## Syllabus for MATH 243 - 01, Mathematical Structures

College of the Holy Cross, Spring 2023

**Instructor**: Dr. Neranga Fernando

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*Office phone:* 508-793-2459

*Office hours:* 1pm – 3:00pm on Wednesdays and Thursdays

*Meeting times and location:* MWF 8:00am – 8:50am, Swords 328

**Course Description**: This course serves two primary purposes. It provides an introduction to mathematical reasoning and proof, using the language of logic and set theory. It also provides an introduction to the basic algebraic and analytic structures that appear throughout most branches of mathematics. We will begin by focusing on logic, set theory, and how to write mathematical proofs. We will then study properties of the integers, the real numbers, mappings, groups, and convergence of sequences.

**Textbook**: *Mathematical Structures*, by Andrew Hwang. This is available on the Canvas course page. We will cover material from chapters 1 through 6.

**Web materials**:  All class announcements, materials and grades will be posted on Canvas.

**Quizzes**:

There will be ten in-class quizzes during the semester. The two lowest quiz grades will be dropped.

Here are the dates you will be taking a quiz:
Quiz 1 (February 3), Quiz 2 (February 10), Quiz 3(February 17), Quiz 4 (February 24), Quiz 5 (March 17),
Quiz 6 (March 24), Quiz 7(March 31), Quiz 8 (April 21), Quiz 9 (April 28), Quiz 10 (May 5)

**Homework:**

   **Homework Assignments** will be posted on Canvas. Homework is due at the beginning of class. If you do not hand them in at the beginning of class, 10 points will be deducted. No homework assignment will be accepted after 5 days from the due date. No homework grade will be dropped.

*By doing mathematics you learn mathematics.* You learn math best when you approach the subject as something you enjoy. Learn to explain mathematics to your classmates. Mathematics can be fun and rewarding when there are people around you who enjoy figuring out problems as much as you do. Take advantage of this opportunity and organize study groups. I will not consider working on homework problems with your classmates as a violation of the academic honesty policy in the department. However, you must prepare and submit your own solutions.

Please follow these guidelines when you submit homework assignments:

- Put your name, the date, and the homework assignment number at the top of the first page.
- Staple multi-page assignments. No paperclips or folded corners.
- Write neatly and show all your work.
- On the last page of your assignment, please write the name(s) of your classmate(s) with whom you work on homework problems (with an asterisk).
- Make sure you attach the Honor Code.

**Mid-term exams:**

There will be two mid-term exams during the semester. The mid-term exams are 90-minute exams; they will be held from 6pm to 7.30pm on Wednesday, March 1, and Wednesday, April 12, in Swords 328. We will typically review for each midterm during class on the same day. No mid-term exam grade will be dropped.

**Final exam:** There will be a mandatory cumulative final exam in this course. Location and time of the final exam are to be determined. **Check for final exam schedule conflicts as soon as possible**.

**Snow days**: If classes are cancelled due to snow, or for other official reasons, any scheduled quiz or test will occur during next class meeting.

**Grading**: The course grade will be determined as follows:
Final exam: 25%
Midterm exams: 30% (15% each)
Quizzes: 12 %
Homework: 25%
Class Participation: 8%

 An incomplete grade is given at the discretion of the instructor.

**Calculators**: Calculators are NOT permitted on quizzes, mid-term exams and the final exam.

**Additional resources**:

Ming Wu is the grader for this course. Ming's office hours are to be determined. You may contact Ming at [hwu23@g.holycross.edu](mailto:hwu23@g.holycross.edu)

**Issues with the course/instructor**:  If you have issues with this course and/or instructor which you are not comfortable discussing with your instructor, you should contact the Chair of the Department of Mathematics and Computer Science, Professor Ed Soares, at [esoares@holycross.edu](mailto:esoares@holycross.edu).

**Academic Honesty**: Collaboration on quizzes, mid-term exams and final exam is NOT allowed.

A necessary prerequisite to the attainment of the goals of the College is maintaining complete honesty in all academic work. Students are expected to present their own work in exams and in any material submitted for credit. Students may not assist others in presenting work that is not their own. Offenders are subject to disciplinary action. A violation of the Department Policy on Academic Integrity will result in a 0 for that quiz or exam, and a letter describing the occurrence of academic dishonesty will be sent to the Chair of the Department of Mathematics and Computer Science and your Class Dean.

For more on Academic Integrity see: [https://www.holycross.edu/academics/programs/mathematics-and-computer-science/node/211581/academic-integrity](https://www.holycross.edu/academics/programs/mathematics-and-computer-science/node/211581/academic-integrity)

**COVID-19:**

- Masks are optional during class time, quizzes, mid-term exams, final exam and office hours.

- If you have any symptoms of illness, please do not attend the class. If you test positive for COVID-19, please do not attend the class even if you do not have symptoms, and please let me know immediately. You may attend class and office hours via Zoom.

- If I test positive for COVID-19, I will teach and hold office hours via Zoom until I am allowed to be back on campus.

- If classes are switched to remote learning due to COVID-19, I will teach and hold office hours via Zoom until restrictions are lifted.

**Diversity and Inclusion:** It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. Any suggestions you have pertaining to diversity and inclusion are encouraged and appreciated.

**Important:**

1. Any student with special needs is encouraged to meet with me during the first week of classes to discuss accommodations. The student must bring a current Memorandum of Accommodations from the Office of Accessibility Services.

The following is the **link to the Office of Accessibility Services**:

https://www.holycross.edu/health-wellness-and-access/office-accessibility-services

2. Please note that, consistent with applicable federal and state law, this course may be video/audio recorded as an accommodation only with permission from the Office of Accessibility Services. Students are not permitted to record the contents of this class under any other circumstances.

3. If you are an athlete and have conflicts with an important class activity (homework, quiz, mid-term, or final), please let me know in advance.

4. For College's Excused Absence Policy see:

 https://catalog.holycross.edu/requirements-policies/academic-policies/#coursepoliciestext


5.  All electronic devices (mobile phones, laptops etc.) must be turned off during class time, quizzes, mid-term exams and final exam.


**Syllabus:** Syllabus is subject to change**.**  It is your responsibility to be aware of any changes I may make to the syllabus as they are announced in class. Students are responsible for all information given when they are absent.


**Some Additional Notes:**

1. I will hold an additional 3-hour final exam review session the day before (or two days before) the final exam. We will discuss and find a time that works for all of us. I will let you know the location before you go home for Easter Break.

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Wishing you all a safe, healthy, happy and successful semester

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**May 8, Monday, Last day of classes**
**May 11, Thursday – May 17, Wednesday, Final Exams**
**Final Exam is based on all topics covered in class.**

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The mind is not a vessel to be filled but a fire to be kindled.

— Plutarch