

MATH 201: Calculus I
Fall 2009 **Section 001** **4 credit hours**

Instructor: Dr. Trent Kull

Office: Bancroft 154

Office Phone: 803.323.4547

Math Department: 803.323.2175

Campus Email:
kullt@winthrop.edu

Instructor Website: <http://faculty.winthrop.edu/kullt/>

Instructor's Teaching Schedule: MWF, 9:30 - 10:45a,
Owens 202

Office Hours: MW, 2 - 3:30p; other times by appointment.

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>September 18</i>	<i>Exam 1</i>	<i>20</i>
<i>October 14</i>	<i>Exam 2</i>	<i>20</i>
<i>November 9</i>	<i>Exam 3</i>	<i>20</i>
<i>December 15</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 been handed a quiz (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: October 23
Fall Break: October 19 - 20

Course Withdraw Date: October 23
Final Exam: December 15

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.

August 26	1.1	Limits
28	1.2	Computing limits
31*		
September 2	1.3	Limits at infinity
4	1.5, 1.6	Continuity
7*	2.1	Tangent lines & rates of change
9		
11	2.2	The derivative function
14	2.3	Techniques of differentiation
16	2.4	Product & quotient rules
18	Exam 1	
21*	2.5	Derivatives of trigonometric functions
23	2.6	The chain rule
25		
28*	2.7	Implicit differentiation
30	2.8	Related rates
October 2		
5*	2.9	Local linear approximations
7	3.1	Increase, decrease, & concavity
9	3.2	Relative extrema
12		
14	Exam 2	
16	3.3	Rationals, cusps, & vertical tangents
21*	3.4	Absolute extrema
23	3.5	Applied extrema problems
26*		
28	3.8	The mean value theorem
30	4.2	The indefinite integral
November 2*	4.3	Integration by substitution
4	4.4	Area as a limit
6	4.5	The definite integral
9	Exam 3	
11	4.6	The fundamental theorem of calculus
13		
16*	6.1	Exponential & logarithmic functions
18	6.2	Differentiation & integration: logarithms
20	6.3	Differentiation & integration: exponentials
23	6.5	L'Hôpital's rule & indeterminate forms
30*	6.6	Logarithmic & other integral defined functions
December 2	6.7	Calculus of inverse trigonometric functions
4		
7*	Review	
15	Final Exam	11:30a - 2p

*Homework quiz