

Syllabus for M 521: Advanced Algebra I (Fall 2019)

The main goal of this course is to give you an introduction to:

- Basic results from group theory usually not covered in an undergraduate course, like group actions, the Sylow Theorems, and solvable groups
- Field extensions and Galois Theory

Instructor Information

Instructor: Nikolaus Vonessen

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Office hours: Posted on my webpage, which is linked from the math department website. If the posted times don't work for you, I'll be happy to make an appointment for a different time.

Good times to see me are after class, and during office hours.

Required Textbook

Abstract Algebra, third edition, by John A. Beachy and William D. Blair, Waveland Press, 2006, ISBN 1-57766-443-4. (Please note that we will use the **third edition** of this textbook; older or newer editions will not work.) There are some additional materials posted at the [authors' web site](http://www.math.niu.edu/~beachy/abstract_algebra/) (http://www.math.niu.edu/~beachy/abstract_algebra/) (follow the link to the third edition). We will cover most of Chapters 6–8. I expect you to spend considerable time reading and comprehending our text book—there isn't enough time to cover everything in detail in class.

Prerequisites:

This course assumes some familiarity with vector spaces, groups, rings and fields. The more advanced topics from an undergraduate abstract algebra course (like M 432, which is the official prerequisite) will be shortly reviewed as needed.

Learning Goals and Assessment:

The main goal for this course is that you learn the topics described above; doing the weekly homework assignments will help you to achieve this. Your grade for the course will be based on the homework. There will be no other tests, and no final exam.

Grading Scale

| | | | | | | | | | | | |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cutoff Percentage: | 93% | 90% | 87% | 83% | 80% | 75% | 70% | 65% | 62% | 58% | 55% |
| Grade: | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- |

Homework

Working on problems seems to be the most important part of learning mathematics – so please take the homework seriously. I will drop the lowest homework score. Depending on enrollment, I may only be able to partially grade each homework set. **Homework has to be turned in by 4 pm on the due date.** If you cannot hand a homework set in on time for a “really good” reason, contact me, and I will usually give you an extension. (If I should receive too many extension requests, I might have to change my policy and only grant extensions in cases of documented illness or other exceptional circumstances beyond your control.)

Collaboration on Homework Problems

I encourage collaboration (i.e., **working together** to solve problems, not simply copying the work of others). I require, however, the following:

1. You always have to write up the solutions in your own words (again, no copying!).
2. You must indicate with whom you worked to solve the problem.
3. It is not permitted to use the Web (Internet) to aid in solving homework problems.

On the other hand, it is also very important to learn to solve problems on one's own. On each homework set, there will be some **"do-on-your-own" problems** marked by a **star (*)**. As the name implies, you have to solve these problems completely on your own – you can consult books but no other materials, and nobody else (with one exception: you can ask me for hints in class or during my office hours).

Resubmission of Homework Problems

To help you improve your proof writing skills, I may at times, for an individual student, require a rewrite of a homework problem. In such a case I will assign a tentative score for the problem; if I do not receive an acceptable rewrite by the deadline, that tentative score will revert to zero. Since I cannot give everyone the opportunity to resubmit, fairness requires that resubmitting a problem cannot increase the tentative score. Please note that the resubmission must be attached to the original homework.

Some Important Dates

| Date | Event |
|-------------------------|---|
| September 2 (Monday) | Labor Day |
| September 16 (Monday) | Last day to drop without a W on the transcript; also last day to change the grading option to audit |
| October 28 (Monday) | Last day to drop without a petition (and without a WP or WF on the transcript) |
| November 11 (Monday) | Veterans Day |
| November 27-29 | Thanksgiving Break |
| December 6 (Friday) | Last day of classes, last day for petitions to drop, and last day to change the grading option from traditional to CR/NCR grading |
| December 11 (Wednesday) | Final Exam Period (8:00 – 10:00 am) <i>If we do not want to meet at this time, we have to schedule two extra lectures during the semester.</i> |

Disability Modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 (or call 406-243-2243). I will work with you and Disability Services to provide an appropriate modification.

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

Student Conduct Code

All students need to be familiar with the [Student Conduct Code](#). You can find it in the "A to Z" index on the UM home page.