

MATH 231

Calculus of Functions of One Variable I

General Description

Welcome Welcome to Math 231! This is a first-semester course in differential and integral calculus offered by the University of North Carolina at Chapel Hill. I am Elizabeth McLaughlin, an instructor at UNC with a master's degree in applied mathematics from the University of Arizona. To take this course, you must have either scored 600 or higher on the SAT Subject Test, Level 2 Math, or passed Math 130 with a C- or higher.

Required Materials The required text is *Calculus Concepts & Contexts*, 3rd edition (2005), edited by James Stewart. You may purchase it from the Higher Grounds bookstore in the Friday Center using the book order form in this manual or you can order it online at <https://s4.its.unc.edu/HigherGrounds>. Higher Grounds also stocks grid paper, which you will need for graphing problems.

A scientific calculator is required, and one with graphing capabilities is recommended. Symbolic manipulators, such as the TI-89 or its equivalent, are *not* permitted.

Course Organization This course manual is a companion to your text. Browse through the lessons in this manual to get a feel for the organization of the course. There are thirteen lessons, four of which are tests. Each lesson covers several sections of the text. At the end of each section you will find practice problems for you to test your newly acquired knowledge. Note that the practice problems are odd-numbered problems with solutions in the back of the text. A companion solutions manual to the odd-numbered problems is available for purchase, but not required. At the end of each lesson is a written assignment (actually a set of even-numbered problems from the text) to be submitted to me for grading.

Study Strategies

Although each lesson covers several sections of the text, **it is important to work on one section at a time, thoroughly understanding the material before you go on.** (Most of our math concepts will build on previous ideas.) The discussion section in each lesson explains each text section separately, working through example problems and then assigning practice problems at the end of each section.

The following guidelines will provide you with a strategy for successful learning:

- When you sit down to work on a lesson, have a pencil, a calculator, and some paper on hand.
- Carefully read the first section of the text that is assigned.
- Then, with your textbook open (very important!), begin reading my discussion notes. Often I will reference graphs, equations, theorems, and so on from the text, and it is crucial to work back and forth between my notes and the text.
- Once you understand all the concepts, try the practice problems at the end of the section.
- When you feel comfortable with this material, begin the next section, following the same strategy.
- When you have completed all of the sections in a lesson, complete the written assignment for that lesson and submit it to me for grading. When the assignment is returned to you, carefully review all corrected work and rethink any errors before you go on.

Lessons 4, 7, 10, and 13 are closed-book/closed-note tests to be submitted to me for grading. Each test covers the material presented since the previous test. The instructions are on the tests. Please find a quiet place to take these tests. You may use only a pencil, a calculator, and your brain (and please, only *your* brain!).

Final Exam

Once you have worked your way through the thirteen lessons, you will schedule a three-hour supervised final exam. The final exam will be closed book and closed notes. You will need to bring only a calculator and a pencil with you to the exam site.

The final exam is a twenty-question, partial credit, cumulative exam. In other words, it covers *everything* you have learned!

You must pass the final exam with a 60 percent or higher score to pass the course. Your final course grade cannot exceed your final exam grade by more than one letter grade.

Grading Your course graded will consist of the following assessments:

Nine written assignments (average of the nine grades) = 100 points

Four tests (100 points each) = 400 points

Final exam = 300 points

Your final course grade will be calculated as the percentage of points you earn out of a total of 800 points. The average of your nine written assignment grades will count as 100 points. Each of the four tests is worth 100 points (a total of 400 points). The final exam counts 300 points.

Final grades are based on a 10-point scale:

- A 90–100 percent
- B 80–89 percent
- C 70–79 percent
- D 60–69 percent
- F less than 60 percent

A Final Word I hope you enjoy the course!