

Mathematics 111: Precalculus

Course Description

This course provides students who have met the admission requirements for the university but have not attained the additional algebraic and trigonometric skills that they need to have a reasonable chance of being successful in a university calculus course the opportunity to acquire those skills. The students will investigate and explore the characteristics of the following types of functions: linear, polynomial, exponential, logarithmic, and trigonometric. Students will sketch graphs of the above functions. Students will also solve equations and inequalities involving the above topics.

This course also fulfills the university's General Education Requirement (GER) and therefore seeks to impart the following objectives for a GER mathematics course: students should be able to improve and refine mathematical problem-solving abilities; and develop logical reasoning skills.

GER Documentation

GER Category Objectives; Mathematics

Each course in mathematical sciences will provide instruction and guidance that help students to:

- 1) improve and refine mathematical problem-solving abilities: and
Student learning outcome: By the end of the course the student will be able to analyze real world problems by using mathematical models.
Means of evaluation: On the final exam, students will be given a question that contains data for a problem and the student will apply the correct model to the data and make predictions. For example: If the population of rabbits on an island is 30 on January 1, 2003 and 100 on June 1, 2003, what type of function (trigonometric, exponential, logarithmic, etc) would be best to use to model this situation? What would you let the variables represent? Find the function. What will the population be on January 1, 2004?
- 2) develop logical reasoning skills.
Student learning outcome: By the end of the semester the students will be able to use appropriate techniques for solving various types of equations.
Means of evaluation: On the final exam students will be given test questions asking them to solve various types of equations. Example: Find all possible real solutions for the equation $\sin 2x = 1/2$.

Syllabus:

**MA 111 - PRECALCULUS
FALL 2003
North Carolina State University
Department of Mathematics**

GENERAL INFORMATION

Instructor: Brenda Burns-Williams
Office: 204 Harrelson Hall
Phone Number: 513-2111
E-mail address: bdburns@unity.ncsu.edu
Webpage: <http://www4.ncsu.edu/~bdburns>
Office Hours: MWF 1:30 – 2:30 pm, and by appointment
Class Will Meet: M W F 12:25 – 1:15 am (Section 004)

*In addition to the Monday, Wednesday, Friday lectures, each student **MUST** register for a Tuesday recitation section that accompanies this class. (Section 004: MA 111L, sections 241, 242, or 243)

GOALS AND OBJECTIVES

Students will study real numbers, polynomial, rational, exponential, logarithmic, trig functions and graphs, and analytic trigonometry in order to prepare for Calculus I. This course also fulfills the university's General Education Requirement (GER) and therefore seeks to impart the following objectives for a GER mathematics course: students should be able to improve and refine mathematical problem-solving abilities; and develop logical reasoning skills. To help meet these objectives students will, by the end of the semester, be able to analyze real world problems by using mathematical models and use appropriate techniques for solving various types of equations.

TEXTBOOK

PRECALCULUS – Functions and Graphs, 9th edition, Swokowski and Cole; PWS Publishers, 2001.

(Optional) *Students Solution Manual*, Swokowski and Cole, PWS Publishers, 2001.

COURSE GRADE:

The final grade is based on 4 tests (55%), WebAssign and quizzes (20%), and the final exam (25%). As per the NCSU requirement, the plus/minus grading system will be in effect.

100-98 A+	92-97.99 A	90-91.99 A-
88-89.99 B+	82-87.99 B	80-81.99 B-
78-79.99 C+	72-77.99 C	0-71.99 C-
68-69.99 D+	62-67.99 D	60-61.99 D-
	0-59.99 F	

NO CURVES. NO RETESTS. NO EXAM EXEMPTIONS.

-- **Homework** will be assigned each day. Problems assigned from the book are for your

practice and will not be collected. Test and quiz questions will often relate to these

problems, as well as those from the Webassignments. Webassign problems make up a large portion of your final grade, so do not fall behind or skip ANY of these. There is no make-up available for missed assignments, so keep track of the due dates and **START WORK EARLY** on the problems. **Mathematics is not a spectator sport!** You must work regularly in order to understand and master the concepts

--**Quizzes** will periodically be given during recitations. There is **NO MAKE-UP** available for missed quizzes —However, at the end of the semester the

lowest quiz grade will be dropped when determining the average.

--**Test** dates are set by the university and are as follows:

Test 1 – Sept 10

Test 2 – Oct. 3

Test 3 -- Oct. 31

Test 4 -- Nov 24

Final Exam: Section 004: Wednesday, Dec 10, 1-4 pm

*Tests will be cumulative.

*I expect all students to adhere to the University's regulations on academic integrity

(i.e. No cheating or plagiarizing!).

*Tests will be taken in "Blue" examination booklets. Each student must submit 6 blue

books to the TA before the first test. **Do not write anything on the booklets.** Your

first test will not be graded until your blue books have been submitted.

Test make-up policy is in accordance with the University policy (http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php)

– All anticipated absences must be excused in advance of the test date. These include University duties or trips (certified by an appropriate faculty or staff member), required court attendance (certified by the Clerk of Court), or religious observances (certified by the Department of Parent and Family Services 515-2441). Emergency absences must be reported within one week of returning to class and must be appropriately documented. (illness by an attending physician or family emergencies by Parent and Family Services).

Students who miss a test *and have a university approved excuse* must fill out a Request for Makeup form (found on my website) and submit it as soon as possible to me with the appropriate documentation. There will be TWO test make up days - one in the middle of the semester, one at the end, on which you may make up any missed exam.

Make-ups for oversleeping, car trouble, or any other excuse *not* approved by the university may ONLY be given ON THE DAY OF THE TEST!

Corrections to Grading: If you feel that an error was made in the grading of a test, present and explain the error in writing on the outside of the test to the instructor within 2 class periods after the test is returned.

IMPORTANT DATES TO KNOW THIS SEMESTER

Tuesday, August 26 – Last day to add a course without instructor's permission
Monday, Sept 1 – No Classes – Labor Day
Wednesday, Sept. 3 – Last day to register or drop a course with a tuition adjustment
Wednesday, Oct. 1 – Last day to drop a course without a grade
Oct 9-10 – Fall Break
Nov. 26-28 – Thanksgiving Break starts at 1:15 on Wednesday the 26th
Friday, Dec. 5 – Last day of classes
Dec. 8-16 – Final exams

EXPECTATIONS

Students are expected to be attentive in lectures and are encouraged to participate actively by asking and answering questions. Please leave all distractions such as newspapers, walkmans, and work for other courses at home or in your bookbag, and please **TURN OFF ALL CELL PHONES AND BEEPERS DURING CLASS!**

Please bring your book, a calculator, paper and a pen or pencil to every class so that when we work on problems together in class everyone will be able to participate.

Attendance is expected every day! Because this is a 100 level class, a record of

attendance must be kept. Students are expected to be on time – missing more than 10 minutes of class will count as an absence. If you are late to class, (less than 10 minutes) be sure to check with the TA to request that your absence be changed to a tardy. **Note: Sleeping in class is considered an absence!** Recitation sections are **not** optional. Any missed recitation sessions will be counted in your total absences for the semester. The attendance policy is consistent with the Academic Regulations which can be found at http://www2.ncsu.edu/unity/project/www/ncsu/provost/info/academic_regulations/attend/reg.htm

As a bonus reward for students with good attendance records, those students missing 5 or fewer class days may count their lowest grade of the first three tests 1/2 the weight of the other three tests when determining their final average (The fourth test (trigonometry) and the final may not be dropped).
NOTE: *No distinction is made between excused and unexcused absences.*

IMPORTANT: Please know that I have the highest expectations for ALL of my students. As far as I am concerned, you are all starting my class as A students. You CAN do well in here, but

YOU MUST TAKE RESPONSIBILITY FOR SEEKING HELP WHEN NEEDED

Communication with your instructor is essential to your success. I want to help. Please make use of my office hours and the TA's, and feel free to email or call me at any time with questions. Also, the Multi-Media Center (HA244) has video taped lectures of MA111, computer assisted tutorials and tutoring on a limited basis.

I am more than willing to accommodate students with special needs. In order for me to make those accommodations, students requesting special accommodations due to disabilities must have appropriate documentation from Disability Services (<http://www.ncsu.edu/dss/>) AND must meet with me to discuss accommodations prior to a test or quiz date.