Washtenaw Community College Comprehensive Report

MTH 191 Calculus I
Effective Term: Spring/Summer 2016

Course Cover

Division: Math, Science and Engineering Tech
Department: Math & Engineering Studies
Discipline: Mathematics
Course Number: 191
Org Number: 12200
Full Course Title: Calculus I
Transcript Title: Calculus I
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
Consultation with all departments affected by this course is required.
Course description
Outcomes/Assessment
Objectives/Evaluation
Rationale: Three year review
Proposed Start Semester: Spring/Summer 2016
Course Description: This is a first-semester college calculus of a single variable course. Topics include limits, continuity, transcendental functions, derivatives, antiderivatives, applications of derivatives, including optimization, maximum and minimum problems, business, economics, sports, engineering, physics, Newton's method, and applications of integration. A graphing calculator is required for this course. See the time schedule for the current brand and model.

Course Credit Hours

Variable hours: No
Credits: 5
Lecture Hours: Instructor: 75 **Student:** 75
Lab: Instructor: 0 **Student:** 0
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 75 **Student:** 75
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Level 7

Requisites

General Education

Degree Attributes

Assoc in Applied Sci - Area 3
Assoc in Science - Area 3
Assoc in Arts - Area 3
MACRAO Science & Math

Michigan Transfer Agreement - MTA

MTA Mathematics

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Solve and compute limit problems.
   Assessment 1
   Assessment Tool: Common departmental exam questions
   Assessment Date: Winter 2016
   Assessment Cycle: Every Three Years
   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

2. Solve differentiation problems and related application problems.
   Assessment 1
   Assessment Tool: Common departmental exam questions
   Assessment Date: Winter 2016
   Assessment Cycle: Every Three Years
   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

3. Solve integration problems.
   Assessment 1
   Assessment Tool: Common departmental exam questions
   Assessment Date: Winter 2016
   Assessment Cycle: Every Three Years
   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

Course Objectives

1. Compute limits through the use of the limit computation theorems.
2. Determine continuity.
3. Compute derivatives as limits, and through the use of the derivative computation theorems. Differentiate trigonometric and transcendental functions. Cover implicit differentiation, and inverse

functions differentiation.
4. Apply differentiation techniques to solve optimization problems.
5. Cover Related Rates Modeling Applications.
6. Cover Real Life Applications of Differentiation.
7. Cover and compute Riemann sums.
8. Compute definite and indefinite integrals using the integration computation theorems.
9. Learn Curve sketching techniques, with focus on Maxima/Minima, Variations, Points of Inflection, and Concavity.
10. Use the Fundamental Theorem of Calculus.
11. Differentiate and integrate logarithmic and exponential functions.
12. Differentiate and integrate inverse trigonometric and hyperbolic functions.
13. Solve simple growth and decay differential equations.

New Resources for Course

Course Textbooks/Resources

Textbooks

Larson, R and Edwards, B. *Calculus of A Single Variable*, Sixth ed. Brooks/Cole, 2015

Manuals

Periodicals

Software

Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Mohammed Abella	*Faculty Preparer*	*Sep 14, 2015*
Department Chair/Area Director:		
Lisa Rombes	*Recommend Approval*	*Oct 12, 2015*
Dean:		
Kristin Good	*Recommend Approval*	*Oct 14, 2015*
Curriculum Committee Chair:		
Kelley Gottschang	*Recommend Approval*	*Nov 23, 2015*
Assessment Committee Chair:		
Michelle Garey	*Recommend Approval*	*Dec 01, 2015*
Vice President for Instruction:		
Michael Nealon	*Approve*	*Dec 14, 2015*