Calculus 1 MTWF 10:00-10:50AM Fall 2021 SH 309

Instructor:	Jonathan White, jwhite@coe.edu
Chair:	Gavin Cross, gcross@coe.edu
Web Page:	public.coe.edu/~jwhite
Office:	Stuart 311
Office Hours:	9:30-9:50am TTh, 11:00-11:30am MWF, (link on web page) and by appointment
Office Phone:	319-399-8280
Text:	*Essential Calculus, Early Transcendentals*, Second Edition, by James Stewart
WeBWorK and Quizzes:	Assignments will be made throughout the term via the WeBWorK system, and quizzes will be given occasionally. Combined these will be worth 300 points (a third of the final grade).
Exams:	There will be four exams during the course of the semester. The dates of these are indicated in the schedule on the back of this sheet. These exams will be worth 100 points (one ninth of the final grade) each. The final exam will be held at the scheduled time during finals week and will be worth 200 points
Grading:	Grading will approximately follow a $[92.0\%, \infty) \mapsto A$, $[90\%, 92\%) \mapsto A-$, $[87\%, 90\%) \mapsto B+$, $[82\%, 87\%) \mapsto B$, $[80\%, 82\%) \mapsto B-$, $[77\%, 80\%) \mapsto C+$, $[72\%, 77\%) \mapsto C$, $[70\%, 72\%) \mapsto C-$, $[67\%, 70\%) \mapsto D+$, $[62\%, 67\%) \mapsto D$, $[60\%, 62\%) \mapsto D-$, $(-\infty, 60\%) \mapsto F$ 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 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 generally not be accepted.

The "Big Idea" of Calculus is using mathematics to deal with change. Calculus 1 deals primarily with rates of change, whether they be of quantities that change as time goes by or quantities that change as some other quantity is adjusted. 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.

In addition to regular exams, all students must successfully complete a computer-administered gateway exam over computing derivatives in order to pass this course.

Calculus is a demanding course in many ways. It requires both a level of computational proficiency and also a level of conceptual understanding beyond any prior mathematics course. Yet because of or despite these difficulties, students who have previously found math classes easy because of an aptitude for moving symbols around might find that there is more to this class than they expect, and students who have in the past felt they weren't good at math might find this class more suited to them. In either case, this class might not be quite what you're used to, and it might be unsettling at first. Give it some time, and feel free to take advantage of my office hours to help past the rough spots.

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		8/18 §1.1 Functions	8/20 §1.1 Functions
8/23 §1.2 Catalog of Functions	8/24 Intro to CoCalc & SageMath	8/25 §1.2 Catalog of Functions	8/27 §1.3 Limits
8/30 §1.4 Calculating Limits	8/31 §1.4 Calculating Limits	9/1 §1.5 Continuity	9/3 §1.6 Limits at Infinity
9/6 No Class -- Labor Day	9/7 §1.6 Infinite Limits	9/8 Review for Exam	9/10 **Exam 1**
9/13 §2.1 Rates of Change	9/14 §2.2 The Derivative	9/15 §2.2 The Derivative	9/17 §2.3 Differentiation Formulas
9/20 §2.4 Product & Quotient Rules	9/21 §2.4 Product & Quotient Rules	9/22 §2.5 The Chain Rule	9/24 §2.6 Implicit Differentiation
9/27 §2.7 Related Rates	9/28 §2.8 Linear Approximation	9/29 Review for Exam	10/1 **Exam 2**
10/4 §3.1 Exponential Functions	10/5 §3.2 Inverse Functions & Logs	10/6 §3.3 Derivatives of Exp & Log	10/8 No Class -- Fall Break
10/11 §3.3 Derivatives of Exp & Log	10/12 §3.4 Exponential Growth	10/13 §3.4 Exponential Growth	10/15 §3.5 Inverse Trig Functions
10/18 §3.7 L'Hôpital's Rule	10/19 §3.7 L'Hôpital's Rule	10/20 Review for Exam	10/22 **Exam 3**
10/25 §4.1 Extreme Values	10/26 §4.2 Mean Value Theorem	10/27 §4.3 Derivatives & Graphs	10/29 §4.4 Derivatives & Graphs
11/1 §4.5 Optimization	11/2 §4.5 Optimization	11/3 §4.6 Newton's Method	11/5 §4.6 Newton's Method
11/8 §4.7 Antiderivatives	11/9 §4.7 Antiderivatives	11/10 Review for Exam	11/12 **Exam 4**
11/15 §5.1 Areas & Distances	11/16 §5.2 Definite Integrals	11/17 §5.2 Definite Integrals	11/19 §5.3 Evaluating Def. Integrals
No Class -- Thanksgiving Break			
11/29 §5.4 The Fun. Thrm. of Calc	11/30 §5.5 u-Substitution	12/1 §5.5 u-Substitution	12/3 Review for Final
Final Exam -- 8am on Wednesday 12/8			

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

Coe's faculty has adopted an academic integrity policy. It is your responsibility to understand and follow it.

Diversity, in all its forms, is valuable.

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Learning Outcomes

By the end of this class each student should be able to demonstrate:

- basic understanding of limits of elementary functions.
- basic understanding of limits and continuity of elementary functions and some associated theorems.
- basic understanding of derivatives of real functions and the standard associated theorems.
- basic understanding of indefinite and definite integrals of elementary functions.
- basic understanding of the Fundamental Theorem of Calculus.
- understanding of selected applications of the above concepts.

The Provost has mandated that the material below this line appear on all syllabi:

Mission Statement:
Coe College is a national, residential liberal arts college offering a broad array of programs in the arts, sciences, and professions. Our mission is to prepare students for meaningful lives and fulfilling careers in a diverse, interconnected world. Coe's success will be judged by the success of our graduates.

Academic Integrity
At Coe College, we expect academic integrity of all members of our community. Academic integrity assumes honesty about the nature of one's work in all situations. Such honesty is at the heart of the educational enterprise and is a precondition for intellectual growth. Academic dishonesty is the willful attempt to misrepresent one's work, cheat, plagiarize, or impede other students' academic progress. Academic dishonesty interferes with the mission of the College and will be treated with the utmost seriousness as a violation of community standards. Please refer to the Coe College Academic Catalog for complete information regarding Academic Integrity: www.coe.edu/academics/academic-resources/provosts-office/academic-integrity-policy

FERPA
Students should be aware of their rights regarding the privacy of their educational records. Detailed information about your rights can be found under the FERPA (Family Educational Rights and Privacy Act of 1974) section in the Academic Catalog and online here: https://www.coe.edu/academics/academic-resources/registrar/ferpa
In line with FERPA restrictions, students should be aware that an instructor cannot publicly post grades by student name, institutional student identification number, or social security number without first having obtained students' written permission.

The Definition of a Course Credit & Expected Workload
One course credit at Coe College constitutes 180 hours' worth of student work over the course of the term. "The Department of Education has defined one hour to be 50 minutes, so 150 60-minute hours is equivalent to 180 50-minute hours." This figure includes both the time spent in class and out of class completing course work. In other words, students are expected to devote a considerable amount of time outside of class to this course. For courses that meet in a standard MWF or T-Th slot, students should be expected to work seven hours a week outside of the three hours in class.

Requesting Academic Accommodations
Coe College is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning in this course, please visit my office hours to discuss these concerns with me. If you have a medical, physical, psychological, or learning need documented by a healthcare provider, or experience an unforeseen obstacle during the semester, you can make an appointment with Laura Hayes, Accessibility Services Coordinator, to request an official accommodation under the Americans with Disabilities Act. You can find more information about the Accessibility Services Office by visiting the Learning Commons website or by emailing accessibility@coe.edu. If you have already been approved for accommodations through Accessibility Services, please meet with me so we can develop a plan for your success together.

Reporting of Sexual Assault or Misconduct
As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a faculty member. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in any one-on-one meetings. I will keep the information you share with me private to the greatest extent possible. However, I am required to share information regarding sexual misconduct or students who may be in danger to themselves or to others. Students may speak to someone confidentially by contacting Student Life at 319-399-8843 or emailing titleix@coe.edu, Safety, and Security at 319-399-8888, Emily Barnard (college counselor) at 319-399-8843, or visit Coe's Title IX website for more information.