COURSE DESCRIPTION
This course is one of a series intended for students who major in mathematics, the sciences, or engineering. The topics include the definition and calculation of limits, continuity and differentiability, differentials, derivatives of algebraic and trigonometric functions, the application of derivatives to graphing, anti-derivatives, and the introduction of the definite integral. A graphing calculator is required for this course. Three years of high school mathematics in algebra and trigonometry is the prerequisite for MAT 171.

COURSE OBJECTIVES
By the conclusion of this course, the student will:
(a) Develop an understanding of the basic concepts of analysis; limit, continuity, and the derivative.
(b) Strike a judicious balance between theory and application, between computational skills and mathematical sophistication and between intuition and rigor.
(c) Develop an appreciation of applications of derivatives and show how and why the derivative is a mathematical model for many phenomena in the physical world.

TEXTBOOK
*Calculus, Early Transcendentals, Eighth Edition* by Anton, Bivens, & Davis
*Student Solutions Manual to accompany Calculus, Early Transcendentals, 8th Edition* by Wigley, Anton, Bivens, & Davis (optional)

COVERAGE
Chapter 2: Limits and Continuity
Chapter 3: The Derivative
Chapter 4: Exponential, Logarithmic, and Inverse Trigonometric Functions
Chapter 5: The Derivative in Graphing and Applications
(For a complete list of topics, go to my Web site and view the complete course syllabus.)

ASSESSMENT
The course assessment will be a subset of tests, projects, papers, presentations, quizzes, homework, team assignments, and final exam, as detailed below:

**TESTS:** There will be three (3) tests (exact dates to be announced, but approximately September 27, October 25, & November 20). Value: 200 points each.
Missed tests: must be made up in a manner and date to be determined by the instructor; a university-approved excuse is required.

**QUIZZES:** Numerous (approximately 10); usually unannounced. Value: 15-25 points each (approximate).
Missed quizzes: in-class quizzes not made up, but not counted against you; take-home quizzes must be made up.

**MAPLE:** In addition to our work in the primary text, we will also use Maple (a computer algebra system) to further explore the concepts we study. This software is available in our computer labs (LY 215 & 24-hour lab). There will be specific Maple assignments for you to complete on your own.

**HOMEWORK:** One learns how to do mathematics by much practice—the assigned work will reflect this conviction. Specific homework problems and/or Maple exercises (announced in advance) will be collected and graded. Value: 15-25 points each (approximate).

**PROJECT:** Details to follow. Value: 100 points

**FINAL EXAM:** Cumulative. Date: Tuesday, December 11, 11:00 am Value: 300 points.
GRADING SYSTEM
Based on points, each item weighted according to its significance. Precise cutoff scores for letter grades will be determined at the end of the semester, but will essentially follow the standard 60-70-80-90 model, according to the rubric below:

**90-100% Exemplary Response**
Gives a complete response with a clear, coherent, and unambiguous explanation; includes a clear and simplified diagram if appropriate; communicates effectively; shows understanding of the problem’s mathematical ideas and processes; identifies all the important elements of the problem; may include examples and counterexamples; presents strong supporting arguments.

**80-89% Competent Response**
Gives a fairly complete response with reasonably clear explanations; may include a diagram if appropriate; communicates effectively; shows understanding of the problem's mathematical ideas and processes; identifies the most important elements of the problem; presents solid supporting arguments.

**70-79% Minor Flaws But Satisfactory**
Completes the solution satisfactorily, but the explanation may be muddled; argumentation may be incomplete; diagram may be inappropriate or unclear; understands the underlying mathematical ideas; uses mathematical ideas effectively.

**60-69% Serious Flaws But Nearly Satisfactory**
Begins the solution appropriately but may fail to complete or may omit significant parts of the solution; may fail to show full understanding of mathematical ideas and processes; may make major computational errors; may misuse or fail to use mathematical terms; response may reflect an inappropriate strategy for solving the problem.

**50-59% Begins, But Fails to Complete Problem**
Explanation is not understandable; diagram may be unclear; shows almost no understanding of the problem situation; may make major computational errors.

**0-49% Unable to Begin Effectively**
Work does not reflect the intent of the problem; drawing misrepresents the problem situation; copies parts of the problem but without attempting a solution; fails to indicate which information is appropriate to the problem; leaves the problem blank.

ATTENDANCE
As in all university classes, your attendance is expected. Activities have been planned for which your attendance is necessary. In short: You miss, you lose! You will be permitted to make up missed work only for those absences for which you have University-approved written excuses.

CONTACT INFORMATION
Office: Lytle 262; Phone: 610-683-4419; e-mail: schaeffe@kutztown.edu
Web site: http://faculty.kutztown.edu/schaeffe

OFFICE HOURS
Tu 5:00–6:00; W 4:00–5:30; Th 3:00–5:30 (also other times by appointment)

ACADEMIC DISHONESTY
At a minimum, you will receive a “0” on the applicable graded activity. Additionally, the instructor reserves the right to invoke the sanctions set forth in the Academic Dishonesty Policy (as printed in The Key).

CALCULATORS
A graphing calculator is absolutely necessary (TI-83+ recommended). Hand-held computers (e.g., TI-89, TI-92, etc.) will not be permitted during tests & quizzes.