**MA 107: Pre-Calculus**
Summer 2022
In person and online

**Instructor:**
**Office:**
**Email:**

**Course Description:** (3 credit hours) Study of real numbers, polynomial, rational, exponential, logarithmic, trigonometric functions and all their graphs. The course is designed to prepare the student for Calculus Math 131 or Math 121. By the end of this course, students should be able to:

1. Recognize and use proper notation, precise definitions and theorems when solving problems and communicating solutions.
2. Manipulate functions and equations algebraically into different forms given specific problem contexts.
3. Graph functions and equations to a required level of accuracy.
4. Solve equations and inequalities algebraically and graphically.
5. Write a function to model a given scenario and make predictions based on that model.
6. Adapt a general function to model a given scenario and make predictions based on that model.

**Textbook:** Openstax **Precalculus** textbook available for free download
https://openstax.org/details/books/precalculus
Please download the pdf so you can see the page numbers. The homework in Webassign correlates to the exercises in this textbook.

**Test Format:** All tests will be taken in person. You will show all your work and circle answers. The test will be about $70-75\%$ problems like Part 1 Webassign problems and $25-30\%$ like the applied problems similar to Part 2 Webassign problems .

**Attendance and Participation Policy:** Attendance will be taken at the beginning of class.
Please come with questions from the video lectures and part 1 homework questions.
Please come prepared to work in groups on applied problems that we've assigned for each module.

**Homework:** The WebAssign homework assignments are obtained, submitted, and graded online. I recommend keeping a written copy of your work and notes. It is very important that you keep up with this work. I highly recommend you print each assignment and work it with pencil and paper before submitting. Extensions may be requested via WebAssign, but there is a small penalty to help motivate you to keep up with the work in timely way.

Each module has two parts to the homework assignment. The **Part 1 assignments** are due regularly. The **Part 2 assignments** are much shorter, but include problems that are harder and similar to the ones you will be working on during the Zoom workday. The **Part 2 assignments** are all due right before the test covering those modules. The due dates are all posted on Webassign.

**In-class tests:** We will have 3 tests.

| | |
|---|---|
| 1 Test : Tuesday, May 31 | 1 Test : Friday, July 8 |
| 2 Test : Friday, June 10 | 2 Test : Wednesday, July 20 |
| 3 Test : Tuesday, June 21 | 3 Test : Thursday, July 28 |

If an in-class test is missed with an excused absence (i.e. for a university-approved reason, with supporting documentation), then a make-up test will be scheduled individually. If an in-class test is missed for an unexcused absence, that test will be given a score of 0. No make-ups will be allowed. Documentation for an excused absence must be provided within 1 week of the missed class. All absences that require a make up test or other special accommodations must go through the **NCSU absence verification process**; here is the link to that office
https://dasa.ncsu.edu/students/absence-verification-process/

**Final Exam:** The final exam will cover all modules 1-16 and we'll follow the NCSU official exam schedule.

**Calculator Policy:** There are NO GRAPHING CALCULATORS allowed on tests; you may bring a scientific or four-function calculator.
**Grade Disputes:** Answer keys for all tests will be posted on Moodle when the exams are returned in class. If a grading error is found after looking at the posted answer key then you should **provide a written explanation of the error, attached to the original test, to the instructor within 1 week**. Do not alter the original work. The entire test may be re-graded and the test grade is subject to remain the same, increase or decrease at the discretion of the instructor.

**Grading:** Your grade will be determined by the following break down:
Homework: 10%
Participation: 5%
In-Class Tests: 60% (20% each)
Final: 25%

A student's numerical average will be converted to a letter grade as follows. If attendance and participation are good, then the instructor can replace the lowest test score with the final exam score. (Do not expect any additional rounding or curves):

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|---|---|---|---|---|---|
| **A+** | 98 - 100 | **A** | 92 - 97 | **A-** | 90-91 |
| **B+** | 88 - 90 | **B** | 82-87 | **B-** | 80-81 |
| **C+** | 78-80 | **C** | 72-77 | **C-** | 70-71 |
| **D+** | 68-70 | **D** | 62-67 | **D-** | 60-61 |
| **F** 0 - 59 | | | | | |

**General Class Expectations:**

1. This class is an hybrid class (online materials and in person meetings) so you will need to take responsibility for your own learning and set your own pace within our guidelines.
   (a) Watch the **video lectures** for the week's modules. Before or after the videos, do the **self check quizzes** in Moodle. These should allow you to assess how well you remember a certain topic.
   (b) Complete the **Part 1 WebAssigns** . Attend zoom classes and or office hours if you have questions.
   (c) Work on the **Part 2 WebAssigns** after the in-class workday
   The **Part 2 WebAssigns** are not due until right before the test they cover.
2. Check your email and Moodle site regularly. Any announcement made by email is saved under announcements on our Moodle page.
3. Be **respectful and professional**. Via email, please identify yourself and the class clearly. Treat everyone in class (other students and lecturer) with respect and courtesy. In class, be active and engaged! Come prepared. In office hours, be prepared to ask questions and work with others that are in the office hours time too.
4. Be accountable for your own education. You are responsible for resolving confusion about assignments, due dates, exam dates, accommodations, etc.
5. Do not submit work that is not yours. **It is understood that your name or signature on any assignment or attached to any online submission indicates your adherence to the NC State Honor Pledge: "I have neither given nor received unauthorized aid on this test or assignment."**
6. **No graphing calculators or cell phones or other devices that go to the internet** are allowed during tests and exams. You may have a simple non-graphing calculator. It is an honor code violation if you use a graphing calculator on an exam. It is also an honor code violation to access the internet in any way (phones, watches, etc) during an exam. Place all cell phones and other devices "off" and in your back pack or not on you during the exams to keep you from accidentally looking at it unintentionally during a test or exam.

**Disability Services:** Reasonable accommodations will be made for students with verifiable disabilities. To receive accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 919-515-7653.
Please see the Academic Accommodations for Students with Disabilities Regulations (REG02.20.1). You must discuss accommodations with the instructor *prior* to a test date.
https://dro.dasa.ncsu.edu

**Getting Help :** There is free drop in tutoring available during the week days in the Math Mutlimedia Center in Sas 2105
https://math.sciences.ncsu.edu/undergraduate/courses-faq/math-multimedia-center
There are also wonderful resources for help at the Academic Success Center on the 2nd floor of the D.H.Hill Jr. Library
https://asc.dasa.ncsu.edu

**Course Schedule:**

Weekly Class Calendar of Topics Session 1

| Date | Text Section | Topic |
|---|---|---|
| 5/18 Wed | | Overview of the course |
| 5/19 Thurs | Mod 1 and 2 | Functions and Absolute Value |
| 5/20 Fri. | Mod 1 and 2 | (In Class Problems day) |
| 5/23 Mon | Mod 3 and 4 | Working with Functions and Operations on Functions |
| 5/24 Tues | Mod 3 and 4 | (In class Problems day) |
| 5/25 Wed | Mod 5 and 6 | Linear and Quadratic Functions |
| 5/26 Thurs | Mod 5 and 6 | (In class Problems day) |
| 5/27 Fri | | Review |
| 5/30 Mon | Honor Memorial Day | No Class |
| 5/31 Tues | | **Test #1** (Modules 1-6) |
| 6/1 Wed | Mod 7 and 8 | Polynomials and Piecewise defined functions |
| 6/2 Thurs | Mod 7 and 8 | (In class Problems day) |
| 6/3 Fri | Mod 9 and 10 | Rational Functions and Inverse Functions |
| 6/6 Mon | Mod 9 and 10 | (In class Problems day) |
| 6/7 Tues | Mod 11 and 12 | Exponential and Logarithmic Functions |
| 6/8 Wed | Mod 11 and 12 | (In class Problems day) |
| 6/9 Thurs | Review | |
| 6/10 Fri | | **Test #2** (Mods 7-12) |
| 6/13 Mon | Mod 13 and 14 | Applications with Exponential and Logs |
| 6/14 Tues | Mod 13 and 14 | (In class Problems day) |
| 6/15 Wed | Mod 15 and 16 | Angles and Right Triangles |
| 6/16 Thurs | Mod 15 and 16 | (In class Problems day) |
| 6/17 Fri | Review | |
| 6/20 Mon | Honor Juneteenth | No Class |
| 6/21 Tues | | **Test #3** (Mods 13-16) |
| 6/22 Wed | Overall Review | |

## Course Schedule:

Weekly Class Calendar of Topics Session 2

| Date | Text Section | Topic |
|---|---|---|
| 6/27 Mon | | Overview of the course |
| 6/28 Tues | Mod 1 and 2 | Functions and Absolute Value |
| 6/29 Wed | Mod 1 and 2 | (in Class Problems Day) |
| 6/30 Thurs | Mod 3 and 4 | Working on Functions and Operations on Functions |
| 7/1 Fri. | Mod 3 and 4 | (In Class Problems Day) |
| 7/4 Mon | No Class | July 4th Holiday |
| 7/5 Tuesday | Mod 5 and 6 | Linear and Quadratic Functions |
| 7/6 Wednesday | Mod 5 and 6 | (In Class Problems Day) |
| 7/7 Thursday | Review | |
| 7/8 Friday | | **Test #1**(Modules 1-6) |
| 7/11 Monday | Mod 7 and 8 | Polynomial and Piecewise defined Functions |
| 7/12 Tuesday | Mod 7 and 8 | (In Class Problems Day) |
| 7/13 Wednesday | Mod 9 and 10 | Rational Functions and Inverse Functions |
| 7/14 Thursday | Mod 9 and 10 | (In Class Problems Day) |
| 7/15 Friday | Mod 11 and 12 | Exponential and Logarithmic Functions |
| 7/18 Mon | Mod 11 and 12 | (In Class Problems Day) |
| 7/19 Tues | Review | |
| 7/20 Wed | | **Test #2** (Modules 7-12) |
| 7/21 Thurs | Mod 13 and 14 | Exponentials and Logs |
| 7/22 Fri | Mod 13 and 14 | (In Class Problems Day) |
| 7/25 Mon | Mod 15 and 16 | Angles and Right Triangle Trigonometry |
| 7/26 Tues | Mod 15 and 16 | (In Class Problems Day) |
| 7/27 Wed | Review | |
| 7/28 Thurs | | **Test #3** (Mods 13-16) |
| 7/29 Fri | Review | |