
MATH 6330, SPRING 2022

REAL ANALYSIS I (MEASURE THEORY)

Class Website: Go to www.marktomforde.com, select “Teaching” and “Current Courses”. On the website you will find homework and course resources as they are posted.

Course Description: This course is an introduction to Measure Theory. Topics include sigma algebras, measures, measurable functions, integration, comparison of Lebesgue integration with Riemann integration, the Monotone and Dominated Convergence Theorems, Fatou's Lemma, integration in product spaces, Fubini's Theorem, differentiation, functions of bounded variation, and absolute continuity.

Textbook: Our primary textbook will be notes written by the instructor. These will be emailed to you with updates as new chapters are written (and any discovered errors are corrected). As supplementary texts, to be used alongside the notes, you are encouraged to consult the following:

- *Real Analysis: Modern Techniques and Their Applications*, 2nd Edition, by Gerald B. Folland.
- *Real and Complex Analysis*, 3rd Edition, by Walter Rudin.
- *Real Analysis*, 3rd Edition, by H.L. Royden.

Instructor

Dr. Mark Tomforde
Office ENG 289

Class Meetings

MW 3:05-4:20PM
in OSB B213

Prerequisites

Modern Analysis II or
Permission of the Instructor

Office Hours

MW 12:45PM--1:30PM
Office ENG 289

Course Structure

This course will be taught in a seminar style (as explained on the first day of class). You are, however, required to attend and participate in class.

Reading Assignments and Exercises

Reading assignments along with suggested exercises will be posted each week on the course website.

Classroom Environment

As your professor, I hold the fundamental belief that everyone has a right to learn and deserves unrestricted access to education. I also believe that everyone in this class is fully capable of mastering the material. I value diversity, social justice, inclusion, and equality. I am therefore committed to creating a classroom environment that welcomes all students,

regardless of race, gender, social class, sexual orientation, religious beliefs, etc. If there is anything causing barriers to your inclusion or achievement, please come talk to me. Likewise, any student with a disability or chronic health problem should talk to me about the types of assistance that might be offered.

COVID-19

If you have tested positive for COVID, are exhibiting symptoms of COVID, or have been exposed to someone with COVID, please do not come to class. Instead, contact the instructor to make arrangements for turning in work. Absences that occur to prevent COVID exposure will not count against your class attendance or class participation. Also, in this situation please notify the Wellness Center at < wellness@uccs.edu > for contact tracing purposes.

Mask Mandate

Official UCCS Statement on Face Coverings: All students are expected to wear face coverings while inside all UCCS buildings/facilities. Guidance and exceptions to wearing a face covering can be read in the full executive directive < <https://vcf.uccs.edu/policies/uccs/policies> >. Students may be asked to leave the class if they are not wearing a face covering, and additional disciplinary action may result in accordance with the Student Code of Conduct.

Purchasing Masks

For spring semester, UCCS has recommended that everyone wear N95 or KN95 respirators instead of cloth face masks as required in the fall. In the event you do not have an N95 or KN95, it is recommended that you double mask by wearing a surgical mask with a cloth mask over it.

What is the difference between masks and respirators? Both are similar looking face coverings. However, masks (e.g., commonly used cloth face masks) protect those around you as you talk, cough, or sneeze. Respirators – when worn properly – are designed to not only protect others, but to protect you while you breathe in. Cloth face masks help block large particle droplets exhaled by you. N95 and KN95 respirators (sometimes also called N95 and KN95 masks) are designed to filter out 95% of non-oily airborne particles, including viruses and bacteria, as you inhale.

Since the emergence of COVID it has been estimated that approximately 60% of N95 and KN95 respirators/masks being sold on the U.S. open market are counterfeit and do not have the claimed protection. The counterfeiting is done at the manufacturing level, so often the store selling the masks will not even know they are counterfeit. Thus, if you have bought an N95 or KN95 via Amazon or a local retailer, there is a good chance it is counterfeit. A reliable source of genuine N95 and KN95s is the nonprofit ProjectN95 < <https://www.projectn95.org> >. They have reliable masks that are currently available for purchase.