NORTHEASTERN
STATE UNIVERSITY

College of Science and Health Professions
Department of Mathematics and Computer Science
Fall 2015

MATH 3713-20224, Abstract Algebra

- **Instructor:** Nathan Bloomfield, Ph.D.

  Email: `bloomfie@nsuok.edu`

  Office Location: SC 252

  Office Hours: MWF 11–12, MW 8:30–9, 2–4

  Website: `nbloomf.github.io`

- **Course Delivery Mode:** Face-to-face
- **Class Days and Times:** MWF 12–1 in SC 246
- **Course Prerequisites and/or Corequisites:** Math 3703; Introduction to Proof.
- **Catalog Description:** Equivalences, congruences, logic, sets, groups, rings, and fields.
- **Course Purpose and Goals:** In Abstract Algebra I students invesigate examples, properties, interactions, and structure of rings and fields.
- **Course Topics:** We will cover (roughly) the following sections in the textbook.
  - Chapter 2: The Integers
  - Chapter 16: Rings
  - Chapter 17: Polynomials
  - Chapter 18: Integral Domains

  With supplementary material as time permits.
- **Student Learning Outcomes:** The student will be expected to achieve the following objectives.
  - Understand the motivation for the definitions of ring, integral domain, and field;
  - Prove various properties of rings and ideals;
  - Perform computations in specific rings including the integers and rings of polynomials;
  - Obtain a greater appreciation for the interplay between the abstract and the concrete in mathematics;
  - Obtain a more confident understanding of proof and counterexample.
- **Instructional Methods:** This is a primarily lecture-based course.
- **Learning Outcome Assessment Methods:** Grades will be based on the following assignments.

(60%) **Exams:** We will have some tests; the exact number is to be determined.
(40%) **Homework:** We will have some homework problems; the exact number is to be determined.

The final grade will be the weighted average of the grades in each assignment category above. A final grade of 90 or better is an A; a grade in the interval $[80, 90)$ is a B, et cetera. I reserve the right to adjust the cutoffs between letter grades downward at my discretion.

- **Instructional Materials:** *Abstract Algebra: Theory and Applications*, by Judson. This is a free textbook; both PDF and (cheap!) printed copies are available at the text's website:

  `abstract.pugetsound.edu`

  The text will be heavily supplemented by my lecture notes.

- **Class and Instructor Policies:**
  - **Attendance:** I do not give points for attendance. However, we will move quickly. If you are unable to come to class, plan to get notes and handouts from another student. You are responsible for *all* assigned material, even if it is not discussed in class.
  - **Make-ups:** There will be no make-up tests without a good, documented reason. What counts as a "good" reason is up to me. If you know in advance that you will miss an exam (e.g. due to travel) let me know as soon as possible so we can schedule an alternative testing time.

- **Academic Policies and Required Information:** Please go to

  `http://offices.nsuok.edu/academicaffairs/SyllabiInformation.aspx`

  for important information pertaining to:
  - Academic Misconduct
  - Americans with Disabilities Act (ADA) Compliance
  - Inclement Weather/Disaster Policy
  - Teach Act
  - Release of Confidential Information (FERPA)
  - Student Handbook
  - Textbook Information
  - Title IX

- **Class Calendar:** Test dates are to be determined. I will announce each test in class at least a week in advance.