

MATH 3220-001 Foundations of Analysis II, Fall 2023

Class Meetings: Lecture: M T W F / 08:35 am-09:25 am in person to follow the lecture starting on Monday, Aug 21st ending on Wednesday, Dec 6th

Classroom: AEB 340. See <https://map.utah.edu/>

Holidays: There will be no class on Monday, September 4 (Labor Day), October 9-13 (Fall Break), and November 23-24 (Thanksgiving Break).

Other Important Dates: See <https://registrar.utah.edu/academic-calendars/fall2023.php>

Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student's responsibility.

- Aug. 25th (F): Last day to add without a permission code, Last day to wait list
- Sep 1st (F): Last Day to Add,Drop(Delete),Elect CR/NC,or Audit Classes
- Oct 20th (F): Last Day to Withdraw from classes

Instructor: Dr. Sung Chan Choi

Email: Inbox in CANVAS

Office Hours: TBA

Text: *Foundations of Analysis*, by Joe Taylor (2012 edition), ISBN: 13-9780821889848

For information on purchasing the textbook, go to <http://www.math.utah.edu/schedule/bookInfo/>

Course Information: Math 3220 Foundations of Analysis II is a 4 credit course.

Prerequisite Information: Prerequisites: "C" or better in MATH 3210 AND (MATH 2270 OR MATH 2250).

Course Description: Advanced multivariable calculus. Topics include continuity, compactness, differentiation and affine approximation, chain rule, Taylor series, extremization, error estimation, inverse and implicit function theorems, Riemann integration, Fubini's Theorem, change of variables formula. The emphasis is on further developing the student's ability to understand more abstract concepts and to write an effective and rigorous mathematical argument.

General Goal: The main goal of this course is to provide students with a rigorous approach to the theory of several variables' calculus. This is the second course of the MATH 3210 and 3220 sequence of Foundations of Analysis, a sequence designed to develop the mathematical sophistication of students, while giving them a much deeper understanding of calculus and its foundations than can be provided in the standard courses (MATH 1210, 1220, and 2210). The emphasis is on improving the students' ability to understand and explain concepts in a logical and complete manner and refine their skill at proofs and mathematical arguments. Students who finish both semesters of the sequence should have the mathematical knowledge and sophistication necessary to do well in 4000 and 5000 level mathematics courses.

Course Content: The course covers the following chapter-topics in the textbook.

1. Chapter 7. Convergence in Euclidean Space
2. Chapter 8. Functions on Euclidean Space
3. Chapter 9. Differentiation in Several Variables
4. Chapter 10. Integration in Several Variables

Canvas: Canvas will be used for posting course announcements, homework assignments, grades, files and any relevant supplementary material. You are also welcome to make use of the Canvas discussion board to discuss course problems or topics. You can access the Canvas page through CIS or by logging in at utah.instructure.com. Students should check the Canvas page regularly for course information and resources. Email notifications and correspondence will be sent to the student's UMail address ([u-number]@utah.edu); this email account must be checked regularly.

Grading: The following are the grade components and the percentage each contributes to a student's final grade:

- **Homework Assignments (15%)**- Homework will be announced through Canvas. You will submit it to Gradescope. Late homework is, in general, not accepted.
- **Daily Quizzes (20%)**
 - The quizzes are given in every class.
 - You submit it by uploading on Gradescope.
 - I will post the study guide on "Files" in CANVAS. You must check your CANVAS frequently. If you are absent from a class, you cannot take it. Make-up quizzes are not allowed. Since it is worth 20% of your grade, it may damage your grade if you ignore quizzes.
 - If you are **absent** from a class, you **cannot take** the quiz. Make-up quizzes are **not allowed**.
 - **6 lowest scores** will be dropped.
 - If you have a reason to be absent with a **DOCUMENT**, you need to contact me directly to have a quiz paper. **Don't** ask a quiz paper from your classmates.
- **Midterm Exams (40%, 20% each)**- Two midterm exams will be given on select Fridays. You will have the whole class period to complete the exam. Dates of the midterm exams will be **Friday, Oct. 6th and Friday, Nov. 17th** during the regular class time.
- **Final Exam (25%)**- A two-hour comprehensive exam will be given. Our final exam is scheduled for **Tuesday, Dec 12th, 2023, 8:30 - 10:30 am** in the regular classroom.
- **Important note:**
 - **Students with university excused absences (band, debate, student government, intercollegiate athletics) should make alternate arrangements with me as soon as possible if the absence interferes with any course components.**
 - **You are NOT allowed to seek help from others, including online resources such as Chegg or Stack Exchange during quizzes and exams. Soliciting help from such sites will be considered as academic misconduct and will be dealt with accordingly.**
 - **It is the student's responsibility to ensure the accuracy of all recorded homework, quizzes, online assignments, and exam grades. Also you should keep as record all your graded assignments. If you see any error in your grades on Canvas, reach out to the instructor as soon as possible, or at the latest within two weeks from when the assignment was returned.**

Grading Scale: Final course letter grades will be determined as follows:

[93, 100]	A	[73, 77]	C
[90, 93)	A-	[70, 73)	C-
[87, 90)	B+	[67, 70)	D+
[83, 87)	B	[63, 67)	D
[80, 83)	B-	[60, 63)	D-
[77, 80)	C+	[0, 60)	E

Additional Resources

- **Free Tutoring** - See <http://www.math.utah.edu/undergraduate/mathcenter.php>

Attendance: Like any college course, attendance is not “mandatory.” Please note however, that concepts will be thoroughly explained and reviewed in class. Students who regularly attend score on average 30% higher on exams than those who do not.

Other Policies

- I do NOT allow the use of laptop computers in my classroom. But tablets are okay if you are taking notes on it.
- There will be no retakes of exams . . . ever. Your score is what you get.
- You may take an alternate exam if you submit a documented verification about it to me first and explain the extenuating circumstances that make it necessary. Needing to work, babysitting your siblings, oversleeping, or needing more time to study do not pass as acceptable reasons.
- I will demand respectful behavior in my classroom. Examples of disrespect include reading a newspaper or magazine in class, social chatting with your friend in class, text-messaging your buddies during class or cuddling with your girl/boyfriend in class.
- There will be no cursing nor negative ranting (for example, ”math sucks”) on any written work turned in. The penalty for such things on your written work will be a zero score on that assignment or test!
- You need to have a valid email address registered with Campus Information System.
- You need to check CANVAS everyday.
- **Student Responsibilities:** All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.
See <http://regulations.utah.edu/academics/6-400.php>

Disclaimer: This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on CANVAS.

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ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veterans status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the students legal name as well as Preferred first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

Wellness Statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a students ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Safety Statement:The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit <https://safeu.utah.edu/>.