

**NORTH CAROLINA STATE UNIVERSITY
DEPARTMENT OF MATHEMATICS**

MA 107 Precalculus – Spring 2019

MA 107 is a 3-hour credit course. It is restricted to students whose major requires Calculus I (MA 131 or 121) or who are First Year College students. Other underclassmen may receive permission to enroll if their placement is high enough. Lifelong education students must place into the course using the placement test given in WebAssign. Students who do not meet the prerequisites will be disenrolled.

In MA 107 students will study real numbers, polynomial, rational, exponential, logarithmic, trig functions and graphs, and right 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.

Text

Precalculus: Algebra and Trigonometry, 1st edition, by Burns-Williams, NCSU Mathematics Department, 2013

The text we will be using is delivered through WebAssign. The students will pay for the pdf version of the book, the homework assignments and sample tests in one lump sum at the beginning of the semester through the WebAssign site for the course. Students should use the following website to access the materials: (<http://webassign.ncsu.edu>)

Calculator

Graphing calculators are not required. I allow students to use them in class while we are learning and exploring the new material. However, I do not allow the students to use a graphing calculator on tests. I do allow them to use a scientific calculator to aid with computations.

Using the Online Materials to Teach the Course

To facilitate a dynamic learning experience, the material from the book is presented as learning modules in Moodle. These are bonus materials that are provided for the students at no additional cost. Each of the objectives for the course is given as an observable student outcome. Material is presented in small "chunks" corresponding to each of the outcomes. Students are given the choice of viewing a video about the material/example or reading about it. They do not have to do both! Each method presents the same material. Students may choose which way they prefer to learn the material depending on their personal learning styles.

The material was designed to be completed in the following order: students take a pretest, they study material corresponding to the questions missed (directions are given in the quiz feedback in Moodle), after looking over the material students may take a Try It quiz for each of the objectives missed to regain the missed points, students then go to class to hear a lecture on the material (the material presented in class should be the harder material since the students can get much of the basics from the modules), then the student completes a homework assignment in WebAssign. We recently added a series of chapter tests at the end of each module that students may use as further review for each of the objectives in that module.

Students should think of the pretests as a roadmap to the material. Please encourage them to go through the preview/try it cycle before attending class. I encourage you to set up the due dates for the Preview quizzes to be 8:00 am on the day the material will be covered (see attached lecture schedule). As of right now, all of the Pretests, Try It quizzes and Chapter Tests are set to be due on the first day of exams. Please let me know if you would like to change due dates for the pretests. It's not difficult and will help keep students on track.

Homework

Graded homework is assigned via WebAssign, (<http://webassign.ncsu.edu>) a web-based homework system. Please contact Jennifer Burt (jenn_burt@ncsu.edu) to have your assignments set up. There is a fee for students to use WebAssign. They can pay on the website with a check card or a credit card. They will be allowed to use WebAssign for a few days without paying, but they will be denied access to assignments if payment is not made by the due date listed on WebAssign. Assignments will be available beginning on the first day of class. The students have 5 submissions for each question. The final submission is the grade he/she receives on the assignment.

It is often helpful to the students if you set up discussion boards in WebAssign for each assignment. They may post questions about exercises and give hints to each other. The instructor should chime in occasionally as needed, but this is primarily their opportunity to help each other out.

Grades

The final grade is based on 60% major test average (4 tests), 25% final exam, 10% WebAssign average, 5% PreTest/Try It average. The 10% for WebAssign may also include in class quiz grades as well. Just make sure your students are aware of your grading policies at the beginning of the semester. As per the NCSU requirement, the plus/minus grading system will be in effect.

Graduate students must have each of their tests and their final exam approved by the MA 107 coordinator.

Attendance

Attendance is expected everyday the class meets. To encourage students to attend, the students who have 4 or fewer absences may count their lowest grade of the major tests 1/2 the weight of the other tests when determining their final average. NO DISTINCTION IS MADE BETWEEN EXCUSED AND UNEXCUSED ABSENCES. I always count students tardy if they miss less than 10 minutes of class (either at the beginning or the end of class). 3 tardies = 1 absence. It is the responsibility of a tardy student (less than 10 minutes) to request that his/her absences be changed to a tardy at the end of class. Please see me if you would like to discuss other options for encouraging attendance other than the policy above. I've seen many different ones that can be very effective.

Syllabus

As you have already heard, there is a long list of items that needs to be included in your course syllabus and provided to your students. Your best bet is to set up a home page on the World Wide Web and use the syllabus template created by the mathematics department. Seyma Bennett (bennett@ncsu.edu) is the person you need to contact to get help setting up a webpage if you do not yet have one. A copy of your syllabus or a link to it should be included in Moodle.

If you have never taught this course before, I will be happy to discuss any concerns you might have. Just stop by SAS 3242. There are several topics that I know from past experience tend to give these students fits...

Brenda Burns-Williams

**MA 107 - Lecture Schedule (MWF)
Spring 2019**

Dates		Module	Topic(s)
Mon	1/7		Intro to Course; Supplement - Lines
Wed	1/9	Mod 1	Functions in general, domain, range, diff. quotient.
Fri	1/11	Mod 2	Algebra of functions
Mon	1/14	Mod 3	Graphs of Functions
Wed	1/16	1-3	Review Day on Modules 1-3
Fri	1/18	Mod 4	Piecewise Defined Functions
Mon	1/21	ML King Holiday	NO CLASS
Wed	1/23	Mod 5	Graphing by Translations
Fri	1/25	4&5	Go over more from module 4 and module 5
Mon	1/28	Mod 6	Writing functions for modeling
Wed	1/30	6	Go over more from module 6
Fri	2/1		Review modules 1-6
Mon	2/4		Test 1 – Modules 1-6
Wed	2/6	Mod 7	Start Module 7
Fri	2/8	Mod 7	Quadratic Functions
Mon	2/11	Mod 8	Polynomials
Wed	2/13	7 and 8	More with modules 7 and 8
Fri	2/15	Mod 9	Rational Functions; domains and vertical asymptotes
Mon	2/18	Mod 9	Continue Rational functions; long term behavior; horizontal asymptotes; slant asymptotes
Wed	2/20	8 and 9	More modules 8 and 9
Fri	2/22	Mod 10	Composing Functions
Mon	2/25	Mod 11	Inverse Functions
Wed	2/27	10 and 11	More modules 10 and 11
Fri	3/1	Review	
Mon	3/4		Test 2- Modules 7-11
Wed	3/6	Mod 12	Exponential Functions
Fri	3/8	Mod 13	Logarithms
Mon-Fri	3/11-3/15	Spring Break	No classes
Mon	3/18	12 and 13	More with modules 12 and 13
Wed	3/20	Mod 14	Using Exponential Functions; start with logarithmic functions
Fri	3/22	Mod 15	Logarithmic Functions
Mon	3/25	13 - 15	More with modules 13-15
Wed	3/27		Review
Fri	3/29		Test #3 Modules 12-15
Mon	4/1		Start Module 16
Wed	4/3	Module 16	Modeling with Exponential and Logarithmic functions
Fri	4/5	Mod 17	Angles and Arc Length
Mon	4/8		More modules 16 and 17
Wed	4/10	Mod 18	Right Triangle Trigonometry
Fri	4/12		Module 18
Mon	4/15		Review Modules 16-18
Wed	4/17		Test #4 – Modules 16-18
Fri	4/19	Supplement	Regions between graphs
Mon	4/22		Review
Wed	4/24		Review
Fri	4/26		Review - Last Day of Class

Description of how to work on Math 107 materials

The Moodle site houses the interactive textbook for our course; Moodle has the pretest and the try it quizzes.

The WebAssign site has the online homework for each module and the pdf of the text.

You will earn a “module score” for your work within the textbook on Moodle (pretest/tryit quizzes).

You will earn a “WebAssign average” for the online homework sets on WebAssign.

On your syllabus, you see there are day-by-day goals.

The flow chart for your work is as follows:

1. Do the “Pretest” quizzes before a topic is taught (or learned) to see how much you remember or know about the objectives in the particular module.
2. Start to learn the objectives in the module by coming to class lecture, watching the videos in Moodle, doing the examples that are in the module, going to the help room, visiting office hours,...
3. Do the “tryit” quizzes once you think you know the objective well enough to try. These are due in blocks before each test. All of these are on the Moodle page. For each point you miss on a pretest, you will want to get one try it quiz but the overall percentage for each module is capped at 100%.
4. Do homework that is in the WebAssign for each module (due dates on WebAssign, usually a few day after the lecture on the material)
5. Go back over problems you’ve worked and do them from scratch. There will be review supplements posted with extra problems too. These will be on our Moodle site.

Per Ms. Dempster (the previous coordinator)

Math 107 is a “blended” course – it has both an online component and an in class lecture component. To get the most out of the class you must be actively involved. “Actively involved” means taking the pretest before the lectures, coming to class ready to listen and ask questions, going back over materials as needed for your learning. The videos in the Moodle site are an excellent resource, please watch these and try doing the problems. There are lots of resources for help.

