Math 150 Calculus I Fall 2013 Course Syllabus

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Web Page: http://home.sandiego.edu/~k3walsh/

Meeting Times:  Section 01: MWF 1:25pm-2:20pm SH101B Tuesday 11:10am-12:05pm SH212
                Section 02: MWF 12:20pm-1:15pm SH318 Tuesday 9:40am-10:35am OH125

Office Hours:  Monday and Wednesday 2:30pm-4:00pm, Tuesday 1:00pm-2:00pm (In the Math Learning Center)

I hope you will take advantage of my office hours. Office hours are a great chance for you to ask questions on the course material but also to go further into the area of calculus. If you would like me to help you find some more challenging problems to work on, learn how to relate what we are learning to different majors, or just discuss study strategies, I am always happy to have you stop by.

If you have questions but can’t make it to my office hours, you are welcome to visit the Math Learning Center or set up an individual appointment with me.

The Math Learning Center is open and free to USD students on a walk-in basis. Located in Serra Hall 310, the mathematics center provides peer tutoring to students in lower level mathematics courses, including this course. The math learning center is open M-F and on Sunday! Hours and tutors are posted online. (See link on the course website.)

Prerequisites: Math 115: College Algebra (with a grade of C- or better), or transfer credit that has been officially granted
                by USD, or Level 2 mathematics placement exam passing score or Math SAT of at least 600 or Math ACT of at least 26.

Students without a solid trigonometry background are strongly recommended to take MATH 118 prior to or concurrently with MATH 150.

Required Textbook/Supplies: Calculus: USD Special edition, by J. Stewart
  A stapler: Any assignment longer than one page must be stapled.

Calculator: You may not use a calculator on the exams. You may need one on the homework assignments. If you do not already have a graphing calculator, you can use a basic calculator, graphing calculator app, or Wolfram|Alpha to help on your homework. (Make sure to do the work yourself and only use the calculator to compute final numerical answers or check your work.)

Computer Account: I will use your USD email address to communicate with you. Please make sure

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you are checking it regularly. I will post assignments and place other relevant information on the course web page and on the course Blackboard Olé site.

**Student Learning Outcomes:**
Upon successful completion of this course, the student will be able to:

- Explain and apply the concept of limit, derivative and antiderivative and how they relate to slopes, rates of change, area under a curve, and other applications.
- Calculate limits, derivatives and integrals and use these to solve applied problems.
- Understand the definite integral as a limit of sums; approximate integrals numerically and evaluate them via the Fundamental Theorem of Calculus.
- Clearly communicate complete solutions to problems verbally and in writing. This involves using complete sentences to explain individual steps in the solutions, correct notation and proper units.
- Explain, interpret and correctly apply definitions. Provide examples and non-examples to illustrate definitions.
- Use valid reasoning (be able to provide a logical sequence of statements that follow each other) and be able to identify invalid reasoning. Provide counterexamples to disprove statements that are not always true.
- Determine and explain when particular theorems apply to a situation and apply them correctly.
- Outcome to explore: Prove simple theorems.

**Attendance Policy:** I expect that you will attend every class and actively listen and participate in the lecture. You are expected to spend the time in class as well as time after each lecture thinking about calculus. The learning community we create in class will benefit from the sharing of ideas, questions and mistakes. *For those students who miss no more than two classes the final exam score may replace the single lowest exam grade.*

**Student Evaluation:**

<table>
<thead>
<tr>
<th>Daily Comprehension Assignments</th>
<th>5%</th>
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</thead>
<tbody>
<tr>
<td>Written Homework (lowest two dropped)</td>
<td>15%</td>
</tr>
<tr>
<td>Three Midterm Grades Exams (15% each) (lowest midterm replaced by final if you miss no more than 2 classes and you do better on the final)</td>
<td>45% or 30%</td>
</tr>
<tr>
<td>Final Writing Project</td>
<td>5%</td>
</tr>
<tr>
<td>Cumulative Final Exam</td>
<td>30% or 45%</td>
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Class Activities: We will have short lectures/discussions about the new topics. You will be responsible for answering questions as we go through lecture and asking questions about material that is not clear.

Out-of-Class Activities: We will have daily comprehension assignments, reading assignments, and written homework assignments.

- **Daily Comprehension Assignments**: At the end of each lecture, you should find the list of lecture questions posted on the course website or provided in class. You are expected to review these after each lecture and write the answer to each question. These will be checked at the beginning of the next lecture. If you have trouble completing the daily comprehension assignments, you are encouraged to reread your lecture notes, read the book, come to office hours, or ask your friends. If by the next lecture you are still having trouble with the previous lecture’s material, we will review whatever concepts students are stuck on before we move on to new material.

- **Reading Assignments**: Students should read the sections of the book that correspond to each lecture and homework assignment (see the course calendar). Students are responsible for the material covered in the book whether or not it is covered in lecture. Some students find it helpful to read the book before lecture, while others like to read it after the lecture. This is ultimately up to you. You could always do both (just not neither)! Learning to read a math textbook is an important skill. It will also help you get comfortable with the way formal math is written, which will help with your final writing assignment. Don’t be discouraged if you have trouble understanding a passage the first time through. It is only to be expected that in technical reading there will be parts that you must reread several times. During the course we will discuss the reading and try to work out difficulties that you may have. Learning to cope well with technical reading is a skill that will be useful throughout your life.

- **Written Homework Assignments**: consist of problems from the text and extra handouts. Many of the written exercises are not at all similar to examples in the book, and some of the individual problems will probably take longer than what you may be used to. Written homework is a great chance to think about hard problems and really try to connect all of the ideas in the course, not just do some simple calculations. On challenging questions, ask yourself what you need to solve the problem and what you have learned that could possibly help.

Budget your time wisely, and start working on the homework as soon as you receive it. You may ask questions during office hours and via email.

Written homework will be due in class on Wednesday. You should complete as much of your homework as possible by Tuesday. We will dedicate part of Tuesday’s lecture each week to going over homework problems, either from the previous week or from the assignment due the next day. **Late written homework will not be accepted. The lowest two HW grades will be dropped.**
Final Writing Project: The final writing project counts towards 5% of your final grade. For the writing project you must pick two or more of the student learning outcomes for the course and write a two page report on what you learned related to these topics. For the more general learning outcomes, you may write about how we applied them to different material.

For example, for the learning outcome "Explain, interpret and correctly apply definitions. Provide examples and non-examples to illustrate definitions" you might explain two or three terms we defined related to derivatives and give examples to show that you understand these definitions. You might also write a few sentences about why it is important to have precise definitions in mathematics.

These reports must be typed in complete sentences. They should consist of examples to convey what you have learned and talk about the topics in general (using mathematical vocabulary).

The first draft due on Monday, November 25. The final draft will be due on Wednesday, December 11. (Students whose first draft needs heavy revisions may be asked to turn in other drafts before this date.)

Midterm Exams/Final Exam:
There three midterm exams and a cumulative final exam.

Tentative Exam Dates:
Exam 1: Friday, September 27th; Exam 2: Wednesday, October 23rd; Exam 3: Friday, November 22nd

A Cumulative Final Exam: Section 01: (1:25 Class) Friday Dec 20, 2:00-4:00 pm
Section 02: (12:20 Class) Wednesday Dec 18, 2:00-4:00pm

Academic Integrity Policy: Cheating and Plagiarism are serious offenses and will be treated severely (see http://sa.sandiego.edu/studentcode.html#rulesofconduct). Although I encourage you to work with others, the work you turn in should be your own. Always cite your sources and your collaborators. (In the spirit of citation, I would like to cite the Math 150 instructors who have come before me, this syllabus is based heavily on theirs.)

Accommodations: Any student with a documented disability needing academic adjustments or accommodations is requested to speak with me during the first two weeks of class. All discussions will remain confidential. A student attempting to access Disability Services for the first time should begin by contacting the Director of Disability Services and/or the Learning Disabilities Specialist in Serra Hall, Room 300 (619/260-4655). It is the student’s responsibility to schedule an “intake” meeting with the Director as soon as possible.

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Words of Wisdom on Succeeding in this Course  
(These were not originally written by me, but I agree with them!)

Learning the material in this course is fundamentally your job, but I very much want to help you do it, not only by my explanations in class but also by being available to you in my office hours and for questions by e-mail. Here are some further suggestions:

1. Attend every class, and come to class prepared and ready to learn. That means being ready to engage your mind, as well as being up-to-date on the reading and homework. (Ideally, it means having had enough sleep too!)

2. Ask questions!!! Ask questions in class; ask other students outside of class; ask me during my office hours; ask the tutors in the Math Center; ask on e-mail. If you don’t understand, or if you are curious about related concepts, ask!!

3. Read and re-read the textbook. Read the relevant sections before we discuss them in class and ask yourself questions. This will enable you to understand the class discussion better. Reread the material after it has been discussed.

4. As soon as possible after class—at least before the next class—reflect on the class, look over your notes and make sure your binder is organized (notes, handouts, homework, etc.). Annotate your notes with comments to yourself and questions. For example:
   “Important!” Learning how to recognize what is important is a crucial ingredient in being a good student—and a well-educated person. It is not so easy, but the more you try, the better you get.
   “Careful!” You understand the material but see an opportunity for making a mistake even if you know better. Part of being good at math is knowing when to be extra careful.
   “?????” Express yourself. One ? if you’re not quite sure, and maybe coming back to study the point one more time will be enough. More ????’s if the puzzlement is more serious.
   Write comments and insights. For example a good type of comment is to point out to yourself connections between the current idea and one you’ve seen before.

5. Study with other students. Working on problems in groups is often helpful. Find a small group of students with whom you work well and meet with them regularly. But—moderation in all things—also work some of the time by yourself. Don’t become completely dependent on the group.

6. Stay organized and Work hard. The traditional idea is that a student will spend two hours out of class for every hour in class. Expect to spend at least 8 hours per week outside of class working on calculus.
   Work consistently. Don’t get behind; it is very difficult to catch up and you will only get further behind. Cramming right before an exam is not an effective technique.
   Be persistent. Some of the work may seem difficult, but you are learning the most when you struggle with a concept and then finally succeed in understanding it.
   Be prepared to make mistakes, learn from them, and try again. Frustration is a normal part of the learning process. It is OK as long as you do not give up!

If all of this seems like too much work, consider that it will take nearly as much work to fail. If it takes only a little more work to succeed, then take the time to succeed!

Remember that I want you to succeed! I will provide the learning environment and opportunities for you to satisfy the class goals. I will provide the support necessary for you to succeed in this course, and learn valuable life lessons in the process, both in and out of class. I am available during my office hours and by appointment, as well as via email.

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