

MATH 226: Calculus I

Course Syllabus - Fall 2009

Lectures: Every **TuTh 9:35-10:50am** in HUM 121

Instructor: Yitwah Cheung
Office: Thornton Hall, Room 950
Phone: (415) 338-1805
Office Hours: Tu 11:30-12:30pm, Th 2-3pm, and by appt.
Email: ycheung@sfsu.edu

Discussion: Every **M 8:10-9:00am** in HUM 121

Instructor: TBD
Office: TBD
Phone: TBD
Office Hours: TBD
Email: TBD

Prerequisites: Option 1: MATH 70 (Algebra II) and MATH 109 (Precalculus) with a grade of C or better. Option 2: Passing high school Calculus, or Precalculus or a trigonometry based course elsewhere, with a grade of B or better.

Bulletin Description: The first semester of Calculus: limits, continuity, derivatives, rules of differentiation, applications of differentiation, optimization, L'Hospital's Rule, curve sketching, integration, the Fundamental Theorem of Calculus.

Course Objectives: Students entering Calculus I should have a firm grasp of algebra and trigonometry. They should be able to graph elementary algebraic and transcendental functions and their inverses. Students should also be able to solve inequalities and equations involving exponential, logarithmic and trigonometric functions. The main objective of Calculus I is for students to learn the basics of the calculus of functions of one variable. They will study transcendental functions, limits, differentiation and an introduction to the Riemann integral, culminating with the Fundamental Theorem of Calculus. They will also apply these ideas to a wide range of problems that include the equations of motion, related rates, curve sketching and optimization. The students should be able to interpret the concepts of Calculus algebraically, graphically and verbally. More generally, the students will improve their ability to think critically, to analyze a problem and solve it using a wide array of tools. These skills will be invaluable to them in whatever path they choose to follow, be it as a mathematics major or in pursuit of a career in one of the other sciences.

Upon successful completion of the course, students should be able to:

- Evaluate a variety of limits including limits at infinity, one-sided limits, and limits of indeterminate forms. Students should also be able to identify discontinuities in functions presented algebraically or graphically;
- Apply the definition of derivative to calculate and estimate derivatives from formulas, graphs, or data;
- Differentiate sums, product and quotients of composite polynomial, trigonometric, exponential, and logarithmic functions;
- Discuss the conceptual relations between derivatives, rates of change, and tangent lines in the context of an applied example;
- Use asymptotes, first and second derivatives to graph functions;
- Solve applied problems using calculus and justify answers;
- Estimate a definite integral with a Riemann sum, supply a sketch;
- Evaluate a simple definite integral using the FTC;

Textbook: *University Calculus, Elements with Early Transcendentals* by Hass, Weir, and Thomas.

Homework and Reading Assignments: Students should check the course webpage at

<http://online.sfsu.edu/~ycheung/226/>

for daily homework and reading assignments. Handouts and other useful information such as homework due dates can also be found there. Students are expected to complete all homework and reading assignments in a timely fashion. **LATE HOMEWORK WILL NOT BE ACCEPTED.**

Exams: There are 2 hour-long midterms and a two-hour final exam that will take place at the times given below.

Midterm 1: Monday, October 12 from 8:10-9am in HUM 121.

Midterm 2: Monday, November 16 from 8:10-9am in HUM 121.

Final: In HUM 121 from 8am-10:30am on

Tuesday, December 15.

Absences: A student is considered absent if he/she is not present at the time when attendance is taken. Each student will be allowed two unexcused absences. After that, 3 points will be deducted from the student's raw score (see next item) for each unexcused absence.

Your Grade: There will be at least 10 Homework Sets, each worth 10 points. In addition, there are 2 midterms, each worth 100 points, and a final exam, worth 200 points. Your *raw score* out of 500 is the sum of the combined scores on your Homework Sets (100 points) plus the sum of your midterm scores (200 points) and your score on the final (200 points) minus points deducted for unexcused absences. Your grade for the course will be based on your *normalised* score, which is your raw score divided by 5, following the scale below. A curve, if used, will only be to your advantage.

Total score	0-59	60-62	63-66	67-69	70-72	73-76
Grade	F	D–	D	D+	C–	C
Total score	77-79	80-82	83-86	87-89	90-92	93-100
Grade	C+	B–	B	B+	A–	A

Academic Integrity: All students are expected to adhere to the SFSU honor code. Any student caught cheating on an examination will automatically fail the course and face expulsion from the University. Each Problem Set is to be written up individually. However, students may and are in fact encouraged to discuss the homework problems with each other.

Enrollment Status: You are solely responsible for maintaining your own enrollment status. Check the “Withdrawl Policy” on the course webpage for the proper procedures for maintaining your enrollment status.

DPRC: Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu).

Religious Holidays: Reasonable accomodations will be made for you to observe religious holidays when such observances require you to be absent from class activities. It is your responsibility to inform the instructor during the first two weeks of class, in writing, about such holidays.

MATH 226: Course Schedule

Fall 2009

Text: *University Calculus* by Hass-Weir-Thomas.

In the table below, A.B refers to Section B of Chapter A.

8/24	M	no class	10/19	M	discussion
8/25	Tu	1.3, 2.1	10/20	Tu	3.2
8/27	Th	1.4, 1.6	10/22	Th	3.3
8/31	M	discussion	10/26	M	discussion
9/1	Tu	1.7, 1.8	10/27	Tu	3.4
9/3	Th	2.2, 2.3	10/29	Th	3.5
9/7	M	no class	11/2	M	discussion
9/8	Tu	Furlough	11/3	Tu	Furlough
9/10	Th	2.4	11/5	Th	3.6
9/14	M	discussion	11/9	M	discussion
9/15	Tu	2.5	11/10	Tu	3.7
9/17	Th	2.6	11/12	Th	Review #2
9/21	M	discussion	11/16	M	Midterm #2
9/22	Tu	2.7	11/17	Tu	4.1
9/24	Th	2.12	11/19	Th	4.2, 4.3
9/28	M	discussion	11/23	M	no class
9/29	Tu	2.8	11/24	Tu	no class
10/1	Th	2.9	11/26	Th	no class
10/5	M	discussion	11/30	M	discussion
10/6	Tu	2.10, 2.11	12/1	Tu	4.4
10/8	Th	Review #1	12/3	Th	4.4, 4.5
10/12	M	Midterm #1	12/7	M	discussion
10/13	Tu	Furlough	12/8	Tu	4.5
10/15	Th	3.1	12/10	Th	Review