

CALCULUS 2 MTWF 2:00-2:50PM FALL 2009 STUART 306

Instructor:	Jonathan White
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Office Hours:	MTW 3:00-3:50pm and by appointment
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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, September 4th will count as 5 points toward a student’s WeBWorK score, but after 5pm Friday, September 11th 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

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play to their strengths. Don't let that be overwhelming, though – remember that I'm around to help.

Tentative Schedule

Monday, August 24 th §4.9 Antiderivatives	Tuesday, August 25 th §5.3 The Fun. Theorem	Wednesday, August 26 th §5.5 u-Substitution	Friday, August 28 th §5.5 u-Substitution
Monday, August 31 st §6.1 Area between Curves	Tuesday, September 1 st §6.1 Area between Curves	Wednesday, September 2 nd §6.2 Volumes by Washers	Friday, September 4 th §6.2 Volumes by Washers
Monday, September 7 th No Class – Labor Day	Tuesday, September 8 th §6.3 Volumes by Shells	Wednesday, September 9 th §6.4 Work	Friday, September 11 th §6.4 Work
Monday, September 14 th §6.5 Average Value	Tuesday, September 15 th §7.1 Integration by Parts	Wednesday, September 16 th Review	Friday, September 18 th Exam 1
Monday, September 21 st §7.1 Integration by Parts	Tuesday, September 22 nd §7.2 Trig Integrals	Wednesday, September 23 rd §7.3 Trig Substitution	Friday, September 25 th §7.4 Partial Fractions
Monday, September 28 th §7.5 Integration Strategy	Tuesday, September 29 th §7.6 Tables and Computers	Wednesday, September 30 th §7.7 Approximations	Friday, October 2 nd §7.8 Improper Integrals
Monday, October 5 th §8.1 Arc Length	Tuesday, October 6 th §8.2 Surface Area	Wednesday, October 7 th §8.3 Physics Applications	Friday, October 9 th §8.4 Econ & Bio Apps
Monday, October 12 th No Class – Fall Break	Tuesday, October 13 th No Class – Fall Break	Wednesday, October 14 th Review	Friday, October 16 th Exam 2
Monday, October 19 th §8.5 Probability	Tuesday, October 20 th §8.5 Probability	Wednesday, October 21 st §9.1 Differential Equations	Friday, October 23 rd §9.2 Euler's Method
Monday, October 26 th §9.3 Separable Equations	Tuesday, October 27 th §10.1 Parametric Equations	Wednesday, October 28 th §10.2 Parametric Calculus	Friday, October 30 th §10.3 Polar Coordinates
Monday, November 2 nd §10.4 Polar Calculus	Tuesday, November 3 rd §10.5 Conic Sections	Wednesday, November 4 th Review	Friday, November 6 th Exam 3
Monday, November 9 th §11.1 Sequences	Tuesday, November 10 th §11.2 Series	Wednesday, November 11 th §11.3 The Integral Test	Friday, November 13 th §11.4 Comparison Tests
Monday, November 16 th §11.5 Alternating Series	Tuesday, November 17 th §11.6 Absolute Conv.	Wednesday, November 18 th §11.6 The Ratio Test	Friday, November 20 th §11.7 Strategies
Monday, November 23 rd §11.8 Power Series	Tuesday, November 24 th §11.9 Series for Functions	Wednesday, November 25 th No Class – Thanksgiving Break	Friday, November 27 th No Class – Thanksgiving Break
Monday, November 30 th §11.10 Taylor Series	Tuesday, December 1 st §11.10 App. Taylor Polynom.	Wednesday, December 2 nd Review	Friday, December 4 th Exam 4
Monday, December 7 th Review	Tuesday, December 8 th Review		
Final Exam – 2pm on Friday, December 11th			

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.

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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 Iowa Section of the Mathematical Association of America (October 9 th -10 th)	15	2
Mathematics Competition Participation Iowa Mathematical Modeling Competition (October?) Putnam Competition (December 5 th)	10	2
Math Culture Reading Some weeks specific readings will be posted on the course web page With approval, any column on MAA.org With approval, an article from <i>Math Horizons</i> , <i>CMJ</i> , etc.	5	– 5 5
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 (with approval) 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.