

Calculus II

Professor:
Dr. Joanna Bieri
joanna_bieri@redlands.edu

Class:
Spring 2022
Monday, Wednesday, Friday 8-9:20am

Office Hours:
T,Th 2:30-3:30 and other times by appointment.

Welcome to Calculus II

My goal is to help each and every student achieve their personal learning goals for this class. I value a diversity of opinions, learning approaches, cultural backgrounds, abilities, and ideas in my class. Classes, lectures, and group interactions should be a safe learning space where each member of the community feels valued, listened to, and respected. It is the responsibility of each of us to ensure that we are lifting up our peers, breaking free from old biases, reaching across cultural, socioeconomic, and other boundaries, and supporting each other. If at any time in the class you feel that there is something that could be done to improve your learning or your experience please let me know. I am here to lift you up and help you learn!

Please take a minute and think about what you would like to achieve by enrolling in Calculus 2.

About This Course

This course is the second in an introduction to single variable calculus. We will cover a wide range of topics including techniques of integration, applications of integration, sequences, series, and differential equations.

Course Learning Objectives

We will cover Chapters 5-8 in the book and a few other topics. By the end of this course, for each topic covered, you should:

1. Understand the concepts and techniques, not just memorize formulas.
2. Be able to communicate your mathematical understanding to others.
3. Use the techniques learned in class to model real life problems.
4. Improve your problem solving abilities.
5. Fall in love with your old friend mathematics!

Technology

Homework and announcements will be posted on the class website and class announcements will be posted on Microsoft Teams so make sure you have access to a device that can connect to the internet and check daily for updates. You will also need to be able to take scans of handwritten work and hand it in on Moodle. Please let me know if this is a problem and I can help make sure you have access to a working computer or that accommodations are made for your situation.

Textbooks

Please ensure that you have full-time access to the required texts for the duration of the course.

- REQUIRED Matthew Beolkins *Active Calculus* - <https://activecalculus.org/single/book-1.html> (Free Online) ISBN 978-1724458322
- OPTIONAL Hughes-Hallett *Calculus, Single and Multivariable* (6th Edition) ISBN-13: 978-0470888537

- Other texts and articles made available via our course website or Moodle.

Classwork

Consistent attendance and participation are crucial to your success in the class. Please read the following carefully:

- i. **Pre-Class Preparation:** Lectures for the new topic will be posted every Monday, Wednesday, and Friday on our class website along with an assignment that is intended to help you understand the material. It is your job to watch the lectures, take notes, do the chapter activities in the Active Calculus book, attempt the exercises, and formulate some questions before class begins. Your goal is to prepare for the class period where we will work together as a class to get your questions answered and finish the book exercises and start on the homework. Please feel free to post questions and comments to our Teams site.
- ii **In-Class Participation:** Classes will take place on Monday, Wednesday, and Friday. You are expected to come to class ready to participate fully and to improve the learning of your classmates. Each class will begin by meeting in small groups to discuss the preparation that you did. You will collaborate on creating a list of questions that your group still needs answered and start working on the in class activities. Class time will be used to do some more examples and to start on the homework problems. It will be helpful if you can bring a

laptop to class so you have access to the book and WeBWorK.

iii **Homework Assignments:** We will start our homework assignments together in class, but it is your responsibility to complete the following work for each day of class:

- Complete all of the assigned WeBWorK Problems. (Required)
- Attempt all of the Worksheet or Book Problems. (As needed for your understanding)
- ONE of the Worksheet or Book Problems to carefully write out by hand with all steps and explanations. (Required)
- Scan your hand written problem and hand it in on Moodle. (Required)

NOTE: Check the class website daily for the specific problems assigned and more information.

iv. **Midterm Exams:**

We will have **three** exams. These will be taken during our normal class times.

1. Exam 1 - Techniques of Integration (Chapters 5.3 - 5.5 + Improper Integrals) - Monday February 7th
2. Exam 2 - Applications of Integration (Chapters 5.6 - 6.4 + Polar Coords) - Wednesday March 9th
3. Exam 3 - Sequences and Series (Chapters 8.1 - 8.6) - Monday April 18th

v. **Final Exam:**

The Final Exam is optional. If you are happy with your grade then you do not need to take the final exam. The final will be cumulative and available for students who struggled on a previous exam (or exams) and want another chance to demonstrate their mastery of the course material.

Evaluation Procedures

There are four elements of the course which contribute to your overall grade, as follows:

Pre-Class Preparation	10 %
In-Class Participation	10 %
Homework	40 %
Exams	40 %

How to Succeed in this Class

One of the best ways to succeed in Calculus is to get lots of help! Here are some things you can start doing TODAY:

- Remind yourself daily that everyone struggles with learning new things. You can succeed in Calculus if you keep trying and don't give up.
- Form a study group and meet regularly with the people in our class.
- Go to drop in tutoring from 7-9pm in Appleton Hall Sunday-Thursday.
- Make time in your schedule where you will study Calculus - do not double book this time.
- Go to academic success and sign up for individual tutoring.

All work for the course will be graded according following criteria.

- Students can demonstrate pre-class preparation by coming to class with written notes from watching the lecture and written up work for the pre-class practice problems. Students should also come to class with a list of questions or comments on where they got stuck on the problems. Additionally, participation in pre-class surveys will count toward preparation.

- Students can demonstrate in-class participation by attending every class and being actively involved in the group discussion during class time. This might look different for different people! Some people like to talk and lead the group, others are great organizers and can email/post the groups in class work, others are great at asking hard questions, others are motivators who keep the group positive and focused. There are lots of ways to participate!

- Daily homework is worth 100 points each day:

- 75 points WeBWorK problems - 80% of the problems correct to get full credit.
- 15 points Handwritten problem. 5 - correct mathematics. 5 points - showing all the steps. 5 points - clear and precise explanations.
- 10 points For attempting all parts of the homework

- Exams will be graded based on a rubric. You must show all your work and explain your steps to get full credit.

Grading Scales:

4.0	95-100%
3.7	90-94%
3.3	87-89%
3.0	83-86%
2.7	80-82%
2.3	77-79%
2.0	73-76%
1.7	70-72%
1.3	67-69%
1.0	63-66%
0.7	60-62%

Please note: According to the University Course Catalog (p. 13) 3.7 and 4.0 are reserved for "outstanding" work; 3.3 and 3.0 are both defined as "excellent," not mediocre.

Course Policies

Absence and Tardiness

Class discussion and participation is vital for a successful learning experience. If a student foresees any reason for an absence or tardy, the student should contact the instructor as soon as they can. The video lectures can be watched completely online so that if you feel sick you can stay home, but the best way to learn this material is to be in class with everyone.

Technology

- You will need access to a laptop, computer, or tablet capable of interacting with the Internet and it is helpful if you can bring these to class occasionally when we interact with programs. All course materials will be posted on the course website and can be accessed during class. However, cell phone ringers should be turned off during class and you should not be texting or accessing websites that are not productive to your learning.
- You will use Moodle to access your grades and hand in all work for the class.
- Class announcements, posting questions, and some office hours will happen on Teams.
- All class materials, daily homework, lecture notes, etc are posted on our class website:

PDE.JoannaBieri.com

Covid-19 Protocols

These protocols are designed to keep all members of the community as safe as possible, including those who are immunocompromised, high risk, or a caretaker for a child too young to be vaccinated. Your cooperation with these

guidelines will help give us all the best chance of continuing face to face instruction for the entire term. For additional details please check the COVID Information for Students and Families

- Students may be asked at any time to verify, via their digital id, that they are in compliance with vaccination/testing policies.
- All faculty and students, regardless of vaccination status, must wear appropriate face coverings while indoors. Those without masks will be asked to leave the classroom and obtain one before returning.
- Students unwilling to wear a mask or to wear one properly (covering both nose and mouth) will be asked to leave immediately. If they resist, appropriate security protocol (including class cancellation) may occur at the discretion of the faculty. Students who are removed from class for refusing to wear a mask will be marked absent, incurring any relevant penalties.
- Students who have a positive test or are exhibiting COVID-like symptoms should **not** attend class. If they do, they will be asked to leave immediately; faculty will follow up regarding make-up work and accommodations at a later time.
- Students who need to quarantine or isolate due to their own exposure or that of a family member should communicate as soon as possible with their faculty to make arrangements for necessary accommodations. In the event of illness, keep faculty informed so that they can work with you about making up missed work.
- There will be no eating in classes, and drinking should be kept to a minimum so that masks stay in place.

Academic Honesty

The University of Redlands enforces strict standards as regards academic honesty, and students may be dismissed for breaches of these standards. To learn these standards, please look at the relevant section of the University Course Catalog, pp. 17–24. See in particular Section III, Paragraph B (p. 19), which states that it is an offense to offer “as one’s own work the words, ideas, or arguments of another person without appropriate attribution by quotation, reference, or footnote.” In light of this, please note that:

- intentional plagiarism—i.e. piecemeal or wholesale appropriation of text from one or more printed or internet source—will result in a **fail** grade for the course.
- plagiarism by default—i.e. uncredited adoption of ideas from source texts due to carelessness in citation—will result in a **fail** grade for the project.

If you are still in any doubt about what constitutes plagiarism, please ask me before you undertake any written work. If you do not ask, I shall not accept a plea of ignorance after the fact.

Communication

Communication in this course is paramount. Please feel free to bring to me any concerns and/or questions you have regarding the course. The most reliable way to reach me is by email or Teams. Please note that my normal working hours are 9 a.m. to 4 p.m., Monday to Friday. I do not respond to emails after 4 p.m. or on weekends, except in an emergency. I am happy to meet with you via Teams in lieu of traditional office hours. You may also utilize Teams to discuss class work with your peers.

Intellectual Property and Privacy

- a. The content of the course is the intellectual property of the instructor and should not be disseminated or reproduced without explicit consent.
- b. All work and content created by students is the intellectual property of the student and will not be disseminated or reproduced beyond the purview of the course and semester without explicit consent.
- c. To protect the privacy of all class members, no screenshots, still images, video, or audio recordings of any part of video and/or audio conferences should be made without the explicit prior consent of all students and the instructor.

Accommodations

- a. If a student has a disability that qualified for accommodations under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act, he/she/they should contact Academic Success & Disability Services (ASDS). ASDS is located on the ground floor of the Armacost Library across from Human Resources and down the hall from the Jones Computer Center. The primary contact person is:

Amy Wilms

Assistant Dean of Academics and Student Life:

Phone: (909) 748-8069

amy_wilms@redlands.edu.

- b. Please let me know *by the end of the second session at the latest* if you have a learning or physical disability which will require accommodation. Disability Services (Tel: 909-748-8069)

Course Schedule

Schedule is subject to change as we progress through the semester. You will be notified of any changes in class.

will assist you in documentation and help to ensure that all needs are met

Discrimination, Harassment, Sexual Misconduct and Retaliation

The University of Redlands is committed to providing a safe learning environment for all students that is free of all forms of discrimination, sexual misconduct, and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. The University of Redlands has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, no contact orders, and more. Please be aware all University of Redlands faculty members are “responsible employees,” which means that if you tell me about a situation involving any of the above, I must share that information with the Title IX Coordinator. Although I have to make that notification, you will control how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

The person to contact with Title IX Concerns:

Erica Moorner

Deputy Title IX Coordinator

Title IX Office, Hunsaker Center 220

Phone: (909) 748-8916

erica_moorer@redlands.edu

Mental Health

- a. The Counseling Center provides free and confidential mental health services to students including short-term individual therapy, group therapy, single session therapy, consultations, and urgent appointments. Please call 909-748-8108 to schedule an appointment. If you are in crisis please call 909-748-8960 for the 24/7 mental health crisis line.
- b. The University CARE Team exists to help provide support and resources to students that are overwhelmed, experiencing significant distress, or possibly present some risk to themselves or others. As a faculty member, I may reach out to students about whom I am concerned to talk individually, and/or refer them to the CARE Team. If you have concerns about a fellow student, consider sharing your concern with the CARE Team via their online form. This is part of who we are as a caring, proactive community where we all look out for one another.

Calculus 2 - CLASS SCHEDULE						
		Before Class			During Class	
DATE	DAY	Watch and Learn	Read	Practice	Class Time Notes	Planned Assignments (Check Website)
01/10/22	Monday				Welcome To Calculus II (Virtual Class)	
01/12/22	Wednesday	Review of Calculus I (as needed)	CH 1-5.2 (as needed)	WeBWorK Review Calc 1	In Class Examples (Virtual Class)	WeBWorK Review Antiderivatives
01/14/22	Friday	Integration by Substitution Indefinite Integrals	CH 5.3	Preview Activity 5.3.1 Activity 5.3.2	Activity 5.3.3 (Virtual Class)	5.3 Exercises 1-5,7 WeBWorK Problems
01/17/22	Monday	No Class MLK Day			No Class	
01/19/22	Wednesday	Integration by Substitution Definite Integrals	CH 5.3	Activity 5.3.4	In Class Examples	5.3 Exercises 6,8,10 WeBWorK Problems
01/21/22	Friday	Integration by Parts Indefinite Integrals	CH 5.4	Preview Activity 5.4.1 Activity 5.4.2	Activity 5.4.3 Activity 5.4.4	5.4 Exercises 1-4 WeBWorK Problems
01/24/22	Monday	Integration by Parts Definite Integrals + Tricks	CH 5.4	Exercises 5 & 6	In Class Examples	5.4 Exercise 7 WeBWorK Problems
01/26/22	Wednesday	Algebraic Simplification	CH 5.5	Examples from Lecture Video	In Class Examples	5.5 Exercises 2-5 WeBWorK Problems
01/28/22	Friday	Trigonometric Substitution + More Tricks	See Moodle for Reading	Examples from Lecture Video	In Class Examples	Worksheet WeBWorK Problems
01/31/22	Monday	Improper Integrals	See Moodle for Reading	Examples from Lecture Video	In Class Examples	Worksheet WeBWorK Problems
02/02/22	Wednesday	Improper Integrals + Review	See Moodle for Reading	Examples from Lecture Video	In Class Examples	Worksheet WeBWorK Problems
02/04/22	Friday			Review	Review	Study for Exam
02/07/22	Monday			Review	Exam 1	

02/09/22	Wednesday	Numerical Integration	CH 5.6	Preview Activity 5.6.1	Activity 5.6.2 Activity 5.6.3	5.6 Exercises 1-4
02/11/22	Friday	Numerical Integration	CH 5.6	Activity 5.6.4	In Class Examples	5.6 Exercise 5,6 Worksheet
02/14/22	Monday	Area and Length	CH 6.1	Preview Activity 6.1.1	Activity 6.1.2 Activity 6.1.3	6.1 Exercises 1-6 WeBWorK Problems
02/16/22	Wednesday	Volume using Integration	CH 6.2	Preview Activity 6.2.1	Activity 6.2.2 In Class Examples	6.2 Exercises 1-6 WeBWorK Problems
02/18/22	Friday	Density and Mass using Integration	CH 6.3	Preview Activity 6.3.1	Activity 6.3.2 In Class Examples	Worksheet WeBWorK Problems
02/21/22	Monday	Physics Applications of Integration	CH 6.4	Preview Activity 6.4.1	Activity 6.4.2 In Class Examples	6.4 Exercises 1-4 WeBWorK Problems
02/23/22	Wednesday	Polar Coordinates	See Moodle for Reading	Examples from Lecture Video	In Class Examples	Worksheet WeBWorK Problems
02/25/22	Friday	More Examples		Examples from Lecture Video	In Class Examples	Review Worksheet
02/28/22	Monday	SPRING BREAK				
03/02/22	Wednesday	SPRING BREAK				
03/04/22	Friday	SPRING BREAK				
03/07/22	Monday			Review	Review	Study for Exam
03/09/22	Wednesday			Review	Exam 2	
03/11/22	Friday	Introduction to Sequences and Series	CH 8.1	Preview Activity 8.1.1	In Class Examples	8.1 Exercises 1-4 Webwork Problems
03/14/22	Monday	Geometric Series	CH 8.2	Preview Activity 8.2.1	In Class Examples	8.2 Exercises 2-5 WeBWorK Problems
03/16/22	Wednesday	General Series	CH 8.3	Preview Activity 8.3.1	Activity 8.3.2 Activity 8.3.4 Activity 8.3.6	8.3 Exercises 1-4 WeBWorK Problems
03/18/22	Friday	Comparison and Tests and Ratio Test	CH 8.3	Activity 8.3.7	Activity 8.3.8 Activity 8.3.9 In Class Examples	8.3 Exercises 5,6,8 WeBWorK Problems
03/21/22	Monday	Alternating Series	CH 8.4	Preview Activity 8.4.1	Activity 8.4.2 Activity 8.4.5 Activity 8.4.6	8.4 Exercise 1-4 WeBWorK Problems
03/23/22	Wednesday	Practice Convergence of Series	CH 8.4	Write in your own words 8.4.4	Activity 8.4.7 In Class Examples	WeBWork Problems

03/25/22	Friday	Taylor Polynomials	CH 8.5	Preview Activity 8.5.1	Activity 8.5.2	8.5 Exercises 1,2 WeBWorK Problems
03/28/22	Monday	Taylor Series	CH 8.5	Examples from Lecture Video	Activity 8.5.3 Activity 8.5.4 Activity 8.5.5	8.5 Exercises 3-5 WeBWorK Problems
03/30/22	Wednesday	Error in Taylor Series and Applications	CH 8.5	Examples from Lecture Video	Activity 8.5.6 Activity 8.5.7	Worksheet WeBWorK Problems
04/01/22	Friday	Applications of Taylor Series	See Moodle for Reading	Examples from Lecture Video	In Class Examples	WeBWorK Problems
04/04/22	Monday	Power Series and Interval of Convergence	CH 8.6	Preview Activity 8.6.1	Activity 8.6.2	WeBWorK Problems
04/06/22	Wednesday	Functions and Power Series	CH 8.6	Examples from Lecture Video	Activity 8.6.3	WeBWorK Problems
04/08/22	Friday	Review of Sequences and Series	See Moodle for Reading	Examples from Lecture Video	In Class Examples	WeBWorK Problems
04/11/22	Monday	Differential Equations and Math Modeling	CH 7.1	Preview Activity 7.1.1	Activity 7.1.2 Activity 7.1.4	7.1 Exercises 1-4
04/13/22	Wednesday	Differential Equations and Math Modeling	CH 7.5	Preview Activity 7.5.1	In Class Examples	Worksheet
04/15/22	Friday			Review	Review	Study for Exam
04/18/22	Monday			Review	Exam 2	
04/21/22	Thursday	FINAL EXAM at 6pm (Optional)	If you are happy with your grade then you do not need to take the final exam. The final exam will be available for students who struggled on a previous exam or exams and want another chance to demonstrate their mastery of the course material.			