

MATH 517 GRADUATE ALGEBRA II

Izzet Coskun, MWF 1:00-1:50 pm

Course description, Goals and Learning Objectives: Welcome to MATH 517! This course is a continuation of MATH 516. The goals of this course is to cover the second semester of a basic graduate introduction in modern algebra in order to prepare you for research in algebraic fields such as algebraic geometry, number theory, algebraic topology and commutative and homological algebra. The course aims to develop proficiency in Galois theory, homological and commutative algebra. Additionally, the course will prepare students for the Algebra Prelim Exam.

Course webpage: <https://homepages.math.uic.edu/~coskun/math517s22.html>

Venue: TH 204

Drop-in Hours: W 11-12:50 in SEO 423

Text: The text book for the course is Paolo Aluffi, Algebra: Chapter 0, GSM 104, American Mathematical Society, 2009. Some other good references for an introductory course in algebra include

- Serge Lang, Algebra, Addison Wesley, 1995.
- I.N. Herstein, Topics in Algebra, John Wiley & Sons, 1975.
- Dummit and Foote, Abstract Algebra, John Wiley & Sons, 2004.

The last part of the course will rely on Atiyah and Macdonald, Commutative Algebra

Prerequisites: Math 516

Requirements: There will be weekly homework due every Friday. Homework is a very important component of this course. It will count for 50 % of your grade. In order to receive an A in the course, you must do at least 10 problems per week. Students planning to write a thesis in algebraic fields should do all the suggested problems. No late homework will be accepted. You may collaborate on the homework problems, but you must write your own solutions and properly acknowledge any help you receive from others. There will be a take home midterm counting for 20 % of your grade and a take home final counting for 30 % of your grade.

Topics covered: We will cover the following topics. Please read the book ahead of time.

- Week 1: Aluffi VII 1-2
- Week 2: Aluffi VII 3-4
- Week 3: Aluffi VII 4-6
- Week 4: Aluffi VII 6-7
- Week 5: Aluffi VIII 1-3
- Week 6: Aluffi VIII 4-6
- Week 7: Aluffi VIII 6, IX 1
- Week 8: Aluffi IX 2-3
- Week 9: Aluffi IX 4-6
- Week 10: Aluffi IX 6-7

- Week 11: Aluffi IX 8-9
- Week 12: Aluffi IX 9
- Week 13: Commutative Algebra AM 1-3
- Week 14: Commutative Algebra AM 4-6
- Week 15: Commutative Algebra AM 7-10

ATTENDANCE/PARTICIPATION POLICY. While attendance is not mandatory, you are strongly encouraged to attend all sessions and participate by asking and answering questions.

GRIEVANCE PROCEDURES. UIC is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity involving students and employees. Freedom from discrimination is a foundation for all decision making at UIC. Students are encouraged to study the University’s “Nondiscrimination Statement”. Students are also urged to read the document “Public Formal Grievance Procedures”. Information on these policies and procedures is available on the University web pages of the Office of Access and Equity: <http://oae.uic.edu/>.

STUDENT EVALUATION OF TEACHING PROGRAM (COURSE EVALUATIONS). Student evaluations of teaching play a fundamental role in improving course content, format, and delivery (teaching) at UIC. Students are invited to share feedback on the course with the instructor throughout the semester, and should complete the online course evaluation form emailed to them at the end of the semester before 12am on the first day of finals.

ACADEMIC INTEGRITY POLICY. For written assignments in the course (both homework and daily recap summaries), students are encouraged to work together. However, the final write-up must be done individually. As an academic community, UIC is committed to providing an environment in which research, learning, and scholarship can flourish and in which all endeavors are guided by academic and professional integrity. All members of the campus community—students, staff, faculty, and administrators—share the responsibility of insuring that these standards are upheld so that such an environment exists. Instances of academic misconduct by students will be handled pursuant to the Student Disciplinary Policy: <http://dos.uic.edu/docsStudent%20Disciplinary%20Policy.pdf>

RELIGIOUS HOLIDAYS. Students who wish to observe their religious holidays shall notify the faculty member by the tenth day of the semester of the date when they will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, the student shall notify the faculty member at least five days in advance of the date when he/she will be absent. The faculty member shall make every reasonable effort to honor the request, not penalize the student for missing the class, and if an examination or project is due during the absence, give the student an exam or assignment equivalent to the one completed by those students in attendance. If the student feels aggrieved, he/she may request remedy through the campus grievance procedure. <http://oae.uic.edu/docs/ReligiousHolidaysFY20152017.pdf>

DISABILITY ACCOMMODATION. The University of Illinois at Chicago is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at UIC. Students with disabilities who require accommodations for access to and/or participation in this course are welcome, but must be registered with the Disability Resource Center (DRC). You may contact DRC at 312-413-2183 (v) or 773-649-4535 (VP/Relay) and consult the following: <http://drc.uic.edu/guide-to-accommodations>.

CLASSROOM CONDUCT POLICY. Towards the goal of making learning as impactful as possible this semester, we will strive to abide by two overarching principles in this class:

- (1) engage in clear and frequent two-way communication regarding my expectations of you, the class workflow, and unexpected challenges arising that may impede your participation in required class sessions, including exams, or timely completion of assignments;
- (2) build an inclusive learning community in which we all abide by the same ground rules and ethical code of conduct.

I look forward to connecting with you this fall. I will do my best to support your learning experience by listening to your needs and by conducting this course with compassion, empathy, and patience.

LEARNING ENVIRONMENT. UIC values diversity and inclusion. Regardless of age, disability, ethnicity, race, gender, gender identity, sexual orientation, socioeconomic status, geographic background, religion, political ideology, language, or culture, we expect all members of this class to contribute to a respectful, welcoming, and inclusive environment for every other member of our class. If there are aspects of the instruction or design of this course that result in barriers to your inclusion, engagement, accurate assessment or achievement, please notify me as soon as possible.

COMMUNITY AGREEMENT.

- Be present (turn off cell phones and remove yourself from other distractions)
- Be respectful
- Assume good will
- Challenge with care – approach discussion as a “think out loud”
- Be flexible when things don’t work
- Share helpful tips
- Use preferred names and gender pronouns
- No side conversations
- Be willing to work together
- Be mindful of one another’s privacy –do not invite outsiders into our classroom
- Commit to upholding a class honor code in which we trust one another and engage only in behaviors that reflect our community standards of academic integrity