

Mathematics 112/112Z
Fall, 2005

Textbook: Larson, Hostetler, and Edwards, *Calculus of a Single Variable: Early Transcendental Functions*, Third Edition.

Instructor: Dr. Michael Rogers.

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LearnLink: Michael Rogers

Hours: MWThF 1–5 p.m. by appt.

LearnLink Conference: “Math 112 Fall 2005” Announcements, questions, and information may be posted at any time.

Course Content: Mathematics 112/112Z is the second semester of first-year calculus. The main topics are the analysis of exponential, logarithmic, and inverse trigonometric functions; methods of integration; L'Hôpital's rule; improper integrals; polar coordinates; infinite sequences and series; power series; and differential equations.

Course Goals: The manifest goal is to complete the foundation for the student's understanding and computational ability in the calculus of single-variable functions. After this course, the student should be able to do the following: to find the limits, derivatives, and integrals (including improper integrals) to a wide variety of algebraic and transcendental functions; to apply various methods in finding those integrals, namely, substitution, partial integration, partial fractions; to graph polar coordinate equations and to find the areas of simple regions given in polar coordinates; to determine the convergence of appropriate infinite series; to understand the general theory of power series and to determine the domain of appropriate power series; to derive the power series for certain functions using a geometric series, term-by-term differentiation or integration, or Taylor's Theorem; to apply the calculus to power series; to solve simple first-order differential equations.

Grading: Grading will be based on the following written work:

Tests (4 @ 100 pts)	400 points
Quizzes (8 @ 25 pts)	200 points
Final	200 points
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Total	800 points

The plus/minus system will be used. A rough guide to grades: A: ≥ 700 pts. B: 600–700 pts. C: 500–600 pts. D: 400–500 pts. F: < 400 pts.

Tests: Four tests will be given at **8:00 a.m.** on the following days:

September 27, October 13, November 17, December 8

Calculators will not be allowed on tests.

You are expected to take tests at the scheduled times. Any conflicts or problems will be handled on an individual basis. If you have an excuse deemed legitimate by your instructor, arrangements will be made for you to take a test **prior to** the testing time.

Quizzes: All quizzes are announced and “take-home.” You must be present in class to receive your quiz. You must work each quiz at *one sitting* and use only *authorized materials*. In general no books, notes or calculators will be allowed. Quizzes are due in class on the class day following your receipt of them. Each quiz is worth 25 points. Three quizzes will be given during each test unit and the best two of them will be used in determining your grade. In total there will be 12 quizzes of which 8 will be counted.

Homework: Assignments from your text will be given . These assignments will not be collected but are for your benefit. **The purpose of calculation is insight** (Gauss). It is important that you complete assignments as they are assigned and that you not wait until a few days prior to a test to do homework. Collaboration is encouraged as discussion of the concepts often leads to their clarification. **However be sure that you can solve problems unaided.** Use good style on your homework. In general you need to spend at least 6-8 good hours per week on study not counting the time spent taking quizzes and reviewing for tests.

Use Good Style: Thoughts are expressed by sentences: just so in mathematics. **Written work must be in complete sentences.** The same applies to daily homework. See Priestley, “Clean Writing in Mathematics,” pp. 413–420 in *Calculus: An Historical Approach*, which is on reserve.

Miscellaneous Support: Student tutors will be available and a schedule will be announced.

The SI leader, Tara Buehler, for Math 112/112Z will schedule optional study sessions to review calculus concepts and to help students discover how best to study calculus. Check the course conference for announcements.

Honor Code: The Honor Code of Oxford College applies to all work submitted for credit in this course. To receive credit for work submitted you must place your name on it. By placing your name on such work, you pledge that the work has been done in accordance with the given instructions and that you have witnessed no Honor Code violations in the conduct of the assignment.