

**MATH 310-001: ABSTRACT ALGEBRA AND NUMBER THEORY
SPRING 2010**

Course webpage: <http://www.math.msu.edu/~dhand/MTH310SS10/index.html>

1/11 - Overview

1/13 - Properties of integers

1/15 - The division algorithm

1/18 - NO CLASS

1/20 - Greatest common divisor, HW1 due

1/22 - Euclidean algorithm

1/25 - The fundamental theorem of arithmetic

1/27 - Equivalence classes, HW 2 due

1/29 - Congruence classes mod n

2/1 - Modular arithmetic

2/3 - Multiplicative inverses, HW 3 due

2/5 - Chinese remainder theorem

2/8 - Definition of rings

2/10 - Properties of rings, HW4 due

2/12 - Integral domains and fields

2/15 - Subrings

2/17 - Ideals, HW5 due

2/19 - Quotient rings

2/22 - Homomorphisms and isomorphisms

2/24 - First isomorphism theorem

2/26 - Examples, HW6 due

3/1 Review

3/3 **Midterm exam**

3/5 Fibonacci numbers mod n

3/8 - NO CLASS

3/10 - NO CLASS

3/12 - NO CLASS

3/15 Euclidean domains

3/17 Principal ideal domains

3/19 Unique factorization domains

3/22 Polynomial rings

3/24 Polynomial division, HW7 due

3/26 Irreducible polynomials

3/29 Quotients of polynomials rings

3/31 Finite fields, HW8 due

4/2 Gaussian integers

4/5 Number fields

4/7 Groups, HW9 due

4/9 Subgroups

4/12 Lagrange's theorem

4/14 The Euler function, HW10 due

4/16 Euler's theorem

4/19 The sum of squares theorem

4/21 Legendre symbol

4/23 Quadratic reciprocity

4/26 Review

4/28 Review, Extra credit problems due

4/30 Review

Final Exam: Thursday 5/6. 10am - 12 noon. Wells Hall C-104.

IMPORTANT DATES:

Monday - 1/11/10 - Classes Begin

Friday - 1/15/10 - Online open add period for Spring semester ends at 8pm.

- Last day to change to CR/NC.

Monday - 1/18/10 - Martin Luther King, Jr. Day. No classes are held. The University is open.

Monday 1/18/10 to Friday 1/22/10 - Students go to Undergraduate office, A212 Wells Hall for Mathematics enrollment changes. (late adds, drop to lower course, section changes)

Friday - 1/22/10 - Last day to late add a course or change sections within a course. Last day to drop to a lower level course.

Thursday - 2/04/10 - End of Tuition Refund

Wednesday - 3/03/10 - Middle of Semester, Last day to drop a course without a grade being reported.

Monday 3/08/10 to Friday 03/12/10 - Spring Break - no classes. The University is open.

Friday - 4/30/10 - Last day of classes.

Monday 5/03/10 to Friday 5/07/10 Final Exams