

CALCULUS 2 MTWF 10:00-10:50AM / 12:00-12:50PM SPRING 2011 STUART 306/309

Instructor:	Jonathan White
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Office:	Stuart 316
Office Hours:	MTWF 9:00-9:50am and by appointment
Office Phone:	399-8280
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Text:	<i>Calculus, Early Transcendentals, 6th Edition</i> , James Stewart
Problem Sets, Quizzes, WW:	There will be several problem sets and quizzes during the semester, as well as online WeBWorK assignments. Combined these will be worth 150 points.
Math Culture Points:	Each student has the option of including Math Culture Points in their grade. A slate of Math Culture activities is available on a separate sheet. If included, this component will be worth 50 points.
Exams:	There will be four in-class exams administered during class time. The dates of these are indicated in the schedule on the back side of this sheet. These exams will be worth 100 points each. The final exam will be held during finals week at the date and time indicated on the back side of this sheet. The final will be worth 200 points.
Grading:	Grading will approximately follow a 90% A, 80% B, 70% C, 60% D scale. Current grade information will be available through Moodle at all times.
Makeups:	For the sake of fairness to those who follow the schedule, makeups for exams will be allowed only under extenuating circumstances, with documentation and advance notice when humanly possible. Late problem sets and quizzes will generally not be accepted, and if accepted due to extenuating circumstances will generally be subject to a penalty of 20% of the possible points for each day past due. Late WeBWorK will not be accepted.

The “Big Idea” of Calculus is using mathematics to deal with change. Calculus 1 deals primarily with rates of change, and Calculus 2 addresses accumulations – the totals toward which changing quantities tend. These ideas cut across all quantitative disciplines – whether it’s a falling stone, a falling stock, a declining population, or an endothermic reaction, there are mathematical commonalities, and those are what Calculus deals with.

Calculus 2 is a continuation of topics introduced in Calculus 1, but with a greater depth and sophistication. The problems get bigger, and the ideas get bigger as well. Some truly interesting questions become answerable, and more aspects of the world come within reach, but the techniques involved become substantially more difficult.

To enter this class, each student must pass a computer-administered derivatives “gateway” exam. You may attempt this exam as often as desired, provided that you demonstrate understanding of previous mistakes before a retake. Success by 5pm Friday, January 21st will count as 5 points toward a student’s WeBWorK score, but after 5pm Friday, January 28th course grades will be lowered by 5% for each week or portion of a week without passing this exam.

The use of technology, particularly the software package *Mathematica*, will be an important component of the course. Ability to compute with pencil and paper will also be important, as will conceptual understanding of the topics treated. This combination of approaches and topics is likely to be challenging, partly because few will find that all of these aspects play to their strengths. Don’t let that be overwhelming, though – remember that I’m around to help.

Tentative Schedule

	Tuesday, January 11 th §4.9 Antiderivatives	Wednesday, January 12 th §5.3 The Fun. Theorem	Friday, January 14 th §5.5 u-Substitution
Monday, January 17 th No Class – MLK Day	Tuesday, January 18 th §5.5 u-Substitution	Wednesday, January 19 th §6.1 Area between Curves	Friday, January 21 st §6.1 Area between Curves
Monday, January 24 th §6.2 Volumes by Washers	Tuesday, January 25 th §6.2 Volumes by Washers	Wednesday, January 26 th §6.3 Volumes by Shells	Friday, January 28 th §6.4 Work
Monday, January 31 st §6.4 Work	Tuesday, February 1 st §6.5 Average Value	Wednesday, February 2 nd Review	Friday, February 4 th Exam 1
Monday, February 7 th §7.1 Integration by Parts	Tuesday, February 8 th §7.2 Trig Integrals	Wednesday, February 9 th §7.3 Trig Substitution	Friday, February 11 th §7.4 Partial Fractions
Monday, February 14 th §7.5 Integration Strategy	Tuesday, February 15 th §7.6 Tables and Computers	Wednesday, February 16 th §7.7 Approximations	Friday, February 18 th §7.8 Improper Integrals
Monday, February 21 st §8.1 Arc Length	Tuesday, February 22 nd §8.2 Surface Area	Wednesday, February 23 rd §8.3 Physics Applications	Friday, February 25 th §8.4 Econ & Bio Apps
Monday, February 28 th §8.5 Probability	Tuesday, March 1 st §8.5 Probability	Wednesday, March 2 nd Review	Friday, March 4 th Exam 2
Spring Break			
Monday, March 14 th §9.1 Differential Equations	Tuesday, March 15 th §9.2 Euler's Method	Wednesday, March 16 th §9.3 Separable Equations	Friday, March 18 th §10.1 Parametric Equations
Monday, March 21 st §10.2 Parametric Calculus	Tuesday, March 22 nd §10.3 Polar Coordinates	Wednesday, March 23 rd §10.4 Polar Calculus	Friday, March 25 th §10.5 Conic Sections
Monday, March 28 th §11.1 Sequences	Tuesday, March 29 th §11.2 Series	Wednesday, March 30 th Review	Friday, April 1 st Exam 3
Monday, April 4 th §11.3 The Integral Test	Tuesday, April 5 th §11.4 Comparison Tests	Wednesday, April 6 th §11.5 Alternating Series	Friday, April 8 th §11.6 Absolute Conv.
Monday, April 11 th §11.6 The Ratio Test	Tuesday, April 12 th Student Research Symposium	Wednesday, April 13 th §11.7 Strategies	Friday, April 15 th §11.8 Power Series
Monday, April 18 th §11.9 Series for Functions	Tuesday, April 19 th §11.10 Taylor Series	Wednesday, April 20 th Review	Friday, April 22 nd Exam 4
Monday, April 25 th §9.4 Exponential Growth	Tuesday, April 26 th §9.5 The Logistic Equation	Wednesday, April 27 th Review	
Final Exam – 8am on Friday, April 30 th or 8am on Wednesday, May 4 th			

Any students with disabilities which might affect their performance in this class should contact me as soon as possible to arrange accommodations.

The faculty has adopted a policy on academic integrity. It is your responsibility to understand and follow it.

Diversity, in all its forms, is valuable.

Math Culture Points

A significant portion of the grade for this course may take the form of Math Culture Points. These will be earned through activities outside of class including, but not necessarily limited to, those listed below:

Activity	Points	Max #
Colloquium Attendance	5	–
Colloquium Presentation	5-15	2
Meeting Attendance Nebraska Conference for Undergraduate Women in Mathematics (Jan. 28 th - 30 th) Iowa Council of Teachers of Mathematics (February 18) SIGCSE Technical Symposium (March 9-12) Midwest Undergraduate Mathematics Symposium (April 1 st - 2 nd)	15	2
Mathematics Competition Participation Mathematical Contest in Modeling (Feb. 5 th - 9 th) Iowa Collegiate Mathematics Competition (Feb. 19 th)	10	2
Math Culture Reading Some weeks specific readings will be posted on the course web page Articles from <i>Math Horizons</i> With approval, columns on maa.org, articles from <i>Math. Magazine</i> , <i>The College Math. Journal</i>	5	– 3 3
Math Club Activities (when appropriate) Movies, Speakers, Game Nights, mathematical portion of Playground of Science, etc.	5-10	5
Volunteer Math Outreach Working with students at Polk Elementary, etc.	5	3
Other Appropriate Coe Activities Contemporary Issues Forum Attending the play <i>Copenhagen</i> Attending a Quantitative Research Symposium Presentation Psychology Experiment Participation	5	–

Generally Math Culture Points can be earned for at most two activities in any given week, so you should plan to spread your participation throughout the semester. In each case above, credit assumes both full participation and posting a brief summary/response on Moodle. These reflections should generally be between 100 and 300 words, and include both a brief summary and your personal thoughts on the event, **and must be submitted within one week of the event.**

