Syllabus for MATH 150A
Calculus I
California State University Fullerton

“Being kidnapped and abused by the undead was worse than calculus, but not by a wide margin.”

— Thomm Quackenbush, Danse Macabre

Class Meetings: We meet twice per week—Monday and Wednesday

MW 10:00 – 11:50, McCarthy Hall 563

Prerequisites

Passing score on the ELM or exemption; four years of high school mathematics, including college algebra and one year of trigonometry; and Math 125 or equivalent or a passing score on the Mathematics Qualifying Exam (MQE).

Text

The text for the course is the book Essential Calculus: Early Transcendentals by James Stewart (Cengage-Learning; Custom Edition, 2E). This edition was made specifically for CSU Fullerton and is available in the campus bookstore.

Course Description

This course is the first semester in a three-semester sequence in calculus. Functions, limits, differentiation, optimization, and integration will be covered. Your goal in this course should be to learn the fundamental concepts of calculus, and to understand how they can be applied to solve problems, rather than to memorize procedures and formulas.

Student Learning Goals: See the Standards List for a more detailed breakdown.

The following is a list of the main specific learning goals for Math 150A.

● To complete a review of elementary functions, including transformations, function composition, and inverse functions; and to gain a detailed understanding of exponential and logarithmic functions.

● To develop an understanding of the concepts of tangent lines and rates of change.

● To understand and work with the concept of the limit of a function and the associated limit laws in order to evaluate limits of a function of one variable, and to apply this knowledge to tangent line and rate of change problems (i.e., the derivative).

● To follow the development of derivative formulas and to apply these formulas to find derivatives of elementary functions, while maintaining comprehension of the interpretations of the derivative.
To learn about applying derivatives to find local extrema and inflection points for functions of one variable, and to use this information to sketch graphs of functions.

To gain experience with working with applications of the derivative, including exponential growth and decay, related rates, and optimization problems.

To study and understand the concept of an antiderivative of a function, and to find families of antiderivatives for some simple functions.

To grasp the meaning of the “area under the curve” problem, to be able to approximate such areas with left and right hand Riemann sums, and to evaluate the limit of these sums using summation formulas provided.

To learn how to use the Fundamental Theorem of Calculus to evaluate definite integrals and to find derivatives of definite integrals as a function of the upper limit.

To learn how and when to apply the method of substitution to evaluate a definite integral, and to be able to interpret a definite integral using the Net Change Theorem.

To understand how to apply the definite integral to find the area between two curves.

**General Education Learning Goals**

Math 150A may be used to satisfy the General Education requirements B.4 (B. Scientific Inquiry and Quantitative Reasoning, 4. Mathematics/Quantitative Reasoning). A grade of “C” (2.0) or better is required to meet this General Education requirement. A grade of C- (1.7) or below will not satisfy this General Education requirement.

This course achieves all of the general education learning goals in this category which are:

- Understand and appreciate the varied ways in which mathematics is used in problem solving.
- Understand and appreciate the varied applications of mathematics to real world problems.
- Perform appropriate numerical calculations, with knowledge of the underlying thematics, and draw conclusions from the results.
- Demonstrate knowledge of fundamental mathematical concepts, symbols, and principles.
- Solve problems which require mathematical analysis and quantitative reasoning.
- Summarize and present mathematical information with graphs and other forms that enhance comprehension.
- Utilize inductive and deductive mathematical reasoning skills in finding solutions, and be able to explain how these skills were used.
- Explain the overall process and the particular steps by which a mathematical problem is solved.
- Demonstrate a sense of mastery and confidence in the ability to solve problems which require mathematical concepts and quantitative reasoning.
Homework

Homework is an essential part of the course, but not one that will directly give you points for the course content standards. The main purpose is for you to learn by practicing, and to prepare you for the assessments. Homework is due the Wednesday of the week following its appearances on the calendar. So, the homework from Monday and Wednesday of a given week is due the next Wednesday. **You may not reassess a standard until you have completed the homework assignment relevant to that standard.**

Quizzes

To help you self-assess your understanding of the material, there will be short quizzes and any material we’ve covered is fair game for those quizzes. Attached to each quiz is a score sheet listing the standards assessed on the quiz. You will not receive a score for the entire quiz, but rather a score for each standard. These scores will go into the gradebook, but should be thought of as (in)formative grades, not summative grades. Missing a quiz does not adversely effect your grade, and there are no make-up quizzes.

Exams: Two superquizzes and one comprehensive final exam

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last day to ADD with a permit</td>
<td>Tuesday, September 8</td>
</tr>
<tr>
<td>Last day to drop w/o a grade of “W”</td>
<td>Tuesday, September 8</td>
</tr>
<tr>
<td>Superquiz #1</td>
<td>Wednesday, September 23</td>
</tr>
<tr>
<td>Last day to drop w/o a serious and compelling reason</td>
<td>Friday, October 2</td>
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<tr>
<td>Superquiz #2</td>
<td>Wednesday, October 28</td>
</tr>
<tr>
<td>Project draft due</td>
<td>Monday, November 9</td>
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<tr>
<td>Last day to drop Project due</td>
<td>Friday, November 13</td>
</tr>
<tr>
<td>Project due</td>
<td>Wednesday, December 2</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Monday, December 14, 12:00–1:50</td>
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The exams do count toward your standards grade in a significant way as they are a primary way for you to demonstrate mastery of the content. Should you miss one of these opportunities, there is no penalty, but there are no make-up superquizzes either. Please note that the date of the final exam is not negotiable; send the date to your parents now and tell them to buy your plane ticket home for the next day or later.

Final Project: Learning Packet

As part of the university writing requirement for a GE course, you must complete a written project to successfully complete this class. The project for this class is to write a learning packet for one or more standards in the course. Additionally, you will edit the project for a classmate. For more information, see the learning packet reference sheet.
Extra Credit

There are likely to be a few opportunities to earn random extra credit (labeled XP in the gradebook) in this class—particularly by doing something that benefits the entire class (or, more importantly, me). For instance, if you are the first to spot a mistake in my materials and bring it to my attention, I will reward you for your attention to detail. However, earning these points is no substitute for learning the material, and this is reflected by their value in the gradebook.

Standard Based Grading: For more information, see the Grading F.A.Q.

I will make explicit all of the skills/concepts I expect you to learn in this course through a list called the standard list; the assessments will help to determine whether you have done so. If you show that your ability on a given standard has changed, I will change your grade for that standard accordingly. The available methods for showing a change in ability is not limited to written assessments, but may include a private meeting, or any other method upon which we decide. The possible scores for each standard are between incomplete (1) and mastery (4).

Only a score of 3 or above will count toward your overall grade!

with the following interpretation of each score:

4 You have mastered the skill, demonstrating complete comprehension of the concepts and fully describing your solution in a clear, coherent fashion, making no errors.

3.75 You have completely mastered the skill, but perhaps made a small notational, arithmetic or algebraic error.

3.5 You demonstrated that you have conceptual understanding and can apply the skill to solve complex problems, but perhaps made serious notational, arithmetic or algebraic errors, or failed to show all the steps in your reasoning.

3 You demonstrated basic competency, that is basic conceptual understanding.

2 You have not demonstrated basic competency, but have heard of the skill and know enough to write down something. Your solution is confusing or full of serious errors.

1 You made no progress on the problem.

Grade Breakdown: All that matters is that you learn the material!

The scores you receive on standards make up, essentially, your entire final course grade.

<table>
<thead>
<tr>
<th>Content Standards</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>10%</td>
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</table>
Grading: Overall Score = Weighted Average of Standard Scores (converted to percent)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
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<tbody>
<tr>
<td>A+</td>
<td>97.00%</td>
</tr>
<tr>
<td>A</td>
<td>93.00%</td>
</tr>
<tr>
<td>A-</td>
<td>90.00%</td>
</tr>
<tr>
<td>B+</td>
<td>87.00%</td>
</tr>
<tr>
<td>B</td>
<td>83.00%</td>
</tr>
<tr>
<td>B-</td>
<td>80.00%</td>
</tr>
<tr>
<td>C+</td>
<td>77.00%</td>
</tr>
<tr>
<td>C</td>
<td>73.00%</td>
</tr>
<tr>
<td>D</td>
<td>50.00%</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 50.00%</td>
</tr>
</tbody>
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Note that I only use plus/minus grading for grades above a C. In addition, to achieve an A in the course, you must score at least a 3 (basic competency) for each standard. If this condition is not met, the highest grade possible is an A-. I do not curve the class grades, nor will I arbitrarily inflate the class grades.

Attendance & Participation: 28 meetings—each meeting is 3.6% of the class.

If you miss any classes during the first week without notifying me or the departmental office within 24 hours of the meeting, I reserve the right to drop you from the course.

I am a lecturer; that is my style. It turns out, though, that consistent lecturing rarely produces the desired learning outcomes. Consequently, this course will involve many opportunities for you to engage with the material on your own and in groups with me as your guide. Just as in a military battle, when you engage, there will be occasional tactical and strategic errors as well as collateral damage. I don’t expect you to be perfect. On an unrelated note, I tend to tell a lot of jokes. Please pretend they are funny.

Cheating: It’s not worth it, so don’t do it.

Obtaining or attempting to obtain credit for work by the use of dishonest, fraudulent, or unauthorized means is cheating. Submitting work which is not yours is plagiarism. Students caught cheating, plagiarizing, or helping another student cheat or plagiarize are subject to academic penalties and will be reported to the Judicial Officer on campus. See the university policy statement on Academic Dishonesty for details.

Calculators, Smartphones, Tablets, and Laptops

Using technology inappropriately bothers me, and is also distracting to your classmates. Wait until class ends to check your text messages and email. Whether calculators are allowed will vary by assessment. It is unnecessary to purchase a graphing calculator for this course, but one may be helpful.

Special Needs

During the first week of classes, inform me of any disabilities or special needs that you have that may require special arrangements related to attending class sessions, carrying out written assignments, or taking examinations. Students with disabilities need to document the disability at the Disability Support Services office in University Hall 101.

Mental Health Issues

As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating, and/or lack of
motivation. These concerns or other stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. Counseling and Psychological Services (CAPS) is available to assist you in addressing these and other concerns you may be experiencing. You can make an appointment by calling (657) 278-3040.

<table>
<thead>
<tr>
<th>Emergency Numbers:</th>
<th>Campus Police</th>
<th>911</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Information</td>
<td>657-278-4444</td>
</tr>
</tbody>
</table>

Keep your contact information updated so that the university can notify you in case of an emergency. During class, if you hear an alarm, immediately stop what you are doing, quickly grab your possessions and walk to the nearest exit. Take the stairs to the ground floor and move at least 50 feet away from the building. For more information, download the emergency preparedness document from the CSU website.