

COURSE INFORMATION

MATH 394 – Galois Theory

Course homepage: web.williams.edu/Mathematics/lg5/394/

Instructor: Leo Goldmakher (either ‘Leo’ or ‘Professor Goldmakher’ is fine)

Office: Bascom 106A (first floor)

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email: Leo.Goldmakher@williams.edu

Office hours: Mondays and Thursdays, 10:30am–12pm in my office; additional office hours by appointment.

Whenever my office door is open, you are welcome to drop in. If my door is closed, however, please don’t knock – I’m either out of the office or busy. *Note that I have reserved Friday to be my research day, and hence will be unavailable all day on Friday.*

Lectures: Mondays and Thursdays 2:35–3:50 in Stetson 110.

Textbook: *Galois Theory* (4th ed.) by Ian Stewart. (Please make sure to get the correct edition – it’s quite different from the previous versions.)

There are tons of other excellent resources available. Here are a few I’ve found particularly inspirational:

- Course notes by Teruyoshi Yoshida: www.dpmms.cam.ac.uk/~ty245/2010_Galois_M24/2010_Galois_M24.html
- Expository notes by Keith Conrad: www.math.uconn.edu/~kconrad/blurbs/
- *Topics in Algebra* by Herstein (a beautiful textbook)
- *Abstract Algebra* by Dummit and Foote (a good reference text)
- *Algebra* by Michael Artin (another nice reference, with lots of pictures)

Teaching Assistants: We’re very fortunate to have two amazing TAs for this course:

- Isabella Huang <ih5@williams.edu> is in charge of discussion sessions and problem sessions
- Alyssa Epstein <ale2@williams.edu> is in charge of problem set grading

Discussion sessions: Galois theory is an extremely difficult subject, primarily because there are many subtleties which sneak up on you all at once if you don’t clear them up early on. To avoid this, it’s crucial to discuss the material with others to figure out where your blind spots are. I’ve organized several types of discussions:

- **Weekly problem session.** This is a chance for you to discuss the problem set with your peers. Although Isabella will be on hand to help out, she will not be running a problem session in the traditional sense; she will be there in a strictly advisory capacity. Note that problem sets are due Thursday.
Time and Location. Tuesday evening, 7pm–9pm, in Bronfman 107.
- **Thrice weekly dicussion sessions.** This is a chance for you to discuss class material (as opposed to problem sets!) with your peers. Isabella will be on hand to answer questions and pose some of her own.
Times and Location. Sunday, Monday, Thursday evenings, 8pm–9pm, in Bronfman 107.
- **Fortnightly tutorial meetings.** This is a chance for you to discuss class material with me in a more intimate setting. We will meet as a group of three (two students and me) once every two weeks for a half-hour. The meetings will be a combination of me asking you questions and you asking me questions. See below for more details.

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Assessment: Your grade will be calculated based on several components:

1. Problem sets – 15% total

This course will have weekly problem sets. These will require substantial effort, and are intended to take 5-7 hours per week. If you find yourself spending more than this, please come talk to me.

Problem sets are due on Thursdays at 4pm in my mailbox (just inside the entrance to Bascom House). Late assignments must be emailed to Alyssa by Friday at 4pm; however, 5% will be deducted for submission past Thursday 4pm. *Assignments will not be accepted after Friday at 4pm under any circumstances.* Your lowest assignment score will be dropped.

2. Midterm and Final exam – 30% and 35%

Both exams will be oral (but without surprise problems – format will be explained in detail later). The better of the two exams will be weighted 35%, and the weaker 30%.

To do well on these exams, it is essential that you understand the material from both class and the problem sets. Although I encourage you to collaborate on the problem sets, copying someone's solutions will not help you understand the material. (It's also considered cheating and subject to serious penalties; see below.) **If you do not struggle with a problem on your own for a significant amount of time, you will not fully understand its solution.**

3. Tutorial meetings – 20%

There will be a total of five tutorial meetings throughout the semester (once per two weeks). These half-hour meetings will be a combination of questions from me to you and questions from you to me. You will receive either a 1 or a 0 for each meeting; the score is based solely on preparation. In other words, **whether or not you understand a concept will not affect your score, but whether or not you've thought about the concept will.**

4. Lecture Summary – up to 2 percentage points (see below)

Each student will be responsible for writing up one lecture summary in L^AT_EX, due within 48 hours of the lecture. These are expected to be rigorous, polished, and readable accounts of what took place during the lecture. They will be graded on a ✓+ / ✓ / ✓– scale, based on how much editing is required post-submission. A ✓+ will add 2 percentage points to your overall course score; a ✓– will reduce your score by 2 percentage points. (Not completing the assignment on time will reduce your overall course grade by a third of a letter grade.)

Team work and plagiarism: The problem sets in this course will be challenging, and I encourage you to brainstorm with other students. However, you must work out and write up the solutions on your own, without copying verbatim from any text (written or spoken). To avoid a slippery slope, I encourage you to write up your problems sets in physical isolation from any other student in the course.

Internet usage: The internet is an amazing resource, but I urge you to use it wisely. In particular, I request that you do not search for the problems appearing on the assignments. **Looking up definitions is OK, looking up (or asking about) problems online is not.** It is better to struggle on your own and *not* solve the problem than to simply copy a solution.

Anonymous feedback / questions: On the website – under the “Contact” tab – there is a form for submitting anonymous feedback and asking questions. Negative comments, positive comments, simple questions, complicated questions – it's all welcome and helpful!