

CALCULUS 2 MTWF 2:00-2:50PM SPRING 2014 STUART 306

Instructor:	Jonathan White
E-Mail:	JWhite@Coe.Edu
Web Page:	public.coe.edu/~jwhite
Office:	Stuart 316
Office Hours:	MTWF 9:10-9:50am and by appointment
Office Phone:	399-8280
Home Phone:	362-3350 (between 7am and 10pm)
Text:	<i>Calculus, Early Transcendentals, 1st Edition</i> , Briggs & Cochran
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 200 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 three 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 $[92.0\%, \infty) \rightarrow A$, $[90\%, 92\%) \rightarrow A-$, $[87\%, 90\%) \rightarrow B+$, $[82\%, 87\%) \rightarrow B$, $[80\%, 82\%) \rightarrow B-$, $[77\%, 80\%) \rightarrow C+$, $[72\%, 77\%) \rightarrow C$, $[70\%, 72\%) \rightarrow C-$, $[67\%, 70\%) \rightarrow D+$, $[62\%, 67\%) \rightarrow D$, $[60\%, 62\%) \rightarrow D-$, $(-\infty, 60\%) \rightarrow F$ scale. Current grade information will be available online 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 (score 80% or more) a computer-administered Derivatives Gateway. You may attempt this exam as often as desired, provided that you demonstrate understanding of mistakes before a retake. Success by 4pm Friday 1/17 counts as 10 out of 10 points toward a student’s WeBWorK score, by 4pm Friday 1/24 counts 5 out of 10. Course grades will be lowered 5% for each week or portion of a week beyond 1/24 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.

CALCULUS 2 MTWF 2:00-2:50PM SPRING 2014 STUART 306

Tentative Schedule

Monday 1/13 §4.8 Antiderivatives	Tuesday 1/14 §5.3 The Fun. Theorem	Wednesday 1/15 §5.5 Substitution	Friday 1/17 §6.1 Velocity & Net Change
Monday 1/20 No Class – MLK Day	Tuesday 1/21 §6.2 Areas between Curves	Wednesday 1/22 §6.3 Volume by Slicing	Friday 1/24 §6.3 Volume by Slicing
Monday 1/27 §6.4 Volume by Shells	Tuesday 1/28 §6.5 Length of Curves	Wednesday 1/29 Surface Area	Friday 1/31 §6.6 Physical Applications
Monday 2/3 §6.6 Physical Applications	Tuesday 2/4 §6.7 Log & Exp Functions	Wednesday 2/5 Review	Friday 2/7 Exam 1
Monday 2/10 §7.1 Integration by Parts	Tuesday 2/11 §7.1 Integration by Parts	Wednesday 2/12 §7.2 Trig Integrals	Friday 2/14 §7.3 Trig Substitution
Monday 2/17 §7.4 Partial Fractions	Tuesday 2/18 §7.5 Integration Strategy	Wednesday 2/19 §7.5 Integration Strategy	Friday 2/21 §7.6 Numerical Integration
Monday 2/24 §7.7 Improper Integrals	Tuesday 2/25 §7.7 Improper Integrals	Wednesday 2/26 Review	Friday 2/28 Exam 2
Spring Break			
Monday 3/10 §8.1 Overview	Tuesday 3/11 §8.2 Sequences	Wednesday 3/12 §8.3 Infinite Series	Friday 3/14 §8.4 Integral Test
Monday 3/17 §8.5 Comparison Tests	Tuesday 3/18 §8.5 Ratio Test	Wednesday 3/19 §8.6 Alternating Series	Friday 3/21 §8.6 Alternating Series
Monday 3/24 §9.1 Polynomial Approx.	Tuesday 3/25 §9.2 Properties of Power Series	Wednesday 3/26 §9.2 Properties of Power Series	Friday 3/28 §9.3 Taylor Series
Monday 3/31 §9.3 Taylor Series	Tuesday 4/1 §9.4 Using Taylor Series	Wednesday 4/2 Review	Friday 4/4 Exam 3
Monday 4/7 §10.1 Parametric Equations	Tuesday 4/8 §10.1 Parametric Equations	Wednesday 4/9 §10.2 Polar Coordinates	Friday 4/11 §10.3 Calculus in Polar
Monday 4/14 §10.4 Conic Sections	Tuesday 4/15 Student Research Symposium	Wednesday 4/16 §10.4 Conic Sections	Friday 4/18 Applications to Economics
Monday 4/21 Applications to Economics	Tuesday 4/22 Applications to Probability	Wednesday 4/23 Applications to Probability	Friday 4/25 §7.8 Differential Equations
Monday 4/28 §7.8 Differential Equations	Tuesday 4/29 §7.8 Differential Equations	Wednesday 4/30 Review	
Final Exam – 2pm on Tuesday 5/6			

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.

CALCULUS 2 MTWF 2:00-2:50PM SPRING 2014 STUART 306

Math Culture Points

A significant portion of the grade for this course will 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. Note that none of these is mandatory – there are more than enough opportunities than necessary to earn full credit. You should be able to select activities the are particularly relevant to you.

Activity	Points	Max #
Colloquium Attendance	5	–
Colloquium Presentation	5-15	2
Meeting Attendance Nebraska Conference for Undergraduate Women in Mathematics (Jan. 31 - Feb. 2) SIGCSE Technical Symposium (March 5 - 8) University of Iowa Computing Conference (early March?) Midwest Undergraduate Mathematics Symposium (April 11 - 12)	15 10 10 10-15	2
Mathematics Competition Participation Mathematical Contest in Modeling (February 6 - 10) Iowa Collegiate Mathematics Competition (March 1)	15	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) Winter Break Book, Movies, Pi Day celebration, Speakers, Workshops, etc.	5-10	5
Volunteer Math Outreach Working with students at McKinley Middle School, etc.	5	3
Other Appropriate Coe Activities Contemporary Issues Forum Attending a Quantitative Research Symposium Presentation Job Shadowing in any relevant field	5 5 10	– 3 1

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 **in a timely manner**. 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**, or within the specified time window for other activities. Up to three units (30 points) of credit may be submitted after normal deadlines in the “Math Culture – Late” category on Moodle, but otherwise exceptions will not be made without serious extenuating circumstances.

