# Math 104 – Calculus II – Course Policies

| | |
|---:|:---|
| PROFESSOR: | Tommy Ratliff, Science Center 106b, x3968 |
| EMAIL: | tratliff@wheatoncollege.edu |
| WEBPAGE: | http://www3.wheatoncollege.edu/tratliff/ |
| OFFICE HOURS: | Posted on webpage<br>**And by appointment** (Really!) |
| TEXT: | *Calculus, Early Transcendental Functions, Third Edition*<br>by Smith and Minton |

## Overview

This course is a continuation of the topics covered in Calculus I. One of the most fundamental, and most slippery, topics in mathematics is the relationship between the finite and the infinite. A recurring theme throughout the semester will be the relationship between an approximation and the exact value. One of the most beautiful aspects of calculus is that by taking better and better approximations and extending from the finite to the infinite, we will often be able to find a precise solution.

Many of the topics we will cover this semester allow us to solve problems that do not seem to be immediately related to calculus. Here are just a few:

1. If you look in the front cover of the text, it will tell you that the volume of a sphere of radius $r$ is $\frac{4}{3}\pi r^3$. Why is this correct?

2. If you ask Maple (or your calculator) for the value of $\pi$, it will tell you that $\pi$ is approximately 3.141592654. How does it know that?

3. We will show how to design an apartment building that has a center wall which is infinitely long (and has infinite area), but the building itself has finite volume. In other words, all the tenants can move into the building, but the workers will never finish painting the hallway!

## Course Goals and Expectations

Two of the goals of this course are that you learn to read a math text and that you learn to communicate mathematics with other students. Mathematics is a very personal discipline that is best learned by *doing* rather than by observing.

Therefore, the class will be structured with some lectures to emphasize particular topics, but much of the time will be spent on in-class work. You will have a reading assignment for nearly every class meeting, and it is **extremely** important that you complete the reading before the next class meeting! The class meetings are not intended to be a complete encapsulation of the course material, but instead will focus on the major concepts from the reading and clarifying the more subtle ideas in the course.

***You should expect to put in approximately 2 hours outside of class for each hour in class.***
In other words, expect to spend at least 8 hours per week on calculus outside of class. There will be some weeks where you spend more time (e.g. working on projects or preparing for exams), and there may be some weeks where you do not spend the full 8 hours.

## The Honor Code

We are operating under the Honor Code for all of your academic work while you are at Wheaton. I take this quite seriously. This carries freedoms and responsibilities for both you as students and me as the professor. The best approach is to avoid any situation where there is a temptation to violate the Honor Code. Or if you find yourself in such a position, you should remove yourself from it.

Remember that you should write out, and sign, the following statement on all course work:

"I have abided by the Wheaton College Honor Code in this work."

## Working with Other Students

I strongly encourage you to work with other students outside of class – This can be one of the best ways to learn mathematics! However, the answers that you give to the homework assignments should represent your own work. The two projects will be group assignments where you will work in groups of two or three (of your choosing). Each assignment will receive a grade, and the group will determine how the points are allocated to each member. For example, if a group of three receives an 85 on a project, then the group will have $3 \times 85 = 255$ points to distribute among them. I will be available to mediate this process, if necessary.

## Evaluation

The assignments for the semester fall into three broad groups: Exams, Projects, and Daily/Weekly Assignments. Your final grade will be determined by

| | |
|---|---|
| Three In-Class Exams | 40% |
| Comprehensive Final Exam | 15% |
| Antidifferentiation Exam | 8% |
| Two Group Projects | 15% |
| Reading Assignments | 5% |
| Problem Sets | 9% |
| WebWork Assignments | 8% |

## Exams

- **In-Class Exams:** The purpose of the exams is for you to demonstrate your understanding of the course material and, just as importantly, to give you feedback on where your understanding is strong and where you may need more work.

  I will give you a set of sample problems before each exam, and we will have a question and answer session before each exam. For each exam, you will be allowed to bring an 8.5"×11" piece of paper, handwritten on one side, which you will turn in with the exam.

- **Final Exam:** The purpose of the Final Exam is for you to review the entire semester's content and see connections among the topics from throughout the semester. The Final Exam will be comprehensive and will be based on the three In-Class Exams and the material covered at the end of the semester after the third In-Class Exam.

- **Antidifferentiation Exam:** One of the fundamental skills you will learn this semester is antidifferentiation, or finding an antiderivative of a function. The Antidifferentiation Exam will consist of four problems and is graded with no partial credit. You either get every problem correct, or you get no credit for the exam. However, you may retake a similar exam as many times as you need until you pass.

## Group Projects

One of the main goals of the projects is that you learn to communicate mathematics *precisely*, both verbally with your group and in writing. You may divide the writing of the report in whatever way is agreeable to the group, but everyone should completely understand the whole of the paper. Further, each member should proofread the entire paper for consistency and typos.

You will have two class periods to work together on each project, and your written report will be due a week or so later. You can submit a first draft to me, and I will make comments on it before the final version is due. See the course webpage for the *Writing Guide* that explains my expectations for your written reports.

## Daily/Weekly Assignments

- **Reading Assignments:** The purpose of reading the text *before* class is that if you are familiar with the basic concepts and definitions, then the class meetings can be devoted to the major ideas and subtleties of the material. Mathematical understanding is built in stages, and you will absorb the material more quickly if the class meetings are your *second* exposure to the fundamental ideas.

    The reading assignments are posted on the course webpage and include two or three basic questions that you should be able to answer after you have read the section. You will submit your responses through Wheaton onCourse. See the *Suggestions for Reading a Math Book* on the course web page for more information.

- **WebWork Assignments:** WebWork is an online system that gives you immediate feedback on whether or not you have answered the problem correctly. The WebWork problems are primarily computational in nature. You will have a WebWork assignment due most Tuesdays during the semester, or Monday if there is an In-Class Exam on Tuesday. You will be allowed to drop **one** WebWork assignment at the end of the semester.

- **Problem Sets:** You will also have a Problem Set due most weeks that consists of problems from the textbook that are more conceptual and require more explanation. These problems should be well-written and well-justified and will be graded by an advanced math student. You will be allowed to drop **one** Written Homework assignment at the end of the semester.

    The WebWork Assignments and Problem Sets will be the most beneficial to you if you work on them throughout the week, not just on the few days before they are due. I strongly encourage you to discuss the homework with other students, but the answers you turn in should represent your own work.

## Class Attendance

Although class attendance is not a specified percentage of your grade, I will keep a class roll to help me determine borderline grades at the end of the semester. If you do miss class, you are responsible for the material that was covered.

## Accommodations for Disabilities

In compliance with the Wheaton College policy and equal access laws, Dean Wilhelm is available to discuss appropriate accommodations that may be recommended for students with disabilities. Requests for accommodations are to be made during the first two weeks of the semester so that timely and appropriate arrangements can be made.

Students are required to register with Denyse Wilhelm, Assistant Dean of Academic Resources and Disability Services, ADA/504 Coordinator, whose office is located in Kollett Hall, first floor at the Filene Center for Academic Advising and Career Services. Contact ext. 8215 to schedule an appointment, or email Dean Wilhelm at wilhelm_denyse@wheatoncollege.edu.

## Getting Help

**Please come see me during my office hours!** If you have a conflict and cannot make my office hours, please call or email me and we can set up an appointment for another time. You should also take advantage of the tutoring hours in the Kollett Center.