

## Math 129 – Calculus II for Engineers and Scientists (4 units)

**Instructor:** JAY BARTROFF, 406B KAP, phone 740-1044, email bartroff@usc.edu, office hours TBD

**Contacting Jay:** The best way to contact me is to speak to me just before or after lecture, or in office hours. After that, email is best, but due to the volume of email I get I usually cannot respond within 24 hours, but make every effort to respond within 48 hours. That said, emailing me the night before an assignment is due or before an exam will probably not be effective.

**TA:** ZIXIANG ZHOU, email zzhou108@usc.edu office hours TBD

**Discussion Sections:** T/Th 8-8:50 in KAP 137 or 9-9:50 in GFS 220

**The Course:** The goal of this course is for students to acquire a working knowledge of advanced calculus techniques and apply them to a variety of problems. The course is the second (following Math 125) in a calculus sequence emphasizing engineering, physics, and other scientific applications. Topics include trigonometric (and inverse trig) functions, hyperbolic functions, integration techniques (integration by parts, partial fractions), applications of integration (area between curves, volume, surface area), indeterminate forms, L'Hospital's rule, infinite sequences and series, Taylor series, and (time permitting) parametrized curves and polar coordinates.

Here is a tentative, rough plan for the lectures:

Book Sections (Stewart)	Main Topics	(Approx.) # of Lectures
5.6 – 5.8	Inverse trig & hyperbolic functions, L'Hospital's rule	4
6.1 – 6.3, 6.5, 6.6	Integration techniques	9
7.1 – 7.6	Applications of integration	10
8 (all sections)	Infinite sequences and series	16
9.1 – 9.3 (if time)	Parametrized curves, polar coordinates	3
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Course information, assignments, solutions, and grades will be posted on Blackboard.

**Textbook:** *Essential Calculus* (2nd Ed.) by James Stewart [ISBN: 9781133112297] is required.

**Beyond the Course:** It's easy to be consumed with learning all the different concepts, techniques, and tricks of calculus and lose sight of the fact that *calculus is one of humankind's greatest and most powerful intellectual achievements!* I hope that being mindful of this will help us retain joy and wonder when learning the topic, even if you happen to be stuck on a nasty integral at the moment. Calculus has a fascinating history and development, beginning with Isaac Newton's work in the late 1600s. If you're interested in learning more about this, a recommended book is *The Calculus Gallery: Masterpieces from Newton to Lebesgue* (2005) by William Dunham. This is not required for the course, however.

**Homework:** Homework assignments will be posted online by Friday of most weeks. The assignment is due at the beginning of the following Thursday section, and must be turned in in hard copy, in person only. **No late homework will be accepted.** Students are encouraged to collaborate and seek help with homework, but it must be written up in his/her own words, unless specified otherwise. Each student's lowest homework score will be dropped.

**Quizzes:** Most Thursdays when a homework assignment is due, there will be a quiz on that homework in section. Quizzes will be 10-15 minutes long. No notes or calculators are permitted on quizzes. Each student's lowest quiz score will be dropped.

**Exams:** There will be two midterm exams, given at the usual lecture time and place, and a final exam, date and time determined by the registrar (an "exceptional" final time). So far, all exams will be in-person. **The following dates are nonnegotiable so do not take this class if you have any conflicts.**

**Midterm exam #1:** Friday, October 1st

**Midterm exam #2:** Wednesday, November 10th

**Final exam:** Wednesday, December 8th, 2-4PM

**Grades:** Your overall weighted average will be computed as follows.

**35% final exam**

**35% midterm exams:** 20% for the better of the two, 15% for the other

**15% homework:** Each assignment weighted equally, regardless of points used in grading, and dropping the lowest

**10% quizzes:** Each quiz weighted equally, regardless of points used in grading, and dropping the lowest

**5% participation** in lecture, section, and office hours

Thresholds for letter grades will then be determined so that the grade distribution is similar to this and comparable classes in recent years. These thresholds will be no harsher than, and most likely very close to, the canonical scale:  $[90\%, 100\%] = A$ ,  $[80\%, 90\%) = B$ ,  $[70\%, 80\%) = C$ ,  $[60\%, 70\%) = D$ ,  $[0\%, 60\%) = F$ . It is recommended that you use this scale if you'd like to estimate your standing in the class at any point during the semester.

**The Math Center** is located in KAP 263. It is open M-Th 8-7 and F 8-5. Your TA's office hours will be there, as well as TAs for similar courses who you can consult. It is an excellent place to go for help on homework.

**Calculators:** A calculator is not necessary for this class. No calculators, or other electronic devices, are permitted during quizzes or exams.

**Statement on COVID-19:** The current plans and policies for this course may need to be adjusted should the college, university, or county regulations surrounding COVID-19 change. The current plan is to have all lectures, sections, quizzes, and exams in-person, but some of those may need to be changed to online, so some flexibility may be required of all of us. Students are expected to comply with all aspects of USC's COVID-19 policy. Failure to do so may result in removal from the class and referral to Student Judicial Affairs and Community Standards.

**Students with Disabilities:** Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. **Such a letter should be delivered to me within the first two weeks of the semester.** DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. Website for DSP: [sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html) and contact information: (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX), [ability@usc.edu](mailto:ability@usc.edu).

**Academic Integrity:** USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. SCampus ([scampus.usc.edu](http://scampus.usc.edu)), the Student Guidebook, contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

**Emergency Preparedness/Course Continuity in a Crisis:** In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies. See the university's site on Campus Safety and Emergency Preparedness ([preparedness.usc.edu](http://preparedness.usc.edu)).