

SYLLABUS FOR MA 312, ALGEBRA

Prof. Hal Martin

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Office Hours: 8:30 – 8:50 A.M.; 11:00 – 11:50 A.M., except Tuesday, Friday

Text: There is no assigned text. There will be several handouts during the course.

Course Description:

Part 1. Orientation, (1 week). The axiomatic method, number systems, numerical algebra. A brief description of some major algebraic systems with several examples of each: groups, rings, fields, vector spaces; Boolean algebras and lattices.

Part 2A. The complex number field. (2 weeks). Chapter 1 of Hahn's "Complex Numbers and Geometry".

Part 2B. Congruence arithmetic. (2 weeks). Chapter 4 of Harriet Griffin's "Elementary Theory of Numbers".

Part 2C. The ring of polynomials over the field $\mathbb{Z}/(\text{mod } 7)$. (3 weeks). Since $\mathbb{Z}/(\text{mod } 7)$ is a field, it behaves in many ways like the system of real numbers. But there are also major differences. So, what does the theory of polynomial equations look like in the field $\mathbb{Z}/(\text{mod } 7)$? Parts 2A and 2B provide the background needed to explore this question.

Part 3. Group theory. (6 weeks). Chapter 6 of Neil McCoy's "Introduction to Modern Algebra".

There will be a mid-term and a final exam. There will also be several quizzes during the semester.

Tentative Exam Schedule, (Fairly definite, but subject to change):

Mid-term: Thursday, October 16.

Final Exam: Thursday, December 11, 12:00 noon.

Grading:

The mid-term will count 30%, the quizzes 30%, and the final exam 40%. The usual grading scheme will be followed: 93 – 100 is an A; 90 – 92 an A-; 87 – 89 a B+; 83 – 86 a B; 80 – 82 a B-; 77 – 79 a C+; 73 – 76 a C; 70 – 72 a C-; 67 – 69 a D+; 63 – 66 a D; 50 – 62 a D-; less than a 50, an F. This scheme of grading is a minimum guarantee. The grading may be a little more liberal than indicated above.

Laptop Policy: The use of laptops and other electronic devices, except for hand held calculators, will not be permitted during exams. When you are in class, I expect your undivided attention. Therefore, the use of laptops during class periods is not permitted.

Disability Services:

If you have a need for disability related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office by coming into the office at 2001 C.B.Hedgcock, or calling 227-1700, or e-mailing disserv@nmu.edu. Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and university guidelines.