### Course Purpose
This course is designed to assist students to become informed, critical, and creative thinkers who communicate effectively. Students who successfully complete MAT 261 will meet general education goals and objectives as well as the course objectives.

### Catalogue Description
Prerequisite: MAT 107 with a minimum grade of “C-” or a minimum score of 23 on the mathematics portion of the ACT or a minimum score of 550 on the mathematics portion of the SAT. Functions and graphs, differentiation, marginal costs, revenue and profit, integration, exponential and logarithmic functions, other applications. Credit will not be awarded to students who have credit for MAT 124 or MAT 124H or MAT 261. 3 credit hours. Gen. Ed. Blocks II, VII

### Required Textbook

### General Education Goals and the Course
This course contributes to the following EKU General Education goals.

Students will be able to
- Use appropriate methods of critical thinking and quantitative reasoning to examine issues and to identify solutions. (Goal two)
- Distinguish the methods that underlie the search for knowledge in the arts, humanities, natural sciences, history, and social and behavioral sciences. (Goal seven)
- Integrate knowledge that will deepen their understanding of, and will inform their own choices about, issues of personal and public importance. (Goal eight)

In particular, the General Education Objectives for achieving Goal two include the following:
1. Using mathematical methods to state and solve quantitative problems, including those stated in verbal form.
2. Using numerical and graphical data to make reasonable and valid conclusions.
3. Applying mathematical methods to real-life problems.

### Course Objectives
Upon successfully completing MAT 261, the student should be able to:

I. Identify, evaluate, graph, and find roots of polynomial, piecewise, greatest integer, rational, exponential and logarithmic functions.

II. Select an appropriate function to model a situation.

III. Compute limits and discuss the continuity of polynomial, piecewise, greatest integer, rational, exponential and logarithmic functions.

IV. Differentiate polynomial, piecewise, rational, exponential, and logarithmic functions
   A. Use techniques of differentiation.
   B. Use differentiation to solve optimization problems.
   C. Apply differentiation to rates of change such as velocity, acceleration and population growth and other real-world situations.

V. Integrate polynomial, piecewise, rational, exponential and logarithmic functions
   A. Use techniques of integration.
   B. Use integration to find the area under a curve and the area between two curves.
   C. Apply integration to motion problems, learning curves, and other real-world situations.

### Course Outline
This course will cover Chapters 1 through 6 of the required textbook. Selected topics from Chapter 7 may also be covered. See Tentative Schedule below.
| Homework | Homework should be completed before the next class meeting unless otherwise specified by the instructor. Students should expect to spend a minimum of two hours outside of class studying for each hour in class. |
| Attendance Policy | Students are expected to attend every class meeting and will be held responsible for announcements made in class. Absences in excess of 10% of the scheduled class meetings (either excused or unexcused) may result in a lower course grade. |
| Withdrawal | The last day to withdraw from this class is Friday, October 31, 2008. |
| Make-Up Test Policy | Students who miss a test will be allowed to take the comprehensive general make up exam given at the end of the term, if the absence is excused. An acceptable excuse is a doctor’s excuse, a university excuse, or a catastrophic emergency resulting in unavoidable absence. Arrangements to make up the test must be within one week; otherwise, a zero will be recorded. |
| Help Available | The Mathematics and Statistics Tutoring Center is located in Wallace 342, (859) 622-6508 V/TTY. This service includes tutoring, computer assisted instruction, videotape instruction, and instructional materials and is provided free of charge by the Department of Mathematics and Statistics.. The staff will assist with homework completion, improving study skills, decreasing mathematics anxiety, and test preparation. Students are encouraged to take advantage of this facility. Current hours, locations, and phone numbers for the tutoring facilities on campus are found at http://www.advising.eku.edu/tutoring/hours/. |
| Services for Individuals with Disabilities | If you are registered with the Office of Services for Individuals with Disabilities, please make an appointment with the course instructor to discuss any academic accommodations you need. If you need academic accommodations and are not registered with the Office of Services for Individuals with Disabilities, please contact the Office on the third floor of the Student Services Building, by email at disserv@eku.edu or by telephone at (859) 622-2933 V/TDD. Upon individual request, this syllabus can be made available in alternative forms. |
| Grading Policy | In accordance with department policy, grades will not be posted nor given out over the telephone. Mid-term grades will be viewable online (EKUDirect/Student Services/Midterm Grades) on March 8, 2008. The grading scale for the final and the course is below. |
| | % | < 60 | 60 - 69 | 70 - 79 | 80 - 89 | 90 - 100 |
| Grade | F | D | C | B | A |
| Academic Honesty and Responsibility | 1. Anyone violating the usual standards for academic honesty, for example, anyone attempting to obtain or exchange information regarding any quiz or test, or anyone using a fraudulent excuse to qualify for a make-up, may receive a course grade of ‘F’. 2. Anyone behaving in a disruptive manner or refusing to follow the usual standards for academic behavior may be barred from attending class and may receive a course grade of ‘F’. 3. Students are advised that EKU’s Academic Integrity policy will be strictly enforced in this course. The Academic Integrity policy is available at www.academicintegrity.eku.edu. Questions regarding the policy may be directed to the Office of Academic Integrity. |
| Department Policies | • During class, cell phones and pagers must be turned off or set to a silent mode. • During resource-limited activities, such as in-class exams, students may not use the calculator function of a wireless communication device such as a cell phone or PDA. • Any student enrolling in a multiple section course for which s/he has already received a grade of “D”, “F”, or “W” from the instructor who is teaching the section may change to a section taught by a different instructor by seeing the Chair of the Department of Mathematics and Statistics. This change must be completed by the end of the drop/add period. |

If you need further information concerning this course, please contact your instructor or the MAT 261 Coordinator, Dr. Margaret Yoder (Wallace 306 or margaret.yoder@eku.edu).
Tentative Schedule

Chapter 1 – Functions, Graphs, and Limits: Aug 26th -> Sep 4th
Chapter 2 – Differentiation: Sep 9th -> Oct 7th
Chapter 3 – Additional Applications of the Derivative: Oct 9th -> Oct 30th
Chapter 4 – Exponential and Logarithmic Functions: Nov 6th -> Nov 11th
Chapter 5 – Integration: Nov 13th -> Dec 2nd
Chapter 6 – Additional Topics in Integration: Dec 4th -> Dec 11th

Unit Exams: Sept 25th, Oct 28th, Dec 4 (100 points each)

Comprehensive Final Exam: Thurs., Dec 18th 10:30 am - 12:30 pm (150 points)

Homework

P 86-7: 1-29 all
P 81-4: 1-39 odd
P 121-5: 1-25 odd, 35, 37, 39, 51
P 147-52: 17-38 all, 43, 45, 51, 55
P 198-204: 1-4, 9-34 all, 45-48 all
P 230-5: 9, 15, 33-43 all
P 265-71: 15, 19, 23, 26, 37, 39, 48
P 314-8: 13-33 all, 49, 61
P 341: 5-19 odd
P 383-6: 1-37 odd, 45, 51
P 416-20: 1-25 all
P 474-8: 1-28 all, 47, 59
P 69-73: 1-26 all, 27-49 odd
P 108-12: 1-23 odd, 27, 29, 45, 47
P 134-8: 1-25 odd, 27-31 all, 43, 47
P 171-5: 7-27 odd
P 216-20: 13-30 all, 33, 34, 39, 43
P 249-53: 1-16 all, 37, 43, 46, 49
P 298-302: 7, 13-27 all, 43
P 330-3: 1-47 odd, 75, 77
P 371-4: 1-31 all
P 399-402: 1-41 odd
P 446-52: 7-13 odd, 19, 25, 31, 41
P 521-6: 1-25 odd