Applied Abstract Algebra– MA 294
Spring – 2024

Instructor: **Timothy Kohl**

Office: **CDS-511**

E-mail: tkohl@bu.edu **(**the best way to reach me!**)**

Office Hours: **M, W: 4-5 and by appointment.**

Lecture: **MCS B29 – T-Th   2:00 PM - 3:15 PM**
Discussion: **CAS 324 – W   10:10AM-11:00AM**

Text: *Discreet Mathematics (2^{ndh} Ed.)* – Norman L. Biggs (Oxford University Press).

Remarks: The main prerequisites for this course are the topics covered in MA 293, namely combinatorics, set theory, and logic, as well as basic probability and number theory. In this course we shall discuss the fundamentals of group theory and ring/field theory with a view towards applications.

Outline of topics to be covered:
(Note: Not all sections in a given chapter are covered.)

Chapter 13   Modular Arithmetic
Chapter 20   Groups
Chapter 21   Groups of Permutations
Chapter 22   Rings, Fields and Polynomials
Chapter 23   Finite Fields
Chapter 24   Error Correcting Codes
Chapter 25   Generating Functions (time permitting)

Exams: During the semester there will be three exams worth 100 points each. The last exam will given during the final exam period, but will **not** be comprehensive.

Homework: During the term, I will generally assign homework on a daily basis. This homework is your primary means of learning the material, even more so than the lectures. Indeed, it is only by actually working out the solutions to problems that one really learns this material. Not doing homework is a *bad* idea and will result in a poor performance in the course.

Additionally, there will be, throughout the course of the semester, 5 turn-in homework assignments, each worth 20 points, for a total possible maximum of 100 points *if you complete each perfectly.* Each turn-in assignment will generally be assigned at the end of each week and be due on the following Monday.

Grading: Your grade in the course will be based on the combined sum of 5 turn-in homework assignments, as well as the two exams and final exam, out of a maximum possible total of 400 points.

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Cheating: I consider cheating and plagiarism to be very serious offenses, and any cases of it will merit action by the University Academic Standards Committee.

Important Dates:

Wednesday February 21 – Substitute Monday schedule (so no discussion)
March 12,14 – Spring Break

Thursday February 15 - Exam 1
Thursday March 28 - Exam 2
Monday May 6 @ 3PM – Exam 3

The last class will be Tuesday April 30.

Web Page: There is a web page for the course where you can find the homework assignments listed, as well as the syllabus and other materials that will be made available during the course.

The URL is: **http://math.bu.edu/people/tkohl/teaching/current/294.html**