SYLLABUS
Math 118: Fundamental Principles of Calculus
Section 39450
Fall 2021

Lectures: MWF 1:00 – 1:50pm, LVL 16
Instructor: Spencer Gerhardt
Course Webpage: https://blackboard.usc.edu/webapps/login/
Email: sgerhard@usc.edu
Office Location: https://usc.zoom.us/j/5478778449
Office Hours: MW 5 – 6 pm via Zoom (or in person MW by appointment)

Course Description: (4 units) Derivatives; extrema. The definite integral; the Fundamental Theorem of Calculus. Extrema and definite integrals for functions of several variables. Not available for a credit toward a degree in Mathematics.

Prerequisites: Either Math 108 or Math 117.

Text: Hughes-Hallett, et al., **Applied Calculus**. Sixth Edition. ISBN: 978-1-119-39935-3. Please note that we are using a custom version that is not sold on Amazon. You may purchase **WileyPLUS** (which includes the text and the online homework) through Blackboard.

Discussions: TTh, see your class schedule for the specific room and time.

Teaching Assistant: Jinting Liu
Email: jintingl@usc.edu
Office Hours: Math Center Schedule

Math Center: The Math Center is open from 10am to 9pm Monday-Thursday, and 10am to 7pm on Friday. It is primarily run by math graduate students here at USC. The office hours of your TA will also be held in the Math Center, although you can go to the Math Center at any time it is open to ask for help.

COURSE LOGISTICS

Lectures will be held **in person** in LVL 16 on MWF 1:00 – 1:50pm. According to university and LA County policies, masks are required inside the classroom at all times.

Over the course of the semester, it is possible that some students will need to enter the USC health and safety protocols. To best accommodate this eventuality, the course lectures will also be viewable in Zoom and recordings of the lectures will be made available. This policy is subject to change depending on current circumstances.

It is also possible due to health and safety protocols (or some other reason) that an individual class lecture may be held remotely via Zoom. If this is the case, I will notify you in advance via Blackboard.

I will post lecture notes on Blackboard after each class, so you don't need to rush to write everything down (unless you like to).

Since lectures are viewable in Zoom, if you are not feeling well on a given class day please choose to attend class remotely. Please consult the COVID-19 Resource Center for additional health and safety protocols.

Throughout the semester our course will make use of the following online systems:

- Blackboard as the main hub for all communication, links, and course materials.

- Zoom for lecture recordings.

- **WileyPLUS** as our required textbook and online homework system.

- Gradescope for quizzes.

You will access these systems through links in Blackboard and none of them should require separate logins. All are free except for **WileyPLUS**, which costs about the same as a standard textbook.

To register for **WileyPLUS**, just click the WileyPLUS link in the "Content" folder of our Blackboard page and you'll be prompted to purchase online-only access.

ASSIGNMENTS

Homework: There will be a small number of homework problems assigned after each lecture on **WileyPLUS**. These problems will typically be due immediately before the following lecture. Any exercises submitted after their due date will receive half-credit, regardless of circumstances. Note these problems are often multiple choice, and are intended to provide some base level of familiarity with the new material taught in class that day. In particular, they are not sufficient studying material for the final.

On occasion, there will be formatting issues which make it difficult to submit a correct answer to **WileyPLUS**. To account for this, every student will receive 20 extra homework points at the end of the semester. **Hence it is not necessary to contact me about receiving credit for these problems.**

Quizzes: There will be quizzes each week in discussion section except for exam weeks. There will be two types of quizzes: take home and in-section. Each quiz will be submitted via Gradescope by the end of the Thursday discussion section.

The purpose of the in-section quizzes will be to prepare students for taking the midterms and final. The take home quizzes will involve applications of the course material, and will typically be somewhat longer problems. You are welcome to work with other students in your discussion section on the take home quizzes. The lowest quiz score will be dropped.

EXAMS AND GRADING

Exams: All exams in this class will be held **IN PERSON** during the scheduled time. If you cannot be present, you must contact me **BEFORE** the exam date to make other arrangements. If you no-show for an exam and attempt to contact me afterward, do not expect to be allowed a make-up exam.

There are three exams in this course: two midterms and a final. The two midterms will be held during normally scheduled class times. The final will be cumulative and written

by the Math Department. It is university policy that no student may take the final exam early, or be allowed to skip it.

You may use scientific (non-graphing, non-programmable, not connected to the internet) calculators on exams. In addition you may use one sheet (front and back) of handwritten notes. However, you are also expected to show all of your work for every question and give detailed explanations for your answers. You may not consult with any other human during the exams. This would be considered a serious violation of the Student Conduct Code.

- **Exam 1**: Friday, October 8 2021.

- **Exam 2**: Friday, November 19 2021.

- **Final Exam**: Wednesday, December 8 2021, 2 – 4pm.

Grading and Curves: Your grade for the course will be calculated as follows:

- Homework: 10%

- Quizzes: 15%

- Midterms: 40%

- Final Exam: 35%

OTHER POLICIES

Disability Services: Any student requesting accommodations based on a disability is required to register with the Office of Student Accessibility Services (OSAS) each semester. A letter of verification for approved accommodations can be obtained from OSAS. Please be sure the letter is delivered to me as early in the semester as possible.

https://osas.usc.edu/
213-740-0776 (phone)
213-740-6948 (TDD only)
213-740-8216 (fax)
OSASFrontDesk@usc.edu

COURSE CALENDAR

We will cover the following sections of your textbook, on roughly the weeks listed. This calendar is very tentative.

Week 01: Introduction, Exponential Functions, Business Vocabulary, Sections 1.1 – 1.4.

Week 02: Log Functions and Exponential Growth, Sections 1.5 – 1.7.

Week 03: Derivatives, Sections 1.8 – 2.1. **Monday no class**.

Week 04: Derivative Rules, Sections 2.2 – 2.5.

Week 05: Chain Rule, Products/Quotients, Sections 3.1 – 3.3.

Week 06: Max/Min problems, Inflection Points, Second Derivative Test, Sections 4.1 – 4.3.

Week 07: Applications of Max/Min problems, Sections 4.4 – 4.6. **Exam 1 on Friday 10/8.**

Week 08: Contour Diagrams, Functions of two variables, Sections 8.1 –8.3. **Thursday-Friday no class**.

Week 09: Partial Derivatives, Critical Points and Optimization, Sections 8.4 – 8.5.

Week 10: The Definite Integral, Sections 5.1–5.2.

Week 11: Interpretations of Definite Integral, Fundamental Theorem of Calculus, Sections 5.3 – 5.5.

Week 12: Average value, Antiderivatives, Sections 5.6, 6.1 – 6.2.

Week 13: Indefinite Integrals, Integration Techniques, Sections 6.3, 6.5 – 6.7. **Exam 2 on Friday 11/19.**

Week 14: Double Integrals, Sections 11.1– 11.2. **Wednesday- Friday no class**.

Week 15: Review.

Finals Week: Final Exam Wednesday, December 8, 2 – 4pm.