Math 126 - Calculus II

4.0 units
Fall 2016
MWF 1:00-1:50pm

Location: GFS 118

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Teaching Assistant: TBD
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Course Description

Continuing from Math 125, this course covers applications and techniques of integration, polar coordinates, indeterminant forms and L'Hôpital's rule, power and Taylor series.

Learning Objectives

The main objective of Calculus is to relate small-scale (differential) quantities to large-scale (integrated) quantities. This is accomplished by means of the Fundamental Theorem of Calculus, which marks the starting point for this course. Students will learn to

- evaluate integrals by using the Fundamental Theorem of Calculus,
- use integration to compute areas, volumes, arc lengths and surface areas,
- evaluate integrals using substitution, partial fractions, and integration by parts,
- determine convergence or divergence of improper integrals,
- use L'Hôpital's rule to evaluate improper integrals,
- find the Taylor series expansion of a function,
- estimate and compare series and integral to determine convergence.

On a more abstract level, students will develop their analytical and problem solving skills.

Prerequisite(s): Math 125

Course Notes

Homework, exam solutions, and lecture notes will be disseminated through Blackboard.

Technological Proficiency and Hardware/Software Required

Students will complete 2 computer lab assignments using Mathematica.

Required Readings and Supplementary Materials

Required: *Essential Calculus*, 2nd edition, by James Stewart.

Description and Assessment of Assignments

Students are expected to complete weekly problem sets that reinforce topics covered in lecture. Weekly quizzes will be administered on Tuesdays in discussion section. There will be three in-class midterm exams, on September 14, October 12, November 09, and a final exam on December 7 from 2pm-4pm. **Note: This course is an exception to the final exam schedule.**

Grading Breakdown

Assignment	**% of Grade**
Quizzes	5%
Labs	5%
Homework	15%
Midterm I	15%
Midterm II	15%
Midterm III	15%
Final Exam	30%
TOTAL	**100%**

Assignment Submission Policy

Problem sets will be posted on Blackboard by noon on Wednesday and are due in discussion on the following Tuesday.

Additional Policies

This course strictly adheres to deadlines. Late homework will not be accepted without prior permission from the instructor. There are no make-ups allowed for quizzes or exams. If you have a scheduling conflict for a quiz or an exam, you must get prior approval from the instructor at least 2 weeks before the quiz or exam date.

Course Schedule: A Weekly Breakdown

	Topics	**Readings**	**Deliverable (Due Dates)**
Week 1	Fundamental Theorems	4.2, 4.4, 4.5	Homework 1 (08/30)
Week 2	Computing volumes	7.1, 7.2, 7.3	Homework 2 (09/06)
Week 3	Average values	7.6	Homework 3 (09/13)
Week 4	Numerical Methods	6.5	Midterm Exam 1 (09/14)
Week 5	Trigonometric Integration	5.6, 6.2	Computer Lab A (09/27)
Week 6	Rational Functions	6.3	Homework 4 (10/04)
Week 7	Improper integrals	6.1, 6.6	Homework 5 (10/11)
Week 8	Convergence/Divergence		Midterm Exam 2 (10/12)
Week 9	Series and integrals	8.1, 8.2, 8.3	Homework 6 (10/25)
Week 10	Power and Taylor series	8.5, 8.6, 8.7	Homework 7 (11/01)
Week 11	Differential equations	7.7	Computer Lab B (11/08)
Week 12	Arc length	7.4	Midterm Exam 3 (11/09)
Week 13	Parametric equations	7.5, 9.1	Homework 8 (11/22)
Week 14	Polar coordinates	9.2, 9.4	Homework 9 (11/29)
Week 15	Review		
Final			Final Exam (12/07)

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism presenting someone elses ideas as your own, either verbatim or recast in your own words is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* `https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-` Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, `http://policy.usc.edu/scientific-misconduct/`.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* `http://equity.usc.edu/` or to the *Department of Public Safety* `http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us`. This is important for the safety whole USC community. Another member of the university community such as a friend, classmate, advisor, or faculty member can help initiate the report, or can initiate the report on behalf of another person. The *Center for Women and Men* `http://www.usc.edu/student-affairs/cwm/` provides 24/7 confidential support, and the sexual assault resource center webpage `sarc@usc.edu` describes reporting options and other resources.

Support Systems

A number of USCs schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* `http://dornsife.usc.edu/ali`, which sponsors courses and workshops specifically for international graduate students. The *Office of Disability Services and Programs* `http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html` provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* `http://emergency.usc.edu/` will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.