

Math 1550, Section 22

Analytic Geometry and Calculus-I

Textbook: CALCULUS Early Transcendentals, 5th Edition, by Jon Rogawski.

Time and location: Section 9: MTWTF, 11:40-12:30 in Lockett 0134

Instructor: Gestur Olafsson

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Office Hours: T, W, TH 12:40-1:30. You can also contact me by e-mail for other appointments.

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A detailed syllabus is available at: <http://www.math.lsu.edu/dept/courses/1550>

The test on Sept 15 has been moved to Monday, Sept. 22.

SYLLABUS

Chapter 2 Limits

- **Section 2.1:** Limits, Rates of Change and Tangent Lines.
- **Section 2.2:** Limits: A Numerical and Graphical Approach.
- **Section 2.3:** Basic Limit Laws.
- **Section 2.4:** Limits and Continuity.
- **Section 2.5:** Evaluating Limits Algebraically.
- **Section 2.6:** Trigonometric Limits.
- **Section 2.7:** Intermediate Value Theorem.
- **Section 2.8:** The Formal Definition of a Limit

Chapter 3 Differentiation

- **Section 3.1:** Definition of the Derivative.
- **Section 3.2:** Derivative as a Function.
- **Section 3.3:** Product and Quotient Rules.
- **Section 3.4:** Rates of Change.
- **Section 3.5:** Higher Derivatives.
- **Section 3.6:** Trigonometric Functions.

- **Section 3.7:** The Chain Rule.
- **Section 3.8:** Implicit Differentiation.
- **Section 3.9:** Derivatives of Inverse Functions.
- **Section 3.10:** Derivatives of General Exponential and Logarithmic Functions.
- **Section 3.11:** Related Rates.

Chapter 4 Application of the Derivative

- **Section 4.1:** Linear Approximation and Applications.
- **Section 4.2:** Extreme Values.
- **Section 4.3:** The Mean Value Theorem and Monotonicity.
- **Section 4.4:** The Shape of a Graph.
- **Section 4.5:** Graph Sketching and Asymptotes.
- **Section 4.6:** Applied Optimization.
- **Section 4.7:** L'Hopital's Rule.
- **Section 4.8:** Newton's Method.
- **Section 4.9:** Antiderivatives.

Chapter 5 The Integral

- **Section 5.1:** Approximating and Computing Area.
- **Section 5.2:** The Definite Integral.
- **Section 5.3:** The Fundamental Theorem of Calculus, Part I.
- **Section 5.4:** The Fundamental Theorem of Calculus, Part II.
- **Section 5.5:** Net or Total Change as the Integral of a Rate.
- **Section 5.6:** Substitution Method.
- **Section 5.7:** Further Transcendental Functions.
- **Section 5.8:** Exponential Growth and Decay. (We might only do part of this section.)

Chapter 6 Application of the Integral

- **Section 6.1:** Area Between Two Curves.
- **Section 6.2:** Setting Up Integrals.
- **Section 6.3:** Volumes of Revolution.

- **Section 6.4:** The Method of Cylindrical Shells.
- **Section 6.5:** Work and Energy.

Chapter 8

- **Section 8.1:** Arc Length and Surface Area.
- Selected topics from **Sections 8.2**, Fluid Pressure and Force, and **Section 8.3**, Center of Mass.

Note, in average there are only about 1 1/2 hour per section. Several section will therefore be covered in one meeting.

Home work will be done using WebWork. There are 20 problem sets. Each of those contains 16 problems. You will have about one week to finish each set. To get a good grade, you will also have to practice, working out problems from the book!

There will be four test during the semester, and a final:

- (1) Monday, September 15;
 - (2) Tuesday, October 14;
 - (3) Tuesday, November 4;
 - (4) Tuesday, Monday, November 24.
- **Final:** Thursday, December 11, 10:00-noon in Lockett, 134.

GRADING

Each set of WebWork problem sets counts 15 points. 15 best scours counts toward the final grade. Each test during the semester counts 100 points, and the final counts 200.

Tests during the semester	400
WebWork	150
Final	200
Total	750

The final grade is calculated as:

$$A > 675, B > 600, C > 525 D \geq 450. F < 450.$$