Math 31: Topics in Algebra

Course Overview

Instructor and Course Meeting Information:

Instructor: Paige Rinker
Office: 221 Kemeny Hall
Blitz: paige.rinker@dartmouth.edu
Phone: 603-646-9814

Classroom: Kemeny 105
Times: MWF 12:30-1:35
                Tues: 1:00-1:50

Attendance during all class periods, including x-hours, is expected. Notify the instructor in advance of an anticipated absence.

Textbook: We will be using Joseph Gallian's <u>Contemporary Abstract Algebra, 7th Edition</u>. The book is available at Wheelock Books.

Course Goals:

- Develop familiarity with fundamental algebraic structures and some of their applications.

- Develop mathematical communication skills. In particular, students will deepen their understanding of mathematical proof: they will learn what it means to prove a mathematical statement; how to write a proof using various classical methods; how to write good, elegant proofs; etc.

- Work with peers to understand difficult concepts and develop problem solving skills.

- Explore and understand the connections between pure mathematical structures and the real world.

Course Structure:
This class will meet every Monday, Tuesday (during the x-hour), Wednesday and Friday of the term. Regular class days will be generally be used to cover new material, while x-hours will generally be reserved for problem sessions and group work. Weekly quizzes will be given at the start of class every Monday. Neither X-hour activities nor quizzes may be made up after an unexcused absence.

Final grades for this course will be based on performance on weekly written homework assignments, weekly quizzes, weekly x-hour sessions and two exams.

Homework: Written homework will be assigned weekly and posted on the Blackboard site for this course. Assignments will be posted no later than Monday afternoon and will be collected at the beginning of class on Friday. **No** late homework assignment will be accepted without prior permission from the instructor. Written homework will account for 20% of the final grade.

Quizzes: There will be a quiz the first ten minutes of class each Monday. These quizzes are not designed to "stump" you, they are meant to keep everyone up to speed with the course. The questions will ask you to state a definition we learned in the previous week, make a simple calculation, or give an example. Quizzes will account for 15% of the final grade.

X-hour Activities: We will plan to use the X-hours **every** week. Generally, we will use these sessions to go over homework, quiz or exam solutions, to answer general questions from class, and to do activities designed to help solidify the ideas covered during lectures. You will not receive **any** credit for an X-hour activity you are not present for, but you will be able to drop your lowest X-hour score from your final grade. X-hour activities will account for 5% of the final grade.

Exams: There will be one midterm exam and a final exam. Each exam will have an in-class portion as well as a take home portion. The final will be cumulative, although it will focus more on the material covered after the midterm. The midterm will account for 25% of the final grade, and the final for 35%.

The Honor Principle:
Dartmouth students are expected to adhere to the honor principle. In this course, the honor code implies the following:

On Homework: Students are welcome to work in groups to discuss general ideas and specific problems, but **each student is expected to produce the final written homework set individually and independently**. So, take a few notes on the problem while you're working with the group, then use those notes while you're alone to write-up your final solution. Include the names of the students with whom you worked.

On Quizzes and In-Class Exams: All quizzes and in-class exams will be closed book. This means that no help from any external source is allowed.

On Take-Home Exams: Students may consult class notes, previous homework assignments and posted homework solutions as well as the assigned course text.

Students may not discuss any material relating to the exams with anyone other than the instructor.

Disabilities: Students with disabilities enrolled in this course and who may need disability-related classroom accommodations are encouraged to make an appointment to see me before the end of the second week of the term. All discussions will remain confidential, although the Student Accessibility Services office may be consulted to discuss appropriate implementation of any accommodation requested.