

CALCULUS AND ANALYTIC GEOMETRY I.
MATH 140, SECTION 1

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Office: Hawthorn 119.

Office hours: Monday, Wednesday and Friday, 10:00AM - 11:00AM and 02:00PM
- 03:00PM or by arrangement.

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Text: *Calculus, Early Transcendentals, 4th ed*, J. Stewart, Brooks-Cole, 2000.

Calculator: Calculators are not allowed for any in-class assessment such as the
final, midterms or in-class quizzes.

Topics: These will include:

Chapter 1: Functions and Models

1.1	4 Ways to Represent a Function	.5 days
1.2	Mathematical Models	.5 days
1.3	New Functions From Old	1 day
1.5	Exponential Functions	.5 days
1.6	Inverse Functions and Logarithms	.5 days

Chapter 2: Limits and Derivatives

2.1	The Tangent and Velocity Problems	1 day
2.2	The Limit of a Function	1 day
2.3	Calculating Limits Using Limit Laws	1 day
2.4	The Precise Definition of a Limit	1 day
2.5	Continuity	1 day
2.6	Limits at Infinity; Horizontal Asymptotes	1 day
2.7	Tangents, Velocities and Other Rates of Change	1 day
2.8	Derivatives	1 day
2.9	The Derivative as a Function	1 day

Chapter 3: Differentiation Rules

3.1	Derivatives of Polynomials and Exponential Functions	1 day
3.2	The Product and Quotient Rules	1 day
3.3	Rates of Change in the Natural and Social Sciences	optional
3.4	Derivatives of Trigonometric Functions	2 days
3.5	The Chain Rule	1 day
3.6	Implicit Differentiation	1 day
3.7	Higher Derivatives	1 day
3.8	Derivatives of Logarithmic Functions	1 day
3.9	Hyperbolic Functions	optional
3.10	Related Rates	2 days
3.11	Linear Approximation and Differentials	optional

Chapter 4: Applications of Differentiation

4.1	Maximum and Minimum Values	1 day
4.2	The Mean Value Theorem	1 day
4.3	How Derivatives Affect the Shape of a Graph	optional
4.4	Indeterminate Forms and L'Hospital's Rule	1 day
4.5	Summary of Curve Sketching	1 day
4.7	Optimization Problems	2 days
4.8	Applications to Economics	optional
4.9	Newton's Method	optional
4.10	Antiderivatives	1 day

Chapter 5: Integrals

5.1	Areas and Distances	1 day
5.2	The Definite Integral	2days
5.3	The Fundamental Theorem of Calculus	1 day
5.4	Indefinite Integrals and The Total Change Theorem	1 day
5.5	The Substitution Rule	2 days
5.6	The Logarithm Defined as an Integral	1 day

Chapter 6: Applications of Integration.

6.1	Areas Between Curves	1 day
6.2	Volumes	1 day
6.3	Volumes by Cylindrical Shells	1 day
6.4	Work	1 day
6.5	The Average Value of a Function	optional

Grades: The grading scheme is the following:

Quizzes	weekly	no re-grade	100pts (total)
WeBWorK	1 or 2 per week	retry-able	100pts (total)
Midterm 1	Friday, February 7	re-grade	100pts
Midterm 2	Friday, March 7	re-grade	100pts
Midterm 3	Thursday, April 10	re-grade	100pts
Final Exam	Monday, May 5 (8am)	no re-grade	200pts
Total			700pts

Re-Grades: There are no re-grades for quizzes or the final exam. There are however re-grades for the midterm exams. The re-grades are entirely optional. To make sure that your re-grade is considered, you should follow these steps.

1. Each question you want to get re graded should be on a **separate** page or pages. Multi-part questions can go on the same page.
2. Show **all** your work for the question.
3. Attach all the re-grade pages together using either staples or a paper-clip and slip the re-grade into the exam.
4. You **must** include your original exam. No original, no re-grade.

If your re-grade is entirely correct, then you can receive 50% of the points remaining for the question. Thus, a question that you originally got 4/10 for would (if you did the re-grade correctly) get $4/10 + 1/2 \times (10 - 4)/10 = 7/10$ points after the re-grade.

Attendance: Experience has shown that if you miss more than 10% or so of the lectures, you're likely to fail.

Lectures: Take lecture notes. People who have tried to understand everything in class without taking lecture notes **fail the course**. Taking lecture notes means that you have a record that you can refer to later.

Snow Days: See my webpage or call my phone for a recorded message to see if class is cancelled. It is highly unlikely that I will cancel but the University won't.

Academic Integrity Definition and Expectations: Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others. (*Policies and Rules for Students, Section 49-20.*)

Consequences of academic dishonesty: The instructor may assign an academic sanction ranging from a warning to failure on an assignment or in the course or to removal from the course. (Note that a failure in a course may affect a student's status in a program and/or in the University.) The instructor reports each academic sanction to the Office of Judicial Affairs, which keeps a record. Students can appeal academic sanctions to the Committee on Academic Integrity through the Office of Academic Affairs. In more serious cases

of academic sanctions of academic dishonesty, the Office of Judicial affairs may apply disciplinary sanctions in addition to the academic sanctions. These may range from a warning to probation, suspension or expulsion from the University. An “XF” grade is a formal University disciplinary sanction indicating on the student’s transcript that failure in a course was due to a serious act of academic dishonesty. (*Policies and Rules for Students, Section 49-20 and Academic Integrity Procedure G-9.*)