

Math 3345: Algebra 2 (Honors) – Field Extensions and Galois Theory

Course Information Sheet

Galois theory is one of the crown jewels of modern mathematics. Galois's ideas were influenced strongly by Abel, Bernoulli, Euler, Gauss, Legendre, Lagrange, Newton and many others stretching back to nameless antiquity. His ideas exerted an extraordinary influence on the course of modern mathematics, shifting emphasis away from explicit, messy algebraic calculations, and towards an understanding of the abstract structures that lay behind them. Using the techniques developed in this course, we will solve problems which had been open for 1000's of years (literally!). I hope you will devote some serious intellectual energy and effort to this material, and I hope you will find that this effort is rewarded.

0. COURSE WEBSITE

<https://maths-people.anu.edu.au/~alperj/algebra2.html>

1. LECTURES

Tuesday	3–4	Moran G008
Wednesday	10–11	Moran G008
Thursday	2–3	Moran G008

2. CONTACT INFO AND OFFICE HOURS

Jarod Alper	Office Hours:
John Dedman Building 1169	Wednesday 11-12
E-mail: jarod.alper@anu.edu.au	Thursday 11-12

Please come talk to me! Questions of any kind are most welcome. If you cannot make my scheduled office hours, please feel free to drop me an e-mail to organize a time to meet. Alternatively, just drop my office—if I'm around and not busy, I would be happy to chat.

3. TEXTBOOK

The textbook for this class is:

- Miles Reid's online notes *Galois Theory* available at <http://www.maths.warwick.ac.uk/~miles/MA3D5/Galois.pdf>.

This textbook will be supplemented by other notes posted on the course webpage.

There are many other good references for Galois theory. For instance, I recommend

- Galois Theory by Ian Stewart
- *Abstract Algebra* by Dummit and Foote,
- *Algebra* by Artin, and

- Milne's online notes available at: <http://www.jmilne.org/math/CourseNotes/ft.html>.

4. HOMEWORK

There will be weekly homework assignments to help you stay engaged with the material. These will usually be assigned on Monday and due the following Monday at 5 pm. The homeworks will be posted on the course website. The homeworks are to be dropped in the course box in the lobby of the John Dedman building.

Late assignments will not be accepted under any circumstances. On the other hand, your lowest homework grade from the semester will not count toward your final grade. The homework will count for 50% of your final grade.

You are strongly encouraged to work collaboratively with fellow students on the homework assignments. Mathematics is often about sharing ideas and it is difficult to practice that skill in social isolation. On the other hand, mathematics is also about developing your own personal understanding of the material, and it is difficult to do that without some quiet, focused concentration. Thus, I strongly advice you to attempt the problems on your own each week and see where you get stuck before moving to a group setting.

In any case, you *must* write up your own solutions in your own words. Direct copying of others' work is strictly *verboten*—it is unhealthy for your own mathematical development. Plaiarism is also every easy to spot; it is viewed by the ANU as a breach of academic integrity misconduct and has corresponding grave consequences.

5. TUTORIALS

The tutorial is:

Friday 10–11 Moran G008

The tutor for this course will be announced. Tutorials will begin the first week.

6. EXAMS

There will be a midterm and final exam, worth 20% and 30% of your final grade, respectively. These will be standard sit-down exams, no notes, no textbook, etc.

7. GRADING

Homework	50%
Midterm	20%
Final exam	30%

8. STUDENT REPRESENTATIVES

To be announced