# MATH 81/111: ABSTRACT ALGEBRA (RINGS AND FIELDS) WINTER 2015

### JOHN VOIGHT

## Course Info

- **Lectures**: Monday, Wednesday, Friday, block 10 (10:00–11:05 a.m.)
- **x-period**: Thursday, 12:00–12:50 p.m.
- **Dates**: 5 January 2015 – 9 March 2015
- **Room**: 028 Haldeman
- **Instructor**: John Voight
- **Office**: Kemeny Hall, Room 341
- **E-mail**: jvoight@gmail.com
- **Instructor's Office Hours**: Monday 2:30–4:30 p.m., Tuesday 9:00–10:00 a.m., or by appointment
- **Course Web Page**: http://www.math.dartmouth.edu/~m111w15/
- **Prerequisites**: Math 71, or Math 31 and instructor permission
- **Required Texts**: J.S. Milne, *Fields and Galois theory*, version 4.50, available at

  http://www.jmilne.org/math/CourseNotes/ft.html

- **Recommended Texts**:
  (1) David Dummit and Richard Foote, *Abstract Algebra*, Third edition, 2004. Roughly chapters 13–14.
  (2) Serge Lang, *Algebra*, Graduate Texts in Mathematics, vol. 211, Third edition, 2005. Roughly chapters IV–VI.
  (3) Ian Stewart, *Galois Theory*, Third edition, 2003.
- **Grading**: Grade will be based on weekly homework (50%) and a final exam (50%).

## Homework

The homework assignments will be assigned on a weekly basis and will be posted on the course webpage. Homework is due in one week; no late homework will be accepted.

Cooperation on homework is permitted (and encouraged), but if you work together, do not take any paper away with you—in other words, you can share your thoughts (say on a blackboard), but you have to walk away with only your understanding. In particular, you must write the solution up on your own. Please acknowledge any cooperative work at the end of each assignment.

Plagiarism, collusion, or other violations of the Academic Honor Principle, after consultation, will be referred to the The Committee on Standards.

## Religious Observances and Accommodation

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the term to discuss appropriate accommodations.

Students with disabilities, including "invisible" disabilities such as chronic diseases and learning disabilities, enrolled in this course and who may need disability-related classroom accommodations

are encouraged to make an appointment to see me before the end of the second week of the term. All discussions will remain confidential, although the Student Accessibility Services office may be consulted to discuss appropriate implementation of any accommodation requested.

<div align="center">Topics</div>

From the ORC:

> This course provides a foundation in core areas in the theory of rings and fields. Specifically, it provides an introduction to commutative ring theory with a particular emphasis on polynomial rings and their applications to unique factorization and to finite and algebraic extensions of fields. The study of fields continues with an introduction to Galois Theory, including the fundamental theorem of Galois Theory and numerous applications.

A full schedule is available on the course webpage.