

Course Outline

Mathematics 2234, Topics in Abstract Algebra

Winter Term 2014

Lakehead University, Thunder Bay, Ontario

Instructor: Dr. Andrew P. Dean

Office: CB 4012a, Administrative Assistant CB 4008

e-mail: apdean@lakeheadu.ca

Phone: 343-8289

Meeting Times: MW 4-5:20

Office Hours: TBD (likely Friday pm)

Text: Contemporary Abstract Algebra, 7th Edition by Joseph Gallian

I will follow the text quite closely and most assignment problems will be taken from the book. It is suggested that you have a copy. There is a very good related web-site <http://www.d.umn.edu/~jgallian/> that is meant to accompany this book I will direct you to it at certain times.

Course Prerequisites: Math 2232

Course Outline: An extension of Mathematics 2232. Review of essential properties of groups and rings. Classifications of subgroups of cyclic groups. Permutation groups. External and Internal direct products and sums of groups. Fundamental Theorem of Finite Abelian Groups. Polynomial Rings. Factorization of Polynomials. Divisibility in Integral Domains. If time permits application of group theory to number theory. In chapters from Gallian we will cover the second half of chapter 4, chapter 5, chapter 8, last part of chapter 9, chapters 11, 16, 17 and 18

Evaluation:

Assignments 20% (5-6)

Notes:

- Due date assigned. Late 10% per day. Not accepted once solutions handed out
- Pen (not green, red, mauve etc.) or DARK pencil
- Stapled
- Neat and proofs must be well organized

Midterm 25% (Monday Feb. 17th)

Final: 55%

Learner Outcomes

In this course students will develop these LO

- The ability to critically read and understand algebraic proofs
- The ability to write a proof in a succinct and well-organized manner
- An understanding of how mathematics is not entirely computational
- The ability to draw connections between different areas of algebra
- An understanding of the need to have concrete examples and counter-examples
to be able to work in algebra
- An understanding of historical developments in algebra
- An understanding of how abstract algebra is a contemporary subject

Please turn your cell phone off !