

MATH 3220-002: Foundations of Analysis II (Section 2)

Spring 2022

Credits: 4 Credits

Course Type: In-Person

Course Components: Lecture

Class Hours: MoTuWeFr / 11:50 AM – 12:40 PM

Classroom: Business Classroom Building (BU C) 208

Instructor: Mishel Skenderi

Email Address: mskenderi@math.utah.edu

Office: John Widtsoe Building (JWB) 209

Office Hours: To Be Determined

My office hours will be held in-person in my office, JWB 209. If you would like to meet with me at some other time either in-person or via Zoom, then please contact me so that we may schedule an appointment.

Canvas: The webpage for this course is hosted on Canvas. The syllabus, homework assignments, announcements, and any other information regarding this course can all be found on the Canvas webpage. Canvas will also be used for communications to the class, and it is expected that students will regularly check the Canvas webpage. Although you may contact me at mskenderi@math.utah.edu, it is much more convenient to contact me via Canvas.

Textbook: Joseph L. Taylor, *Foundations of Analysis*, American Mathematical Society, Providence 2012. Print ISBN: 978-0-8218-8984-8. Electronic ISBN: 978-0-8218-9190-2.

Prerequisites: “C” or better in MATH 3210 AND (MATH 2270 OR MATH 2250).

Course Description: This is the second course in the Foundations of Analysis sequence; it is a course on advanced multivariable calculus. Topics include continuity, compactness, differentiation and affine approximation, the chain rule, Taylor series, extremization, error estimation, the inverse and implicit function theorems, Riemann integration, Fubini’s Theorem, and the 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. We shall cover Chapters 7–10 of the textbook, which are as follows.

Chapter 7: Convergence in Euclidean space

Chapter 8: Functions on Euclidean space

Chapter 9: Differentiation in several variables

Chapter 10: Integration in several variables

Homework: Homework is worth 30% of the semester grade. Homework will be assigned on a weekly basis and will be due on a weekly basis. Each homework assignment will be weighted equally. The lowest two homework assignment scores will be dropped. **Late homework will not be accepted. Collaboration on homework is allowed, and any collaboration should be acknowledged: on the submitted homework, write the names of all students (if any) with whom you collaborated.** Homework will be assigned via Canvas and should be submitted via Canvas; it will also be graded and returned to students via Canvas. Each student is responsible for creating a readable PDF file and submitting it electronically on Canvas before the deadline. Upload only one file per assignment. To create a PDF file, you can scan handwritten work (by using a scanning app on a smartphone or tablet or scanners at the library, for example), write the work directly on a tablet and then submit the PDF file, or typeset the homework in \LaTeX . I encourage everyone to typeset the homework in \LaTeX ; once you learn how to use \LaTeX , it is much easier to use than Microsoft Word.

Non-Final Exams: There will be two non-final exams; the one with the higher score will be worth 25% of the semester grade, and the one with the lower score will be worth 15% of the semester grade.

First Non-Final Exam: Friday, February 25, 2022 (no notes; no books; during class; 50 minutes)

Second Non-Final Exam: Friday, April 15, 2022 (no notes; no books; during class; 50 minutes)

Final Exam: The final exam is worth 30% of the semester grade. The final exam will be cumulative. It will be given at the following date and time, as determined by the Registrar.

Final Exam: Wednesday, May 4, 2022; 10:30 AM – 12:30 PM; Location To Be Determined
(no notes; no books)

Grading Policy:

Homework: 30% (each assignment weighted equally; lowest two scores dropped)

Lower Non-Final Exam: 15% (no notes; no books; during class; 50 minutes)

Higher Non-Final Exam: 25% (no notes; no books; during class; 50 minutes)

Final Exam: 30% (cumulative; no notes; no books; 2 hours)

Your semester letter grade will be determined by your semester percentage grade as follows.

A	[93, 100]
A–	[89, 93)
B+	[84, 89)
B	[80, 84)
B–	[74, 80)
C+	[68, 74)
C	[61, 68)
C–	[55, 61)
D	[50, 55)
E	[0, 50)

All grades will be recorded on Canvas. It is the student’s responsibility to ensure the accuracy of all recorded grades. If you see any error in your recorded grades on Canvas, then inform me as soon as possible.

I reserve the right to modify the above grading policy. I guarantee that no student’s semester letter grade will be lowered as a result of any modifications made to the above grading policy.

Academic Misconduct: Students are encouraged to review Policy 6-400: Code of Student Rights and Responsibilities (“Student Code”), which is available at <https://regulations.utah.edu/academics/6-400.php>.

In order to ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct, misrepresenting one’s work, and/or inappropriately collaborating. A student who engages in academic misconduct as defined in Part I. B. may be subject to academic sanctions including but not limited to a grade reduction, failing grade, probation, suspension or dismissal from the program or the University, or revocation of the student’s degree or certificate. Sanctions may also include community service, a written reprimand, and/or a written statement of misconduct that can be put into an appropriate record maintained for purposes of the profession or discipline for which the student is preparing.

Cheating and plagiarism are serious offenses and can result in getting a grade of ZERO on the assignment, failing a class, a note in your record, or being expelled. Please know that looking at someone else’s exam is cheating and will be dealt with seriously as stated above. By accepting admission to the University you have agreed to abide by the University rules provided to you in the student handbook.

Incidents of academic misconduct (e.g., cheating, plagiarizing, misrepresenting one’s work, and/or inappropriately collaborating on exams) will be subject to penalty per Section V of the Student Code. Incidents of academic dishonesty on homework assignments will result in a minimum penalty of a full letter-grade reduction and up to a failing grade (E) for the course. Incidents of academic dishonesty on exams will result in a minimum penalty of a failing grade (E) for the course, and the incident(s) will be referred to the dean of your major-department college for possible further sanction.

Students with Disabilities: In accordance with the Americans with Disabilities Act, the University of Utah seeks to provide equal access to its programs, services, and activities for persons with disabilities. If you will need accommodations in the class, then reasonable prior notice needs to be given to the Center

for Disability & Access (CDA), 162 Olpin Union Building, 801-581-5020, <https://disability.utah.edu/>. The 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 CDA.

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, veteran's status or genetic information. If you or someone you know has been harassed or assaulted on the basis of your sex, including sexual orientation or gender identity/expression, then you are encouraged to report it to the University's Title IX Coordinator: Director, Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, <https://oeo.utah.edu/contact-us/index.php/> or to the Office of the Dean of Students, 270 Union Building, 801-581-7066, <https://deanofstudents.utah.edu/>. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to police, contact the Department of Public Safety, 801-585-COPS (801-585-2677), <https://police.utah.edu/>.

Campus Safety: 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/>.

University Counseling Center (UCC): The UCC staff is committed to supporting the mental health needs of our campus community. Their phone number is 801-581-6826. Their hours are Monday-Friday, 8:00 AM-5:00 PM. For after-hours emergencies, contact the 24/7 Crisis Line: 801-587-3000. More information is available at <https://counselingcenter.utah.edu/>.

Office of the Dean of Students: The Office of the Dean of Students is dedicated to being a resource to students through support, advocacy, involvement, and accountability. It serves as a support for students facing challenges to their success as students, and assists with the interpretation of University policy and regulations. To contact the Office of the Dean of Students, please email deanofstudents@utah.edu or call 801-581-7066. More information is available at <https://deanofstudents.utah.edu/>.

Student Success Advocates (SSA): The SSA are located at the Sterling Sill Center. Their website is <https://ssa.utah.edu>. Their phone number is 801-587-8556. The mission of SSA is to support students in making the most of their experience at the University. They can assist with mentoring, resources, and other matters. Any student who faces challenges securing food or housing is urged to contact the SSA for support.

Wellness Statement: Stress, anxiety, depression, relationship difficulties, the coronavirus pandemic etc. can interfere with a student's ability to succeed and thrive at the University. The Center for Student Wellness (CSW) provides resources to address such difficulties. The CSW is located at the Eccles Student Life Center. Its website is <https://wellness.utah.edu>. Its phone number is 801-581-7776.

Student Veterans: The University has a Veterans Support Center, Olpin Union Building, 801-587-7722, <https://veteranscenter.utah.edu/>. The website contains important information, including a list of ongoing events and links to outside resources. Furthermore, let me know if you need any additional support.

Students Learning English as a Second Language (ESL): There are several resources on campus that support English learners with language and writing development. These resources include the University Writing Center (<https://writingcenter.utah.edu>), the Writing Program (<https://writing-program.utah.edu>), and the English Language Institute (<https://eli.utah.edu>).

Undocumented Students: If you are a student whose immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, then confidential arrangements may be requested from the Dream Center, 801-213-3697, <https://dream.utah.edu>. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with or without DACA), as well as students from families with mixed immigration statuses.

COVID-19 Considerations: The University's dedicated COVID-19 website is <https://coronavirus.utah.edu/>. University leadership has urged all faculty, students, and staff to **model the vaccination, testing, and masking behaviors** that we want to see in our campus community. These include:

- Vaccination
- Masking indoors
- If unvaccinated, then getting weekly asymptomatic coronavirus testing
- Quarantining after exposure

- **Vaccination: Get a COVID-19 vaccination and the booster shot recommended for pairing with your vaccine** if you have not already done so. Vaccination is proving highly effective in preventing severe COVID-19 symptoms, hospitalization and death from coronavirus. Vaccination is the single best way to stop this COVID resurgence in its tracks.
 - University of Utah students are required (as of August 27, 2021) to complete a cycle of COVID-19 vaccination and booster shot with an approved vaccine, or complete an exemption form. The university provides three convenient vaccination options:
 - * Attend one of the regularly scheduled **vaccine events** at the Student Union on campus.
 - * Schedule an appointment with Student Health **here**.
 - * Visit <http://mychart.med.utah.edu/>, <https://alert.utah.edu/covid/vaccine/>, or <http://vaccines.gov/> to schedule your vaccination.

- **Masking:** While masks are not required outside of Health Sciences facilities, UTA buses, and campus shuttles, **CDC guidelines now call for everyone to wear face masks indoors**.
 - Check the CDC website periodically for masking updates: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinatedguidance.html>.
 - * With high transmission rates in Salt Lake County, the CDC recommends: “*Everyone should wear a mask in public indoor settings.*”
 - Treat masks like seasonal clothing (i.e., during community surges in COVID transmission, they should be worn indoors and in close groups outside).
 - In cases of classroom exposure, masks should be worn for the quarantine period (see details below).

- **Testing: If you are not yet vaccinated, then get weekly asymptomatic coronavirus tests.** This is a helpful way to protect yourself and those around you because asymptomatic individuals can unknowingly spread the coronavirus to others.
 - Asymptomatic testing centers are open and convenient:
 - * **Online scheduling**
 - * Saliva test (no nasal swabs)
 - * Free to all students returning to campus (required for students in University housing)
 - * Results often within 24 hours
 - * Visit <https://alert.utah.edu/covid/testing/>.

- **Self-Reporting:** Any student, faculty member, or staff member who tests positive for COVID-19 is required to self-report the positive test via the website <https://coronavirus.utah.edu/>.

- **Reporting to Instructor (Me):** In addition to self-reporting, any student in this class who tests positive for COVID-19 must inform me via email (via Canvas or at mskenderi@math.utah.edu) of the positive test.

DISCLAIMER: This syllabus is intended to serve as an outline and guide for our class. Please note that I may modify the syllabus with reasonable notice to you. Any changes will be announced in class and posted on Canvas.