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# Math 330 – Advanced Calculus I

## Fall 2020

### Instructor

Professor Youngjoon Hong  
Office: GMCS-578  
Email: [yhong2@sdsu.edu](mailto:yhong2@sdsu.edu)  
Lectures: Online lecture (link will be announced).  
Office hours: 1. Tue: 9:30am-10:30am (Hong): <https://SDSU.zoom.us/j/6567473128>, the passcode is 101010.  
2. Thurs: 9:30am-10:30am (Bryce Chudomelka, TA, [bchudomelka@sdsu.edu](mailto:bchudomelka@sdsu.edu)): <https://cccconfer.zoom.us/j/5052114264>

### Course - Practical information

Website: Blackboard, [hong.sdsu.edu](http://hong.sdsu.edu)  
Textbook: Lecture notes  
Prerequisite: Math 245 and 254 or Math 342A with a grade of C or better in each course.

### Grading

Homework: Several online homework assignments (around 8-10 HWs) will be given throughout the semester. The lowest score will be dropped from the final grade computation.  
Quiz: Several quizzes will be given during the TA's office hour. No make-up quizzes will be given. The lowest score will be dropped from the final grade computation.  
Midterm: One midterm will be given during the semester (see schedule at the end of this document). There will be **NO** make-up exams, so please see me if there are extenuating circumstances.  
Final: The final exam is **mandatory**, and there will be no make-up exams given for missing the final. Make sure to contact me about any extenuating circumstances.

Final grade: Final percentages will be computed according to the following rule:  
35% (homework) + 20% (midterms) + 35% (final) + 10% (quiz)

The final grades will be chosen according to the following scale:

- A: 90% and above
- B: 80% and above
- C: 70% and above
- D: 60% and above
- F: otherwise

Extra credit: **Please do not ask for extra credit.** The only way to be successful in this course is to keep up with it as opposed to trying to make up for missed or poorly done work weeks later.

Grading complaints: If you believe a problem on a homework or exam has been graded incorrectly, or that your score was not correctly recorded, you must bring this to the attention of the instructor **within 14 calendar days** of the date of the exam or homework, and before the date of the final exam. Grading complaints not initiated within this period of time will **not** be considered.

## Student responsibilities

Cheating: Any kind of cheating will result in an “F” grade. Cheating will also be reported to Student Affairs.

Homework Assignment: Beside the fact that the homeworks will be graded, their purpose is to let you understand and practice the concepts explained in this class. The homeworks can also be viewed as an auto-evaluation process in the sense that if you are not capable of solving the exercises it means you need to further review some concepts.

Student with Disabilities: If you are a student with a disability and believe you will need accommodations for this class, it is **your responsibility** to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services **as soon as possible**. Please note that accommodations are **not** retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated

## Learning objectives

In this class, you will:

- Practice using logical quantifiers and language to rigorously express statements in Calculus.
- Practice using the language of set theory to rigorously formulate mathematical expressions over a variety of different kinds of sets.
- Practice deriving estimates and bounds for transcendental and rational functions.
- Develop techniques for the estimation of the error in common approximations.
- Use the formal definition of sequential limits to prove that various sequences do or do not have limits.
- Use the formal definition of continuous limits to prove the limiting behavior of functions.
- Use the formal definition of Cauchy convergence and the concept of completeness to establish the existence of rigorous limits.
- Use the formal definition of continuity to prove that various transcendental and rational functions are or are not continuous.
- Use the formal definition of differentiability to prove foundational results from Calculus and to prove when and where more complicated functions are or are not differentiable.

## Course outline

This course is a proofs-based, rigorous examination of many of the results used in a first semester Calculus class. The purpose of this course is to provide students with the opportunity to develop mastery of rigorous thinking and the techniques needed to develop rigorous approximations in Calculus. The techniques and problem solving skills developed in this course are crucial to future success in courses in mathematics or in the teaching of mathematics since they form the core of how one thinks in a rigorously mathematical way.

## Important schedule

Midterm: Oct.20 9:30am-Oct.21 9:30am (24 hours)

Final: Dec.11 11:59pm – Dec.13 11:59pm (48 hours)

***This syllabus is subject to change based on the needs of the class***

## UNIVERSITY POLICIES

**Accommodations:** If you are a student with a disability and are in need of accommodations for this class, please contact Student Ability Success Center at (619) 594-6473 as soon as possible. Please know accommodations are not retroactive, and I cannot provide accommodations based upon disability until I have received an accommodation letter from Student Ability Success Center.

**Student Privacy and Intellectual Property:** The [Family Educational Rights and Privacy Act](#) (FERPA) mandates the protection of student information, including contact information, grades, and graded assignments. I will not post grades or leave graded assignments in public places. Students will be notified at the time of an assignment if copies of student work will be retained beyond the end of the semester or used as examples for future students or the wider public. Students maintain intellectual property rights to work products they create as part of this course unless they are formally notified otherwise.

**Religious observances:** According to the University Policy File, students should notify the instructors of affected courses of planned absences for religious observances by the end of the second week of classes.

**Medical-related absences:** Students are instructed to contact their professor/instructor/coach in the event they need to miss class, etc. due to an illness, injury or emergency. All decisions about the impact of an absence, as well as any arrangements for making up work, rest with the instructors. [Student Health Services](#) (SHS) does not provide medical excuses for short-term absences due to illness or injury. When a medical-related absence persists beyond five days, SHS will work with students to provide appropriate documentation. When a student is hospitalized or has a serious, ongoing illness or injury, SHS will, at the student's request and with the student's consent, communicate with the student's instructors via the Vice President for Student Affairs and may communicate with the student's Assistant Dean and/or the [Student Ability Success Center](#).

**SDSU Economic Crisis Response Team:** If you or a friend are experiencing food or housing insecurity, or any unforeseen financial crisis, visit [sdsu.edu/ecrt](http://sdsu.edu/ecrt), email [ecrt@sdsu.edu](mailto:ecrt@sdsu.edu), or walk-in to Well-being & Health Promotion on the 3rd floor of Calpulli Center.

**Resources for students:** A complete list of all academic support services--including the [Writing Center](#) and [Math Learning Center](#)--is available on the Student Affairs' [Academic Success](#) website. [Counseling and Psychological Services](#) (619-594-5220) offers confidential counseling services by licensed therapists; you can Live Chat with a counselor at [http://go.sdsu.edu/student\\_affairs/cps/therapist-consultation.aspx](http://go.sdsu.edu/student_affairs/cps/therapist-consultation.aspx) between 4:00pm and 10:00pm, or call San Diego Access and Crisis 24-hour Hotline at (888) 724-7240.

**Academic Honesty:** The University adheres to a strict [policy prohibiting cheating and plagiarism](#). Examples of academic dishonesty include but are not limited to:

- copying, in part or in whole, from another's test or other examination;
- obtaining copies of a test, an examination, or other course material without the permission of the instructor;
- collaborating with another or others in work to be presented without the permission of the instructor;
- falsifying records, laboratory work, or other course data;
- submitting work previously presented in another course, if contrary to the rules of the course;
- altering or interfering with grading procedures;
- assisting another student in any of the above;
- using sources verbatim or paraphrasing without giving proper attribution (this can include phrases, sentences, paragraphs and/or pages of work);
- copying and pasting work from an online or offline source directly and calling it your own;
- using information you find from an online or offline source without giving the author credit;

- replacing words or phrases from another source and inserting your own words or phrases.

The California State University system requires instructors to report all instances of academic misconduct to the Center for Student Rights and Responsibilities. Academic dishonesty will result in disciplinary review by the University and may lead to probation, suspension, or expulsion. Instructors may also, at their discretion, penalize student grades on any assignment or assessment discovered to have been produced in an academically dishonest manner.

**Classroom Conduct Standards:** SDSU students are expected to abide by the terms of the [Student Conduct Code](#) in classrooms and other instructional settings. Prohibited conduct includes:

- Willful, material and substantial disruption or obstruction of a University-related activity, or any on-campus activity.
- Participating in an activity that substantially and materially disrupts the normal operations of the University, or infringes on the rights of members of the University community.
- Unauthorized recording, dissemination, or publication (including on websites or social media) of lectures or other course materials.
- Conduct that threatens or endangers the health or safety of any person within or related to the University community, including
  1. physical abuse, threats, intimidation, or harassment.
  2. sexual misconduct.

Violation of these standards will result in referral to appropriate campus authorities.