Math 126 - Calculus II

4.0 units, Spring 2019
MWF 1:00-1:50pm

Professor: Sami Assaf
Office: KAP 438-C
Office Hrs: M 12pm-12:50pm, F 11am-11:50am
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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

- 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.

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 Thursdays in discussion section. There will be two in-class midterm exams, on February 15 and April 5, and a final exam on May 2 from 8am-10am.
Note: This course is an exception to the final exam schedule.

Grading Breakdown

Assignment	% of Grade
Quizzes	5%
Homework	10%
Midterm I	25%
Midterm II	25%
Final Exam	35%
TOTAL	**100%**

Assignment Submission Policy
Problem sets will be posted on Wednesday and are due in discussion the following Tuesday.

Additional Policies

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

Course Schedule: A Weekly Breakdown

	Topics	Readings	Deliverable (Due Dates)
Week 1	Computing volumes	7.1, 7.2, 7.3	Homework 1 (01/15)
Week 2	Numerical methods	7.6, 6.5	Homework 2 (01/22)
Week 3	Trigonometry	5.6, 6.2	Homework 3 (01/29)
Week 4	Trigonometric Integration	6.2	Homework 4 (02/05)
Week 5	Integration techniques	6.1, 6.3	Homework 5 (02/12)
Week 6	Integration Review		Midterm Exam 1 (02/15)
Week 7	Improper integrals	6.6	Homework 6 (02/26)
Week 8	Sequences and series	8.1, 8.2	Homework 7 (03/05)
Week 9	Convergence of series	8.3, 8.4	Homework 8 (03/10)
Week 10	Power series	8.5, 8.6	Homework 9 (03/26)
Week 11	Taylor series	8.7	Homework 10 (04/02)
Week 12	Series Review		Midterm Exam 2 (04/05)
Week 13	Parametric equations	7.4, 7.5, 9.1	Homework 11 (04/16)
Week 14	Polar coordinates	9.2, 9.4	Homework 12 (04/23)
Week 15	Course Review		
Final			Final Exam (05/02)

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-sanctions/. 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.