Math 104 – Calculus II – Course Policies

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Office Hours:	Posted on webpage **And by appointment** (Really!)
Text:	*APEX Calculus, Version 4.0*, available at http://www.apexcalculus.com

Overview

This course is a continuation of the single-variable topics covered in Calculus I and a look at how some of these concepts can be extended to multivariable functions. We will only scratch the surface of multivariable calculus, but this should whet your appetite for the follow-up course Math 236 Multivariable Calculus.

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. The Tentative Daily Syllabus on the course webpage contains a detailed listing of the topics we will cover during the semester.

There are a lot of super cool ideas that we'll discuss in Calc II. You're going to learn a whole lot of math and a whole lot about yourself this semester!

Goals for a 100-level Mathematics Course

By the end of this semester you should:

- Be able to process technical information presented in written or visual form
- Be able to communicate mathematical ideas with other students, both verbally and in writing
- Appreciate the necessity of rigorous mathematical arguments
- See a connection between mathematics and other disciplines
- See the applicability of the mathematical thought process in your daily life
- Be willing to approach a problem even if you do not know whether or not your approach will be successful. If it doesn't work out, try something else!

Goals Specific to Calculus II

You should gain a deeper understanding of:

- The definite integral as a process of accumulation
- The applications of the definite integral to measuring one-dimensional, two-dimensional, and three-dimensional quantities
- How to evaluate definite integrals exactly by u-substitution or integration by parts, and how to approximate a definite integral using numeric techniques if necessary

- The relationship between the finite and the infinite as illustrated by improper integrals and infinite series
- The importance of Taylor series in evaluating differentiable functions
- The added complexity when applying calculus to functions of two variables
- The geometric meaning of partial derivatives and directional derivatives
- How to optimize functions of two variables
- How to integrate a function of two variables over a bounded region by converting to an iterated integral

Expectations

Mathematics is a very active discipline that is best learned by *doing* rather than by observing. One of the features that makes your Wheaton education so special is that we have time in small classes to explore material together. 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 Pre-Class Assignments and clarifying the more subtle ideas in the course. See the course webpage for more details of the structure of the class meetings.

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

The Honor Code

We operate under the Wheaton Honor Code for all of your academic work at Wheaton. This carries certain freedoms and responsibilities for both you as a student and me as a professor. I take this quite seriously.

Most likely, no Honor Code issues will arise this semester. If you are uncertain about whether a particular situation falls under the Honor Code, then please consult with me. However, if an Honor Code issue does come up, I will assume that you are prepared for the full consequences. 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 because I believe mathematics is best learned through collaboration. However, you should not turn in identical work to your partner(s); the answers that you give to the Problem Sets and WeBWorK should represent your own thinking about solutions.

You should cite anytime that you work with another student on a Problem Set or WeBWorK.
If you fail to do this, I will view it as a violation of the Honor Code.

Evaluation

Your final grade will be determined by

Pre-Class Assignments	10%
Class Participation	10%
WeBWorK Assignments	15%
WeBWorK Journal	5%
Problem Sets	20%
Three Take-home Exams	40%

Pre-Class Assignments

The purpose of reading the text and watching the assigned videos *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 Pre-Class Assignments are posted on the course webpage and include three or so questions that you should be able to answer after you have completed the reading and viewed any videos. You will submit your responses through Wheaton onCourse. See the *Suggestions for Reading a Math Book* on the course web page for more suggestions.

I will grade the Pre-Class Assignments using a binary scale: If you make a serious attempt, you will get full credit, even if your answers are not completely correct. The purpose of these questions is to encourage you to engage with the material before class. If you've read the text and watched any videos but don't understand how to answer a question, it is perfectly fine to say "I did the prep work but don't see how to approach this question." You'll definitely understand by the end of the class meeting!

Notice that the Pre-Class Assignments are due at midnight on Sunday! This will give me enough time to review your responses before our class on Monday morning. You will be allowed to drop one Pre-Class assignment at the end of the semester.

Class Participation

The majority of the tutorial meetings will be devoted to you working in small groups on problems that delve more deeply into the content introduced in the Pre-Class Assignments. In previous semesters, you would have worked in groups at the chalkboards. Since that's not an option this semester with social-distancing requirements and some of us being remote, for each tutorial meeting I will set up a shared Google Jamboard, which is a virtual whiteboard that you'll have access to via your Wheaton email account.

Each group will have their own "frame" on the Jamboard, and you should post your work at the end of the tutorial there. If you have a digital pen, you can write directly on it, or else you can take a photo of your paper and upload it to your frame. I will also grade your group's work using a binary scale: You made a serious effort or you didn't.

WeBWorK Assignments & WeBWorK Journal

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 Mondays during the semester.

While I am a strong proponent of WeBWorK, I also know that any online system can occasionally be frustrating because it is not very forgiving with small typos or minor mistakes in notation. Therefore, you can earn full credit for a WeBWorK assignment by getting at least 75% of the problems completely correct.

Since you are submitting your answers online, there may be less motivation to keep track of your thought process and keep your work organized. However, this doesn't serve you well later in the semester when you need to review the problems for another assignment or exam. Therefore, part of your WeBWorK grade this semester will be to maintain a WeBWorK Journal as a reference for your work. You will submit the relevant part of your Journal to onCourse along with completing each WeBWorK assignment. See the *Guidelines for WeBWorK and Problem Sets* on the course webpage for more details.

Problem Sets

You will have a Problem Set due most Thursdays that consists of approximately four problems from the textbook or other sources that are usually more conceptual and require more explanation. These problems should be well-written and well-justified and will be graded by an advanced math student. See the *Guidelines for WeBWorK and Problem Sets* on the course webpage for more details. You will be allowed to drop one Problem Set assignment at the end of the semester.

Take-home 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. Since we cannot meet together as a group this semester, all of the exams will be open-note take-home exams where you will have several days to work on them. See the *Tentative Daily Syllabus* on the course webpage for dates of the exams. I will provide more details about the structure of the exams as the time gets closer.

I know that exams can be stressful, especially with the other academic, extracurricular, and family commitments that you may have. To try to reduce some of this stress concerning your grade, I will weight your exam scores by differing amounts: Your lowest exam score will count 20% of your exam grade, the second lowest will count 30%, and the highest will count 50% of your exam grade. For example, if your four exam scores are 71, 82, and 93, then your overall exam average will be 85.3.

Getting Help with Calculus

Please come see me during my drop-in office hours! No appointment necessary! All office hours this semester will be remote, and the Zoom link is posted to onCourse. If you have a conflict and cannot make my office hours, please email me and we can set up an appointment for another time. You should also take advantage of the no-additional-cost Remote Peer Tutoring that is staffed by advanced math students. A link to the schedule for Remote Peer Tutoring is posted on the course webpage.

Having difficulty accessing the tech you need?

The Hybrid Tutorial Model and its remote components require you to have access to specific technologies in order to complete your classwork successfully. If you are having trouble accessing the learning technologies for this class or reliable wifi or computer access, please let me know and then reach out to your Student Success Advisor in Academic Advising for help with acquiring material or software. You can use this form to report your technology needs - Learning Technology request form:
https://forms.gle/hMXJdBkBQtU1NzzU8

Accessibility at Wheaton

Wheaton is committed to ensuring equitable access to programs and services and to prohibit discrimination in the recruitment, admission, and education of students with disabilities. Individuals with disabilities requiring accommodations or information on accessibility should contact Autumn Grant - Associate Director for Accessibility Services at the Filene Center for Academic Advising and Career Services:
accessibility@wheatoncollege.edu or (508) 286-8215

Wheaton Student Support & Wellness Resources

The Counseling Center is the confidential and free mental health resource on campus for all students. To learn about services, check out the website, or give the office a call at 508-286-3905. Even when the Counseling Center is closed, or staff are unavailable, *After Hours Mental Health Support* is available by calling the front desk 508-286-3905 and following voicemail prompts to be connected to a clinician (24/7, available in languages other than English, and accessible from anywhere you are in the world).

The Filene Center strives to support your learning pathway by fostering successful academic, career, and personal development. The academic advising staff will work collaboratively with you, faculty and campus resources to ensure that you have the access and guidance to become a confident and reflective learner at Wheaton and beyond. You may contact them at advising@wheatoncollege.edu.

Many other offices on campus can also help support the holistic wellness of students. For students who identify as low-income, first-gen, LGBTQ+, or have a faith or spiritual practice they adhere to, the Center for Social Justice and Community Impact and Center for Religious and Spiritual Life (the Base) are good places for support and engagement. The Marshall Center for Intercultural Learning supports BIPOC students and those working towards breaking down barriers across difference, and the Center for Global Education supports international students, and students seeking educational opportunities abroad. We encourage you to reach out to any and all of these offices for support.

Health Services through Norton Medical Center is available to support students with a variety of physical health needs including specialty support for GYN and STI care. Contact the office at 508-286-4500 to make an appointment for care. There is no copay for visits and most services are free, with select procedures and labs billed to insurance.