

MATH 201: Calculus I

Summer 2011

Section 001

4 credit hours

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Modifications

The instructor reserves the right to make modifications to this syllabus. Students will be notified in class & by email.

Course Content

Calculus is the mathematics of change that has enabled scientists, engineers, economists, and others to model real-life situations. In this course, we'll frequently reformulate precalculus ideas through the use of a limit process, which is fundamental to the study of calculus. When possible, we'll make intuitive and geometric observations about such concepts, and relate them to applicable situations in the world around us. Specific topics include: Limits, continuity, and the definition of the derivative; techniques of differentiation, graphing, maximum/minimum and related problems; definite integrals and the fundamental theorem of calculus; integration and differentiation of transcendental functions.

Grades

To ensure that you receive a certain letter grade (or better), you must attain a minimum overall percentage. These minima are: A: 90; B: 80; C: 70; D: 60.

Assignments/Assessments

<i>Date</i>	<i>Event</i>	<i>Percentage</i>
<i>Various</i>	<i>Quizzes</i>	<i>20</i>
<i>May 24</i>	<i>Exam 1</i>	<i>20</i>
<i>June 2</i>	<i>Exam 2</i>	<i>20</i>
<i>June 14</i>	<i>Exam 3</i>	<i>20</i>
<i>June 23</i>	<i>Final Exam</i>	<i>20</i>

Attendance Policy

The University Attendance policy as stated in the 2009-2010 catalog (http://www.winthrop.edu/uploadedFiles/recandreg/Catalogs/09-10/2009_10_catalog_Acad_Regs.pdf): if a student's absences in a course total 25 percent or more of the class meetings for the course, the student will receive a grade of N if the student withdraws from the course before the withdrawal deadline; after that date, unless warranted by documented extenuating circumstances as described in the previous section, a grade of F or U shall be assigned.

Text and Materials

- Required Text: Calculus, Ninth Edition, Howard Anton, Irl Bivens, Stephen Davis, Thomas Polaski, 2009, ISBN: 978-0-470-40099-9.
- MATH201 students are expected to have a graphing calculator. This will make completion of potential assignments less tedious in nature, reducing the time spent on computations and leaving more time for conceptual understanding.

Homework/Quizzes

Expect homework assignments/quizzes to reinforce the lesson material and prepare you for exams. Expectations will be detailed during class, with some notes added to the course website.

Exams

These may be closed book, no notes, no computer, no cell phone, individual effort events.

Missed quiz/exam policy

I will not give make-up quizzes or exams for those missed. Instead, I'll use the following policy: For all quizzes and course exams, a missed event will result in a recorded zero score until the end of the course. At that time, the average score achieved on all other quizzes will replace a single missed quiz score, and the final exam score (percentage) will replace a single missed exam score. Note that all students must take the final exam for a grade. Moreover, once a student has begun an exam, the event will be graded.

Students with Disabilities

Winthrop University is dedicated to providing access to education. If you have a disability and need classroom accommodations, please contact Gena Smith, Coordinator, Services for Students with Disabilities (SSWD), at 323-3290, as soon as possible. Once you have your Professor Notification Form, please tell me so that I am aware of your accommodations. If you require special testing consideration for a disability, contact the SSWD and bring me the appropriate paperwork in a timely fashion.

Policies

1. Review the student code of conduct for university policies on academic misconduct. Academic misconduct will not be tolerated and will result in a failing grade on the assignment and/or in the course. The full handbook is available online at: (<http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf>)
2. All electronic devices (including cell phones) other than a calculator should be on silent and kept in your book bag or purse throughout class time unless otherwise instructed. (Note if you have some educational, health, or physical reason for an electronic device you must work with your professor to inform them of the accommodation.)
3. A grade of C or better in MATH201 is required to enroll in MATH202.

SU Deadline: May 23

Course Withdraw Date: June 7
Final Exam: June 23

Course Goals and Alignment with the General Education Goals

Dprtmnt	Course Goals	General Education Goals
Students apply fundamental mathematical concepts and techniques to solve problems and evaluate results.	Apply derivatives and integrations to real life problems	2.1 Solve mathematical problems of the type necessary for living in today's and tomorrow's world.
		2.3 Understand that quantitative analysis is important to almost every endeavor of humankind.
		3.2 Analyze and use a variety of information gathering techniques
	Use calculus to analyze graphs of functions and to determine extreme values of functions.	2.1 Solve mathematical problems of the type necessary for living in today's and tomorrow's world.
		2.2 Make valid inferences from data.
		2.3 Understand that quantitative analysis is important to almost every endeavor of humankind.
		2.4 Understand the concept and application of quantitative relationships.
		3.1 Identify sound and unsound reasoning.
		3.2 Analyze and use a variety of information gathering techniques
	Use derivatives to solve optimization problems and problems involving rates of change.	2.1 Solve mathematical problems of the type necessary for living in today's and tomorrow's world.
		2.2 Make valid inferences from data.
		2.3 Understand that quantitative analysis is important to almost every endeavor of humankind.
		2.4 Understand the concept and application of quantitative relationships.
		3.1 Identify sound and unsound reasoning.
3.2 Analyze and use a variety of information gathering techniques		
Demonstrate an understanding of what calculus is and how it compares with pre-calculus.	2.2 Make valid inferences from data.	
Use limits to investigate the concept of derivatives via slopes of tangent lines to graphs.	2.2 Make valid inferences from data.	
	2.4 Understand the concept and application of quantitative relationships.	
	3.2 Analyze and use a variety of information gathering techniques	
Use limits to investigate the concept of integration.	2.2 Make valid inferences from data.	
	2.4 Understand the concept and application of quantitative relationships.	
	3.2 Analyze and use a variety of information gathering techniques	

For purposes of departmental and touchstone program assessment of student learning in this course, sections of the final exam will be tabulated for all students and cover the goals listed above. Individual tests and course grades may also be used as an indication of progress toward the above goals.

Course Calendar

The following is a tentative guideline, as I want to keep the flexibility to modify the pace and add or remove topics as appropriate. Exams do not share this flexibility -- this will allow more effective planning by all.

May 16	1.1 1.2	Limits Computing limits
17*	1.3 1.5	Limits at infinity Continuity
18	1.6 2.1	Continuity Tangent lines & rates of change
19*	2.2 2.3	The derivative function Techniques of differentiation
23	2.4	Product & quotient rules
24	Exam 1	
25	2.5 2.6	Derivatives of trigonometric functions The chain rule
26*	2.6	The chain rule
30	2.7	Implicit differentiation
31*	2.7 2.8	Implicit differentiation Related rates
June 1	2.9 3.1	Local linear approximations Increase, decrease, & concavity
2	Exam 2	
6	3.3	Relative extrema
7*	3.4 3.5	Absolute extrema Applied extrema problems
8	3.7 3.8	Newton's method The mean value theorem
9*	4.2 4.3	The indefinite integral Integration by substitution
13	4.4 4.5	The definite integral
14*	Exam 3	
15	4.6	The fundamental theorem of calculus
16*	4.6 6.2	The fundamental theorem of calculus Differentiation & integration: logarithms
20	6.3	Differentiation & integration: exponentials
21*	6.5	L'Hôpital's rule & indeterminate forms
22	6.7	Calculus of inverse trigonometric functions
23	Final Exam	

*Homework quiz