common departmental exam questions
- Assessment Date: Winter 2020
- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: Departmentally-developed rubric
- Standard of success to be used for this assessment: 75% of the students will score 75% or higher
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2023	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
279	122

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All face-to-face (f2f) and virtual classes were assessed. Distance learning sections were not included in this assessment due to ongoing concerns about exam proctoring.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections of virtual and face-to-face students who finished the course and took the final exam were assessed, both day and evening sections.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Embedded assessment was used in the common departmental final exam to assess the "limits and Continuity" outcome.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this

learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For this outcome, there were two questions. 99/122 (81%) answered both questions correctly. The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

At 81%, this was only slightly lower than the last assessment report result of 89%.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Even though the standard of success was met, there is always room for improvement. We continue to remind new and current instructors to not let a strength become a weakness.

Outcome 2: Solve differentiation problems and related application problems.

- Assessment Plan
    - Assessment Tool: Common departmental exam questions
    - Assessment Date: Winter 2020
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 75% of the students will score 75% or higher
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2023	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
279	122

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

I assessed the f2f and virtual classes. Distance learning sections were not included in this assessment due to ongoing concerns about exam proctoring.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections of virtual and face-to-face students who finished the course and took the final exam were assessed, both day and evening sections.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Embedded assessment was used in the common departmental final exam to assess the "differentiation and related applications" outcome.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For this outcome, 102 out of 122 students scored 75% or higher. This represents 84% of the students. The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The success rate of this one was 84%. A large number of the students got a perfect score on this one.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Even though the standard of success was met, there is always room for improvement. We need to continue to remind new and current instructors to maintain this level of success.

Outcome 3: Solve integration problems.

- Assessment Plan
    - Assessment Tool: Common departmental exam questions
    - Assessment Date: Winter 2020
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 75% of the students will score 75% or higher
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2023	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
279	122

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All f2f and virtual classes were assessed. Distance learning sections were not included in this assessment due to ongoing concerns about exam proctoring.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections of virtual and face-to-face students who finished the course and took the final exam were assessed, both day and evening sections.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Embedded assessment was used in the common departmental final exam to assess the "integration" outcome.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For this outcome, 94 out of 122 students answered scored 75% or higher. This represents 77% of the students. The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

With the additional emphasis on the topics from this outcome, the success rate of this one was 77%, higher than the 69.7% from the last assessment report.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

There was a 7.3% increase in the success rate of this outcome. Topics from this outcome are generally more difficult, and they are covered in the latter part of the semester. The standard of success was met. We need to continue to emphasize the importance of these topics, and not let our guard down.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

The changes were very effective as the rates of success of outcome 3 were vastly improved while maintaining the high success rates of the other two outcomes.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

The overall impression of this course is meeting the students' needs for skills related to Limits, Continuity, Differentiation and Integration. This will prepare them for real life, or calculus 2 and beyond.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

The overall general results will be shared with the department faculty at the next opportunity, likely during In-Service. The detailed results will be shared with all faculty who teach calculus.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Other: Assessment population	Previously, face-to-face and virtual courses were assessed separately from distance learning courses. However, the Math department has come to an agreement that from now on, all sections will be assessed as one group, using the same common final exam. Future assessment reports will include all sections.	Including all sections will strengthen the assessment data.	2023

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

MTH 191

Faculty/Preparer:	Mohammed Abella	**Date:** 05/31/2023
Department Chair:	Nichole Klemmer	**Date:** 06/07/2023
Dean:	Tracy Schwab	**Date:** 06/08/2023
Assessment Committee Chair:	Jessica Hale	**Date:** 10/10/2023

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	191	MTH 191 05/06/2021-Calculus I
College	Division	Department
	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Mohammed Abella
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

Yes Winter 2017

2. Briefly describe the results of previous assessment report(s).

The standard of success was met for all outcomes: Outcome #1 (Solve elementary limit problems) – 76.5% of students met the standard of success; the recommendation was to encourage instructors to review topics on limits throughout the semester. Outcome #2 (Solve differentiation problems and related application problems.) – 91.2% of students met the standard of success; even with the high performance, the recommendation was to continue covering differentiation with as much rigor and detail as before. Outcome #3 (Solve elementary integration problems.) – 76.5% of students met the standard of success; as this topic is typically difficult for students, the recommendation was to continue emphasizing integration techniques and applications.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

The previous assessment indicated that more emphasis on integration topics was needed as this is always a difficult topic. This was implemented in the Fall semester of 2017. The previous assessment also indicated a plan to ensure all sections were included assessment. This was successfully implemented for this round of assessment.

II. Assessment Results per Student Learning Outcome

Outcome 1: Solve and compute limit problems.

- Assessment Plan
    - Assessment Tool: Common departmental exam questions
    - Assessment Date: Winter 2020
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 75% of the students will score 75% or higher
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2019		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
295	234

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

The number of students, 295 is the total of all sections including online sections. The total number of students enrolled in face-to-face classes was 246. That leaves 12 students who were not assessed. Maybe they did not take the final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All face-to-face sections were assessed; day, evening, and extension sites were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I used embedded assessment in the common final departmental exam to assess the "Limits and Continuity" outcome. The standard of success in the master syllabus states that 75% of the students will score 75% or higher. However, based on the rubric, the standard of success should be 75% of the students will score 70% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For this outcome, 209 out of 234 students scored higher than 70%. This represents 89% of the students. The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

For this outcome, 193 students got a perfect score.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

4 out of 234 students received a 0 for this outcome. Even though the standard of success was met, and because topics for this outcome are covered early in the course, my plan and suggestion remain that for everyone who teaches calculus to review topics on limits throughout the semester.

Outcome 2: Solve differentiation problems and related application problems.

- Assessment Plan
    - Assessment Tool: Common departmental exam questions

- Assessment Date: Winter 2020
- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: Departmentally-developed rubric
- Standard of success to be used for this assessment: 75% of the students will score 75% or higher
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2019		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
295	234

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

The number of students, 295 is the total of all sections including online sections. The total number of students enrolled in face-to-face classes was 246. That leaves 12 students who were not assessed. Maybe they did not take the final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All face-to-face sections were assessed; day, evening, and extension sites were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I used embedded assessment in the common final departmental exam to assess the "Differentiation" outcome. The standard of success in the master syllabus states that 75% of the students will score 75% or higher. However, based on the rubric, the standard of success should be 75% of the students will score 70% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
209 out of 234 students scored higher than 70% for this outcome. This represents 89% of the students. The standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

For this outcome, 193 of the students got a perfect score. This had the highest number of perfect scores among all the outcomes. It may be because 2 out of 5 chapters or 40% of the calculus topics are about differentiation.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The results of this outcome have been consistent. For continuous improvement, all aspects of differentiation should continue to be covered with as much rigor and detail as before, regardless of the high score.

Outcome 3: Solve integration problems.

- Assessment Plan
    - Assessment Tool: Common departmental exam questions
    - Assessment Date: Winter 2020
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: 75% of the students will score 75% or higher
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2019		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
295	234

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

The number of students, 295 is the total of all sections including online sections. The total number of students enrolled in face-to-face classes was 246. That leaves 12 students who were not assessed. Maybe they did not take the final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All face-to-face sections were assessed; day, evening, and extension sites were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I used embedded assessment in the common final departmental exam to assess the "Integration" outcome.

The standard of success in the master syllabus states that 75% of the students will score 75% or higher. However, based on the rubric, the standard of success should be 75% of the students will score 70% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No
163 out of 234 students scored higher than 70% for this outcome. This represents 69.7% of the students. The standard of success was not met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Topics for this outcome were the last ones to be covered, towards the end of the semester. Those topics were difficult. Most students demonstrated their strength in integration techniques, but there was a group that did consistently poorly with seven zeros and five "2" s.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Topics from this outcome were covered last. The plan for continued success or a higher rate of success is to continue to cover integration techniques and discuss their applications in as much detail as possible, and for all sections to be consistent in their coverage.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

The changes were very effective, as the percentages and scores improved in every outcome.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

The overall impression is that the course is meeting the students' needs. The students need topics on limits, differentiation, and integration in order to be prepared for Calculus II and beyond.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

The general assessment results are usually shared with all the mathematics faculty at the next department meeting during In-Service. The detailed results will be shared with all faculty who teach calculus.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Other: Outcome 3 topics	Make sure that integration topics are covered in all sections in the same rigor as all other topics and outcomes.	Integration topics are covered last in the course. Consistency and rigor are important for all outcomes and all topics.	2021

Other: standard of success	The standard of success will be updated to read: 75% of the students will score 70% or higher.	To align the standard of success with the rubric used to score the assessment tool.	2021

5. Is there anything that you would like to mention that was not already captured?

Thanks to everyone in the Curriculum and Assessment Committee. Your job is appreciated more and more every day.

III. Attached Files

MTH 191 Assessment Data 2019

Faculty/Preparer:	Mohammed Abella	**Date:** 05/06/2021
Department Chair:	Lisa Manoukian	**Date:** 06/21/2021
Dean:	Victor Vega	**Date:** 06/29/2021
Assessment Committee Chair:	Shawn Deron	**Date:** 11/10/2021

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	191	MTH 191 05/24/2017-Calculus I
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Mathematics	Mohammed Abella
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Solve elementary limit problems.

- Assessment Plan
  - Assessment Tool: Common departmental exam questions
  - Assessment Date: Winter 2012
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored: Departmentally-developed rubric.
  - Standard of success to be used for this assessment: 75% of the students will score 75% or higher.
  - Who will score and analyze the data: Departmental faculty.

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2017	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
249	34

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students in my section were assessed. I would have preferred to randomly select five (5) students from each section. However, because of construction in my pod area, I was unable to collect final exams from other instructors. This will be corrected in the next assessment.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students selected were on campus, taking face-to-face calculus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I used embedded assessment in the common final departmental exam

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For this outcome, 26 out of 34 students scored higher than 83%. This represents 76.5% of the students.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

This was the most difficult outcome. To have 76.5% of the students score 83% or higher is quite an accomplishment.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

5 out of 34 students or 14.7% of the students received a 0 for this outcome. Even though the standard of success was met, and because topics for this outcome are covered early in the course, my plan and suggestion for everyone who teaches calculus is to review topics on limits throughout the semester.

Outcome 2: Solve differentiation problems and related application problems.

- Assessment Plan
    - Assessment Tool: Common departmental exam questions

- Assessment Date: Winter 2012
- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: Departmentally-developed rubric.
- Standard of success to be used for this assessment: 75% of the students will score 75% or higher.
- Who will score and analyze the data: Departmental faculty.

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2017	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
249	34

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students in my section were assessed. I would have preferred to randomly select five (5) students from each section. However, because of construction in my pod area, I was unable to collect final exams from other instructors. This will be corrected in the next assessment.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students were on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This part of the assessment was embedded in the final exam.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
31 out of 34 students scored higher than 83% for this outcome. This represents 91.2% of the students.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

For this outcome, 91.2% of the students got a perfect score. This was the highest percentage of all the outcomes. It may be because 2 out of 5 chapters or 40% are on topics of differentiation.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Even though the results indicate that the students did their best in this outcome, it cannot be taken for granted. For continuous improvement, all aspects of differentiation should continue to be covered with as much rigor and detail as before, regardless of the high score.

Outcome 3: Solve elementary integration problems.

- Assessment Plan
    - Assessment Tool: Common departmental exam questions
    - Assessment Date: Winter 2012
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: Departmentally-developed rubric.
    - Standard of success to be used for this assessment: 75% of the students will score 75% or higher.
    - Who will score and analyze the data: Departmental faculty.

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2017	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed

249	34

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students in my section were assessed. I would have preferred to randomly select five (5) students from each section. However, because of construction in my pod area, I was unable to collect final exams from other instructors. This will be corrected in the next assessment.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students assessed were on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The assessment tool for this outcome was embedded in the common departmental final exam.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
23 out of 34 students received 100% for this part, and 3 out of 34 students received 83%. That is a total of 26 students. 26/34 = 0.765, which is 76.5 % of the students.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Topics for this outcome were the last ones to be covered. Those topics were somewhat difficult, but 76.5% of the students received at least 83%, with 67% of the students receiving a perfect score of 100%. The students demonstrated their strength in integration techniques.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Because topics of this outcome were covered last, I was worried that the students would not do well on it, but a 76.5% rate of success was accomplished. The plan

for continued success or a higher rate of success is to continue to cover integration techniques and discuss their applications in as much detail as possible.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

   Overall the course is meeting the students' needs. The students need topics on limits, differentiation, and integration in order to prepare them for Calculus II.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

   The general assessment results will be shared with all the math faculty at the next department meeting during In-Service. The detailed results will be shared with all faculty who teach calculus.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Other: Assessment Process	Collect a random sample of 5 students from each section of the course for the assessment process.	I was only able to assess all students in my section of the course. However, because of construction in my pod area, I was unable to collect final exams from other instructors. This will be corrected in the next assessment.	2017

4. Is there anything that you would like to mention that was not already captured?

   5.

III. Attached Files

MTH 191 data

Faculty/Preparer:	Mohammed Abella	**Date:** 06/06/2017
Department Chair:	Lisa Rombes	**Date:** 06/07/2017
Dean:	Kristin Good	**Date:** 06/08/2017
Assessment Committee Chair:	Michelle Garey	**Date:** 09/18/2017

COURSE ASSESSMENT REPORT

I. Background Information

1. Course assessed:
   Course Discipline Code and Number: MTH 191
   Course Title: Calculus 1
   Division/Department Codes: MNB/MTH

2. Semester assessment was conducted (check one):
   ☐ Fall 20__
   X Winter 20_09_
   ☐ Spring/Summer 20__

3. Assessment tool(s) used: check all that apply.
   ☐ Portfolio
   ☐ Standardized test
   ☐ Other external certification/licensure exam (specify):
   ☐ Survey
   ☐ Prompt
   X Departmental exam
   ☐ Capstone experience (specify):
   ☐ Other (specify):

4. Have these tools been used before?
   Yes

   If yes, have the tools been altered since its last administration? If so, briefly describe changes made.
   Yes, the questions were altered.

5. Indicate the number of students assessed/total number of students enrolled in the course.
   All the students took the assessment test.

6. Describe how students were selected for the assessment.
   A total of 20 tests were selected at random with no more than 10 from any one section.

II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.
   None

2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus.
   Solve elementary limit problems.
   Solve differentiation problems and related application problems.
   Solve elementary integration problems.

3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. ***Please attach a summary of the data collected.***
   The tests were scored out of 15 points. The results were: 14, 14, 15, 15, 13, 14, 15, 15, 14, 13, 15, 15, 15, 15, 15, 15, 14, 14, 15, 15.

4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. ***Please attach the rubric/scoring guide used for the assessment.***

   75% of the students achieve a ¾ or 75% score on the assessment.

   100% of the students achieved that level of success.

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.
   Strengths: outcome number 1, solving elementary limit problems.

   Weaknesses: outcome number 3, solving elementary integration problems

III. Changes influenced by assessment results

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.
   recommend to all calculus 1 instructors to spend more time on evaluating limits of integration when calculating areas.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.
   a. ☐ Outcomes/Assessments on the Master Syllabus
      Change/rationale:

   b. ☐ Objectives/Evaluation on the Master Syllabus
      Change/rationale:

   c. ☐ Course pre-requisites on the Master Syllabus
      Change/rationale:

   d. ☐ 1st Day Handouts
      Change/rationale:

   e. ☐ Course assignments
      Change/rationale:

   f. ☐ Course materials (check all that apply)
      ☐ Textbook
      ☐ Handouts
      ☐ Other:

   g. ☐ Instructional methods
      Change/rationale:

   h. ☐ Individual lessons & activities
      Change/rationale:

3. What is the timeline for implementing these actions? Winter 2010

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.
   The assessment tool was effective in measuring student achievement of learning outcomes for calculus.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

3. Which outcomes from the master syllabus have been addressed in this report?
   All
   If "All", provide the report date for the next full review: winter 2012 .

   If "Selected", provide the report date for remaining outcomes: _____.

COURSE ASSESSMENT REPORT

Submitted by:

Print: Mohammed Abella _____ **Signature** Mohammed Abella **Date:** 08/06/2009
08/06/2009
Faculty/Preparer

Print:_Kris Chatas_____ **Signature** Kris Chatas 9/9/09
Date:_____
Department Chair

Print:_Marty Showalter_____ **Signature** M. Showalter 9/10/09
Date:_____
Dean/Administrator

logged 9/10/09 sj

Approved by the Assessment Committee 11//08