Math 3162 – Introduction to Real Analysis II

Lecture Time: 12:00pm – 1:50pm (MW) Location: Knudson Hall 100

Textbook: Abbott,Understanding Analysis 2nd Ed.

Prerequisite: Math 3161

Instructor: Mei Yin   mei.yin@du.edu  
   Office and Office Hours: Zoom, 10:30am – 12:00pm (TR), or by appointment

Course Description: A rigorous introduction to the analysis of functions of a real variable, including differentiation, Riemann integration, and the notions of pointwise and uniform convergence for sequences of functions.

Learning Objectives: This course is a sequel to Introduction to Real Analysis I and its focus is Integrals and Functions. By the end of the course, you should be able to understand:  
1. Uniform continuity, including continuous functions over compact sets (Sections 4.4-4.5).  
2. Differentiation, Mean Value Theorem (Sections 5.1-5.5).  
3. Pointwise and uniform convergence of sequences and series of functions, with applications to continuity, differentiation, and integration (Sections 6.1-6.7).  
4. Riemann integration, including how to bound integrals, dependence on parameters (for continuity and differentiability of functions defined via integral), criterion for integrability (Sections 7.1-7.6)

Tentative Calendar:

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| The Week Of | Material Covered |
| January 8 – January 12 | Introduction, 4.4, 4.5 |
| January 17 | Quiz 1 |
| January 22 – January 26 | 5.1, 5.2, 5.3 |
| January 29 – February 2 | 5.4, 5.5, Quiz 2 |
| February 5 – February 9 | 6.1, 6.2, 6.3 |
| February 12 – February 16 | 6.4, 6.5, Quiz 3 |
| February 19 – February 23 | 6.6, 6.7, 7.1 |
| February 26 – March 1 | 7.2, 7.3, Quiz 4 |
| March 4 – March 8 | 7.4, 7.5 |
| March 11 – March 15 | 7.6, Quiz 5 |
| March 18 | Review |

Grading: Your final grade for the course will be determined based on a numerical weighted average calculated as follows:

**Attendance/Participation 20% Quizzes 40% Final Exam 40%**. This average percentage will then be converted into a final letter grade based partially on how other students perform this quarter, and partially on typical percentage grades from previous quarters of the course.  
  
Students are expected to **attend and actively participate** in every scheduled class.

**Homework** will be assigned about once a week and is for students' review and practice only. Homework will not be collected and is not included in the computation of your grade.

There will be a **biweekly quiz** on Wednesdays in class during weeks 2, 4, 6, 8, and 10. Quiz problems will be based on class lectures and assigned homework. Each quiz will account for 10 points; the lowest quiz score will be dropped. Makeup quizzes will only be offered in the event of extreme circumstances. If you think you have a problem which will force you to miss a quiz, please come talk to me as soon as possible.

There will be a cumulative **final exam** on Wednesday, March 20, 12-1:50pm.

Help: **Additional handouts will be distributed throughout the quarter**. Students are also encouraged to ask for individualized help from the instructor at any time.

Students with Disabilities: If you qualify for academic accommodations because of a disability or medical issue, please submit a faculty letter to me from AccessibleDU: Student Disability Services (SDS) in a timely manner so that your needs may be addressed. SDS determines accommodations based on documented disabilities/medical issues. SDS is located in Suite 22 on the lower level of Driscoll South, 303-871-3241. Information is also available online at <https://studentaffairs.du.edu/disability-services-program>.

Honor Code: Follow the [Honor Code](https://studentaffairs.du.edu/student-rights-responsibilities/honor-code) in all activities related to this course. Incidents of academic misconduct will be reported to and investigated by the Office of Student Conduct.

Inclusive Learning Environment: In this class, we will work together to develop a learning community that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual orientation, socioeconomic background, and myriad other social identities and life experiences. The goal of inclusiveness, in a diverse community, encourages and appreciates expressions of different ideas, opinions, and beliefs, so that conversations and interactions that could potentially be divisive turn instead into opportunities for intellectual and personal enrichment.  
  
A dedication to inclusiveness requires respecting what others say, their right to say it, and the thoughtful consideration of others' communication. Both speaking up and listening are valuable tools for furthering thoughtful, enlightening dialogue. Respecting one another's individual differences is critical in transforming a collection of diverse individuals into an inclusive, collaborative and excellent learning community. Our core commitment shapes our core expectation for behavior inside and outside of the classroom.

Religious Accommodations: University policy grants students excused absences from class or other organized activities for observance of religious holy days, unless the accommodation would create an undue hardship. Faculty are asked to be responsive to requests when students contact them **in advance** to request such an excused absence. Students are responsible for completing assignments given during their absence, but should be given an opportunity to make up work missed because of religious observance. Once a student has registered for a class, the student is expected to examine the course syllabus for potential conflicts with holy days and to notify the instructor by the end of the first week of classes of any conflicts that may require an absence (including any required additional preparation/travel time). The student is also expected to remind the faculty member in advance of the missed class, and to make arrangements in advance (with the faculty member) to make up any missed work or in-class material within a reasonable amount of time.

Other: Check the **DU academic calendar** for important dates throughout the quarter: <http://www.du.edu/registrar/calendar/index.html>.