



Figure 1: Owens Logo.

**Course Syllabus
SEMESTER
School of Science, Technology, Engineering, and Mathematics**

<i>Course Name:</i>	Calculus 1
<i>Course & Section Number:</i>	MTH 180-XXX
<i>Meeting Day(s) & Time(s):</i>	
<i>Credits:</i>	5
<i>Contact Hours:</i>	5
<i>Instructor's Name:</i>	
<i>Office Hours & Location:</i>	
<i>OCC Phone:</i>	
<i>OCC Email:**</i>	

**Please use only Owens email for course communications.

Catalog Description:

The topics to be covered are the rate of change of a function, limits, continuity, rules and applications of differentiation, definite and indefinite integrals with applications.

Prerequisite/Corequisites:

MTH 173 or MTH 175

Course Materials:

The textbook is Calculus Volume 1, available for free online at <https://openstax.org/details/books/calculus-volume-1>. You can also order a print copy on the site.

A scientific or graphing calculator such as a TI 84 is required. However, you may not use a calculator that can return derivatives or antiderivatives symbolically. Such handheld calculators are usually marked with "CAS".

Course Outcomes:

To provide the student with a solid foundation in differential and integral calculus.

Students Learning Outcomes:

The successful Calculus I student should be able to apply the following competencies to a wide range of functions, including piecewise, polynomial, rational, algebraic, trigonometric, inverse trigonometric, exponential and logarithmic:

1. Determine the existence of, estimate numerically and graphically and find algebraically the limits of functions. Recognize and determine infinite limits and limits at infinity and interpret them with respect to asymptotic behavior.
2. Determine the continuity of functions at a point or on intervals and distinguish between the types of discontinuities at a point.
3. Determine the derivative of a function using the limit definition and derivative theorems. Interpret the derivative as the slope of a tangent line to a graph, the slope of a graph at a point, and the rate of change of a dependent variable with respect to an independent variable.
4. Determine the derivative and higher order derivatives of a function explicitly and implicitly and solve related rates problems.
5. Determine absolute extrema on a closed interval for continuous functions and use the first and second derivatives to analyze and sketch the graph of a function, including determining intervals on which the graph is increasing, decreasing, constant, concave up or concave down and finding any relative extrema or inflection points. Appropriately use these techniques to solve optimization problems.
6. State and apply the Mean Value Theorem.
7. Use differentials and linear approximations to analyze applied problems.
8. Determine antiderivatives, indefinite and definite integrals, use definite integrals to find areas of planar regions, use the Fundamental Theorems of Calculus, and integrate by substitution.

Disability Services Resource Center: If you have a disability or acquire one, you may be entitled to receive reasonable accommodation intended to assure you an equal opportunity to participate in and benefit from the program. To receive more information or to register for accommodations, please contact the Disability Resource Center in College Hall 116 at 567-661-7007 or email <https://www.owens.edu/disability/>

Tutoring Services: Toledo-area Campus: Learning Commons College Hall Room 173 (Enter Library CH170 and turn right). Findlay-area Campus: Education Center Room 149 Both centers offer Walk-in/Face-to-Face, or Online by appointment. To schedule an appointment or view walk-in hours, please go to <https://www.owens.edu/tutoring/>

Counseling Services: Counseling Services provides assistance to students experiencing personal, educational, interpersonal/relationship, family, social, or psychological difficulties. If you feel you may benefit from this service, please contact them at counselingservices@owens.edu. More information is at <https://www.owens.edu/counseling/>.

Campus and Community Connections: The Center for Campus and Community Connections (College Hall 151) is a walk-in office created to provide retention support through resource stability initiatives and community connections. Go here for more information: <https://www.owens.edu/connection/> or contact connections@owens.edu

Owens Library: The Owens Library offers two locations (Toledo and Findlay) as well as online resources. For more information visit <https://www.owens.edu/library/>.

Students can find more information on campus resources, student support, student life, and security at this [link](#).

Student Code of Conduct: All students are expected to follow Owens Community College's Student Code of Conduct. If you are unfamiliar with the code, it can be found at [Student Conduct - Owens Community College](#)

Anti-Discrimination and Harassment & Title IX/Sexual Misconduct: All students, faculty, and staff are expected to follow Owens Community College's Antidiscrimination and Harassment Policy and the College's Title IX/Sexual Misconduct Procedures and Guidelines. The college strictly prohibits and will not tolerate harassment, discrimination, intimidation, or hostile/offensive working or learning environments. If you are unfamiliar with the Anti-Discrimination and Harassment Policy, it can be found at: [Owens Community College - Owens Community College](#) If you are unfamiliar with the Title IX/Sexual Misconduct Procedures and Guidelines, it can be found at: [11-4-17-Title-IX-Sexual-Misconduct-Procedures-and-Guidelines.pdf](#)

Religious Accommodations: A student seeking an accommodation for an absence permitted under Ohio's Testing Your Faith Act must provide the instructor with a written email notice with the specific dates for an absence, and must do so not later than fourteen (14) days after the first day of instruction. Alternative accommodations are not retroactive, and no academic penalty will

be imposed for an absence under the policy*. The request for an alternative accommodation will be kept confidential. Students with questions about a religious accommodation under Ohio's Testing your Faith Act may contact the College's Office of Academic Affairs: provost@owens.edu. The policy may be found on the Owens website: [3358:11-2-63 Accommodation](#) for a Student Absence for the Observance of Religious Beliefs and Practices Policy.

Document Collection: Throughout the semester, your instructors may ask for a variety of assignments including tests and/or quizzes for student learning of institutional general education competencies or program assessment. Please save all your class materials until the end of the semester.

Classroom Admittance: OCC classes shall only be attended by the officially registered OCC students or perspective students, instructor of record, guest lecturer, or substitute. Visitors are not permitted to be in the classroom and should not be invited to attend or participate in the class. See [FERPA](#) regulations for more information.

Inclement Weather Policy: In the event that the College closes due to inclement weather, all on-campus, hybrid, and synchronous mathematics classes will be cancelled. Asynchronous classes will not be affected. If the decision is made to close the College, a public announcement will be communicated via local television, social media, and Owens Alert. Students will not receive individual class cancellation notices.

If the College is open, all on-campus, hybrid, and synchronous classes will meet as regularly scheduled. For additional information about the communication of closings or to learn about Owens Alert, visit <https://www.owens.edu/news/weather.html>.

Grading:

MyOpenMath homework (20%) and five tests (16% each) will be used in determining your grade. Your lowest test score (which may be due to a missed test) will be replaced with the average of the remaining test scores. A maximum of one make-up exam will be permitted if timely notification (i.e. test day or before) and the reason for the absence from the test are provided. See the last page of the syllabus for tentative test dates. The grading scale is 100-90 = A, 90-80 = B, 80-70 = C, 70-60 = D, <60 F.

Tentative Course Schedule

Week of...	DATE	DATE
DATE	Chapter 1	1
DATE	TBD	2
DATE	2	3
DATE	3	Test 1
DATE	3	3
DATE	3	3
DATE	4	4
DATE	Test 2	4
DATE	4	4
DATE	4	5
DATE	5	Test 3
DATE	5	5
DATE	5	6
DATE	6	TBD
DATE	Test 4	Review
DATE	Review	Test 5 (Final Exam)

Topics

1.3 Trigonometric Functions 1.4 Inverse Functions 1.5 Exponential and Logarithmic Functions 2.2 The Limit of a Function 2.3 The Limit Laws 2.4 Continuity 3.1 Defining the Derivative 3.2 The Derivative as a Function 3.3 Differentiation Rules 3.4 Derivatives as Rates of Change 3.5 Derivatives of Trigonometric Functions 3.6 The Chain Rule 3.7 Derivatives of Inverse Functions 3.8 Implicit Differentiation 3.9 Derivatives of Exponential and Logarithmic Functions	4.1 Related Rates 4.3 Maxima and Minima 4.4 The Mean Value Theorem 4.5 Derivatives and the Shape of a Graph 4.6 Limits at Infinity and Asymptotes 4.7 Applied Optimization Problems 4.8 L' Hospital's Rule 4.9 Newton's Method 4.10 Antiderivatives 5.1 Approximating Areas 5.2 The Definite Integral 5.3 The Fundamental Theorem of Calculus 5.5 Substitution 6.1 Areas between Curves
--	--

The material on Test 1 addresses the following SLOs: 1,2
The material on Test 2 addresses the following SLOs: 3,4,7
The material on Test 3 addresses the following SLOs: 4,5,6
The material on Test 4 addresses the following SLOs: 8
Test 5 is comprehensive