Math 360, Advance Calculus I– Fall Semester 2009

General Information

Professor: Jennifer Gorsky
Office Hours - MW 1:15–3:45 PM, or by appointment
Office - Serra Hall 133B
Phone - (619) 260-7986
E-mail - jgorsky@sandiego.edu

Time and Place: MWF 10:10 AM–11:05 AM in Serra Hall 211

Prerequisites: Math 160 and Math 250.


Syllabus: We will thoroughly cover chapters 2–5 and parts of chapter 6, time permitting. Chapter 1 is a review of proof techniques and basic terminology. Students are expected to have a strong understanding of the material in chapter 1 prior to the course. For this reason, we will only briefly review selected topics from chapter 1.

Description: This course is devoted to the study of real analysis. In this course students will rigorously study the theory of functions of a single real variable. Many of the topics and results will be familiar from your freshman/sophomore calculus courses; however, the approach to the material in this course will be theoretical. There will be a strong emphasis on proving theorems and gaining a deep understanding of the concepts. The topics to be covered include sequences, functions, limits, continuity and differentiation.

Goals: Students will develop a deep understanding of the concepts of analysis for functions of a single real variable. Students will be able to write clear and rigorous proofs, correctly define terms and state theorems/results, and read and speak about the course material.

Learning Outcomes: Upon completion of this course, students will demonstrate a deep understanding of the theory of functions of a single real variable. More specifically, students will demonstrate an understanding of and be able to prove theorems/results about sequences, functions, limits, continuity and differentiation. In addition, students will demonstrate the ability to write clear and rigorous proofs, correctly define terms and state theorems/results, read and understand mathematical writing, and communicate mathematical ideas.

Writing and Communication Skills: In this course there will be a strong emphasis placed on not only understanding the concepts and theories on a deep level but also on writing clear and rigorous proofs, as well as correctly defining terms and stating theorems. With deep understanding comes the ability to describe one’s understanding and reasoning in a precise and complete way. In your work you must use grammatically correct (including punctuation and spelling), complete and coherent sentences. Also, you must use mathematical terminology and notation correctly. If you are struggling with these expectations then I encourage you to see me immediately.

Reading: You are expected to read the assigned pages in the textbook. These readings will be an essential part of your success in this course. Your reading should be done with care and with paper and a pencil in hand. You should fill in the missing steps and details as you read and you should always attempt to work through the worked-out examples on your own before reading the solution provided. This type of reading takes time, and can often require reading a passage multiple times for understanding, so be patient with yourself and do not get discouraged.

Electronic Course Information: Homework assignments will be delivered using the web at http://home.sandiego.edu/~jgorsky/courses/math360_f09.htm

Exam, Quiz and Homework Schedule:

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<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Time</th>
<th>Room</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>Oct. 14</td>
<td>Wednesday 10:10 AM–11:05 AM</td>
<td>Serra Hall 211</td>
<td>20%</td>
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<tr>
<td>Exam 2</td>
<td>Nov. 16</td>
<td>Monday 10:10 AM–11:05 AM</td>
<td>Serra Hall 211</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>Dec. 21</td>
<td>Monday 11:00 AM–1:00 PM</td>
<td>Serra Hall 211</td>
<td>30%</td>
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<tr>
<td>Quizzes</td>
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<td>administered regularly</td>
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<td>10%</td>
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<tr>
<td>Homework</td>
<td></td>
<td>collected and assigned every class meeting</td>
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Exams: There will be two exams and a final exam. The dates of these exams are fixed. Make-up exams will not be given. A student who misses an examination will receive zero points for that exam unless he or she has a valid
excuse (Note that valid documentation verifying this excuse must be given to the professor in order for an excuse to be considered.) Please be aware that travel plans, sleeping in, defective alarm clocks, busy schedules, etc. are not considered to be valid excuses. If you have a valid excuse for missing an exam, you must contact me before the exam. If it has been determined that you have a valid excuse and you have provided the necessary valid documentation, then you may use your final exam score as your missed exam score. An excuse is almost certainly not going to be accepted if it is presented after the exam takes place or during the exam. If you are a student-athlete, see the section below entitled “Student-athletes.”

Quizzes: Quizzes will be given regularly. The date of each quiz will be announced in lecture, at least one class period prior to the quiz. The lowest quiz score will be dropped, and therefore, there will be no make-up quizzes. If you are a student-athlete, see the section below entitled “Student-athletes.”

Homework: Homework problems from the textbook will be assigned regularly and collected at the beginning of the class period in which they are due. You may consult your classmates for ideas on homework problems; however, the solutions you turn in must be in your own words and must reflect your own understanding. Your solutions and write-ups will be checked for textual similarities. You may not copy from, reword, or paraphrase another student’s work or any other resource material; such conduct will be treated as a violation of academic integrity (see the section below entitled “Academic Integrity”). Remember that you will not learn anything by simply copying, rewording or paraphrasing another person’s work. You will receive no credit for solely copying the answers from the back of the textbook. The main purpose of the homework is to help you learn the material. The lowest homework score will be dropped, which means absolutely no late homework will be accepted.

Each homework assignment will be graded, in part, on whether you made an honest and thoughtful attempt at each problem and adhered to the Homework Specifications outlined below. In addition, selected problems from each homework assignment will be graded thoroughly for correctness and presentation (see the sections entitled Writing and Communication Skills and Homework Specifications). Students will not be informed of the selected problems to be graded for correctness and presentation prior to turning in the assignment.

Homework Specifications: Each homework assignment must
• be turned in on time.
• be stapled.
• be labeled with the student's name, date, and homework assignment.
• have each problem clearly labeled and appearing in numerical order.
• contain only your final drafts (You should write drafts of all homework solutions on scratch paper.)
• be written legibly.
• not have anything crossed out or contain notes in the margins.
• have proofs and solutions in which all steps are clearly shown and explained.
• contain clear, well-organized and rigorous proofs.
• have grammatically correct (including punctuation and spelling), complete and coherent sentences.
• use mathematical terminology and notation correctly.
• be written on only one side of each piece of paper if a pen that bleeds through paper is used.

The above homework specifications will be enforced. If the specifications are not following, then points will be deducted or the homework assignment may not be accepted for grading.

Participation: Class attendance is important, and hence, each student is expected to actively attend every class. Active attendance can be accomplished by asking and answering questions, and contributing to group work when appropriate. In-class activities may be given during some lectures. There will be no make-up activities.

Academic Integrity: Examinations, quizzes, homework, and all assignments are conducted under the University’s Academic Integrity Policy (see https://www.sandiego.edu/honorcouncil/integrity.php). While consulting your classmates for ideas on homework problems is permitted in this course, copying is not. In particular, copying from, rewording or paraphrasing another student’s or person’s work or misappropriation of other resource materials is a violation of academic integrity. Exams and quizzes are closed book and are to be done completely by yourself with no help from others. Any breach of academic integrity will lead to penalty.

Course and Classroom Policies: If you have numerous questions on some topic, you should come to see me before the next class as there will likely not be sufficient time to answer all of your questions in class. During lectures you are encouraged to actively participate by answering and asking questions.

Please do your best to show up on time, and quietly enter the room when this is not possible. Please remember to respect your colleagues who are here to learn. Indeed, class disruptions and unprofessional conduct (including but
not limited to visiting with classmates and using cell phones or other communication devices) will not be tolerated and the offending parties will be asked to leave. In particular, cell phone use of any kind (texting, voice, calculator, photography) is banned during class. During class, cell phones must be turned off or on silent mode. During exams and quizzes, cell phone use of any kind is prohibited, and use may constitute a violation of academic integrity.

Student-athletes: In the first week of class, all student-athletes must give the professor a copy of the ‘travel letter’ issued by the Athletic department which details the anticipated missed class dates for the student-athlete. It is the responsibility of the student-athlete to bring any exam, quiz or assignment conflicts to the professor’s attention during the first week of class.

Study Suggestions: As soon as possible after each lecture, it is useful to go back over your lecture notes. Ask yourself what is the main topic of the day and then review its components. Rewrite your lecture notes in your own words. Read the corresponding section(s) of the book (see the section above entitled Reading) and try to do the worked-out examples on your own without referring to the book’s solution. Also, as you read the book, add to your rewritten class notes. Then begin the homework problems. Keep a written list of all of your mathematics questions and try to get all of your questions answered in a timely manner (preferably before the next class). It will also be very helpful to you to look over the portion of the text to be covered during the next class and come to class prepared with questions about any part of the material that is unclear to you.

Getting Help: See me in office hours or make an appointment with me. Note: You must come prepared with concrete questions. Also, you must attempt the homework problems and come with your written work before asking for assistance on them.

Note Bene: Each exam will contain one identical problem from the textbook examples, assigned homework exercises, or lecture notes.

Grading: The following grading scale will be used to compute your final grade. Note: The scale may be lowered if the overall grades are too low.

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<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D</th>
<th>F</th>
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<tr>
<td>Grade</td>
<td>93%-100%</td>
<td>90%-92%</td>
<td>87%-89%</td>
<td>83%-86%</td>
<td>80%-82%</td>
<td>77%-79%</td>
<td>73%-76%</td>
<td>70%-72%</td>
<td>60%-69%</td>
<td>0%-59%</td>
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