Coursepack: *Precalculus: A Prelude to Calculus* by Jeff Rushall, Amy Rushall & Kurt Herzinger.

Course Outline:
1. Functions and Graphs
2. Polynomial and Rational Functions
3. Exponential & Logarithmic Functions
4. Trigonometry
5. Analytic Geometry

Course Prerequisites:
A grade of C or better in MAT108 (Algebra for Precalculus) or Satisfactory Placement (22-24 on ACT, 520-570 on SAT, 55 on Acuplacer)

Course Objectives:
By the end of the course students should be able to:
1. Analyze, graph, create and discuss properties of functions, especially to:
   a. sketch graphs from formulas or tables;
   b. relate graphical, numerical and algebraic properties: zeros, factors, intercepts, asymptotes, intervals of increase or decrease, domain and range, functional values, minima and maxima, end behavior, dominance, period, frequency and amplitude;
   c. use function notation in computations, combinations of functions, and analyzing properties of functions such as symmetry and comparisons;
   d. use translation, scaling, reflection and symmetry in graphing and comparing functions; identify such features from formulas and graphs;
   e. sketch by hand basic graphs of linear, quadratic, reciprocal, polynomial, rational, square root, absolute value, exponential, logarithm, sine, cosine and tangent functions and combinations of these functions;
   f. compose and decompose functions; identify which functions have inverses; compute and make use of inverses.
   g. determine where two lines of a line and a simple nonlinear function intersect.

2. Use basic properties of elementary functions and their inverses including linear, quadratic, reciprocal, polynomial, rational, square root, absolute value, exponential, logarithm, sine, cosine and tangent functions and combinations of these functions to:
   a. compute and/or report function values;
   b. analyze and discuss function behavior;
   c. solve exactly or approximately equations and inequalities graphically, numerically and analytically; report solutions and discuss their nature and implications;
   e. verify and derive identities.

3. Solve related application problems as appropriate, including as related to linear and exponential growth and decay, periodic behavior, or triangle geometry; analyze a function or solve an equation to derive the desired results and their implications in writing.

Basis for Evaluation:
1. Exams 50%
2. WeBWorK 10%
3. Honors Component 15%
4. Comprehensive Final Exam 25%
Grade Policy:

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<th>% of points</th>
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Final Exam: Wednesday, December 10, 2008 3:00-5:00. NO EXCEPTIONS. The final exam day and time are not negotiable. Do NOT arrange to leave town before the scheduled final exam. The final exam is worth 25% of your final grade. Poor performance on this comprehensive exam may cause your grade to drop significantly.

Attendance: Attendance is mandatory in this course. Attendance will be taken everyday at the beginning and at the end of class. Students with inadequate attendance during the first two weeks may be dropped from the roster. You are responsible for everything you miss if you choose to be absent from class. I will not provide lecture notes or the opportunity to make-up homework, in-class activities or exams. You will need to get the notes from a classmate. My office hours will not be used as personal make-up time when you are absent.

Calculators: You will be required to have a scientific calculator for this course. This calculator should have logarithms and trigonometric functions (sine, cosine, tangent). You will need this calculator for some questions on your homework and exams. You may use a graphing calculator if you have one. Some portions of the exams will have a calculator restriction.

WeBWorK: You will be using the online program WeBWorK for weekly assignments this semester. WeBWorK is available via the internet, so it will be accessible to you wherever you have a computer with internet connection. Due to the nature of the program, no late assignments will be accepted. I expect you to work on WeBWorK problems in the same way that you work on HW problems—write down the problem, show your work, box your answer. WeBWorK is not to be done in scratch work style.

Homework: Homework will be assigned daily. For Honors students this homework is optional.

Honors Component: This Honors section of MAT125 is co-convened with a regular MAT125 section. As a student of the Honors section, you will have Honors assignments throughout the semester that will count as 15% of your grade. These may include extensions of problems seen in class or homework, readings, computer lab projects, small papers, or write-ups of problems which will include thorough explanations, appropriate mathematical symbols (using equation editors), and graphs (using graphing software). It may be necessary to meet once or twice outside of class in order to go to the computer lab.

Exams: We will have 4 in-class exams.

Make-Ups: Make-ups for exams are rare. You may take an exam early if you let me know in advance. If you are ill, you may bring me a doctor’s note—even from Fronske—before discussing a make-up exam. Make-ups for other reasons will be dealt with on a case-by-case basis at the discretion of the instructor. However, it is in your best interest to take exams at the scheduled time. An unexcused absence at a test will result in a zero.

Drop Deadline: If you plan to drop this course, you must do so before October 24, 2008. It is almost impossible to drop the course after this date, so consider your options in advance of the deadline. A failing grade or the consequences of a failing grade are not acceptable reasons to drop the course after this deadline.