MA 110 – Algebra and Trigonometry for Calculus

Section 001

Spring 2011

Instructor: Andrew Wilfong
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Office Hours: Monday 10:00AM – 10:50AM in the Mathskeller
Wednesday 1:50PM – 2:50PM in POT 706
Friday 10:00AM – 11:00AM in POT 706
Other times by appointment
Meeting Times: Lecture – MWF 9:00AM – 9:50AM, CB 337
Recitation – TR 8:00AM – 8:50AM, CB 337

Course Materials:

1. You need to purchase exactly one of the following packages:
   - A new copy of the UK version of the 5th edition of the book *Contemporary Precalculus: A Graphing Approach* by Thomas W. Hungerford and Douglas J. Shaw packaged with an access code for the WebAssign homework system. This can be purchased at the bookstore.
   - A used copy of the 5th edition of the book *Contemporary Precalculus: A Graphing Approach* by Thomas W. Hungerford and Douglas J. Shaw. You will also need to Purchase an access code for the WebAssign homework system separately. You can purchase this access code at the bookstore or on WebAssign after you have logged in.
   - A new copy of the e-book version of 5th edition of *Contemporary Precalculus: A Graphing Approach* by Thomas W. Hungerford and Douglas J. Shaw packaged with an access code for the WebAssign homework system. This can be purchased at the bookstore or on WebAssign after you have logged in.
2. You will also need to purchase a graphing calculator for this course. The calculator must conform to the calculator rules for the ACT. These rules can be found at http://www.actstudent.org/faq/answers/calculator.html. Specifically, you may not use any calculator that has a computer algebra system (CAS) or a QWERTY keyboard. In particular, you may not use the TI-Nspire CAS, any TI-89, any TI-92, the HP 48GII, any HP 40G, any HP 49G, any HP 50G, the Casio Algebra fx 2.0, the Casio ClassPad 300, the Casio ClassPad 330, or any Casio CFX-9970G. I may include non-calculator sections in homework, quizzes, and exams.
   In class, I will be using a TI-83. If you already own a graphing calculator that conforms to the ACT calculator rules, you do not need to purchase a TI-83. I do not personally

know how to use any calculator other than the TI-83, so I may not be able to help you with the specifics of other calculators. Nevertheless, most graphing calculators have the same basic functions, and you should be able to learn about your calculator by reading the manual.

Course Description: This course is designed to prepare students for the calculus sequence. We will discuss functions including linear, quadratic, polynomial, rational, exponential, logarithmic, and trigonometric functions. We will discuss the relationship between equations and graphs. We will investigate the graphs of functions and conic sections. We will also discuss parametric equations and polar coordinates.

Course Objective: The goal of this course is to equip students with the problem solving techniques and discipline required to succeed in the Calculus sequence.

Student Learning Outcomes: Students who successfully complete this course will be able to:

- Recognize that the equation of a line can take many forms. In particular, there are times when point-slope form is more appropriate than slope intercept form and vice-versa.
- Describe the connection between the slope of a line and a rate of change.
- Solve equations algebraically.
- Use the graphical method to approximate solutions of an equation.
- Understand that the graphical method is only used to approximate the solutions of an equation.
- Understand the appropriate use of technology in solving mathematical problems.
- Convert a word problem description into a symbolic problem description.
- Understand the Cartesian coordinate system.
- Recognize the relationship between the solutions of an equation and the graph of an equation.
- Recognize the graphs of functions including linear, quadratic, polynomial, rational, step, exponential, logarithmic, and trigonometric functions.
- Know some fundamental trigonometric identities.
- Use fundamental trigonometric identities to prove other trigonometric identities.
- Recognize the equation of a conic section.
- Sketch the graph of an equation of a conic section.
- Understand the polar coordinate system.
- Sketch the graph of a polar equation.
- Utilize a variety of problem solving techniques to solve multistep problems.

Grade: The course grade will be based on three exams, a comprehensive final exam, homework, quizzes/attendance, and participation. The contribution of each of these to the final grade will be:

- Three Midterm Exams: 45% (15% each)
- Comprehensive Final Exam: 20%
- Homework: 20% (15% for WebAssign homework, and 5% for written homework)
- Quizzes/Attendance/Participation: 15%

The grading scheme is

A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
E	0% - 59%

Homework: You will have two types of homework in this course, online assignments and written assignments. New online homework will be posted on Monday, Wednesday, and Friday by 5:00pm, so check the website frequently. All online assignments are to be submitted through the WebAssign homework system. Online homework assignments are always due at 5:00pm, but there is usually a grace period until 11:59 pm. If there is a computer problem prior to 5:00pm on the due date, send me an email to inform me of it, and an extension will be granted to all students. If there is a computer problem after 5:00pm on a due date, you will not receive credit for any problems that were not answered prior to 5:00pm.

Written assignments will also be given during lecture and recitation. These assignments will not appear online. All written assignments must be submitted to me at the beginning of class on the date when they are due. No late homework assignments will be accepted without a university excused absence (See the attendance section for information about excused absences).

Homework extensions are extremely rare. You must have a university excused absence even to apply for an extension. Certain excused absences do not necessitate extensions. If you miss class because of a university sponsored trip, it is almost always possible to complete your homework assignments before you leave for the trip. No extensions will be granted for planned trips unless the assignment was not posted at least 24 hours before you left for your trip. If you do qualify for a homework extension, notify me by email or in writing as soon as possible. I will typically request written documentation to verify excused absences. If you miss a class, it is your responsibility to contact me to find out what we did in class.

WebAssign: The online homework will be done at the website http://www.webassign.net. Students must enroll themselves in the online portion of the course. To do this, go to the website and click on "I Have a Class Key" under Account Log In. Enter the following class key in the boxes: uky 2644 2527

Verify that the correct class has been selected, and then click "Yes, this is my class." Make sure "I need to create a WebAssign account" is selected, and then click "Continue." Fill in the requested information and then click on "Create My Account." When logging in, you will need to enter the institution code uky.

After you have registered for WebAssign you should work on the first homework assignment to familiarize yourself with the system. This assignment is not a mathematics assignment. You will notice several things as you work through this assignment. Can you tell when you have answered a question correctly? How do you make sure that you have submitted your answers? Try clicking on the plus sign beside a question number. Notice that you only have a limited number of attempts for each question. This may vary from question to question and assignment to assignment. Make sure that you know how many attempts you have, how many you have used, and how many are left. If you are about to exhaust all of your attempts, then you should definitely ask for help. Your WebAssign grade will be calculated by dividing the number of questions answered correctly by the total number of questions from *all* of the WebAssign assignments.

Quizzes, Attendance, and Class Participation: Students are required to attend every class. Refer to section 5.2.4.2 in Section IV of Student Rights and Responsibilities for information about excused absences (www.uky.edu/StudentAffairs/Code/part2.html).
During most of the lecture periods, several short quizzes will be given. These quizzes will be used both as a comprehension check and as verification of attendance for that day. Quiz points will be awarded for getting the correct answer *and* for showing the necessary steps, so make sure to show all of your work along with your answer. The three lowest lecture quiz grades will be dropped at the end of the term.
Most of the recitation periods will include some time to work on a worksheet. These worksheets will be graded for effort, and each recitation period will count for half of a normal quiz grade. *Be on time to class!* If a student arrives after I have begun class, two points will be deducted from their quiz grade for that day.
Participation is expected of all students. Participation includes asking and answering questions and being attentive during class. I may deduct points from the Quiz/Attendance portion of the grade for lack of participation. Disruptive behavior will result in major deductions from this portion of the course grade.

Final Exam: The comprehensive final exam will be held from 8:00AM to 10:00 AM in CB 337 on Wednesday, May 4, 2011.

Academic Honesty: Students are permitted to work together to solve the homework problems. However, the assignments that you turn in should be your own work. In particular, this means that you should write your own homework solutions independently.
You may not program information into your calculator that will help you with the exam. Any kind of communication with other students during an exam will be considered cheating and will be prosecuted according to university regulations.