

Mathematics 9141, Commutative Algebra
Summer 2017, Western University
Instructor: Masoud Khalkhali

TEXTBOOK: Commutative Algebra by Atiyah and MacDonald, published by Addison-Wesley.

<http://www.maths.ed.ac.uk/aar/papers/AtiyahMacdonald.pdf>

PREREQUISITES: Mathematics 4123 or equivalent, or permission of the instructor.

COURSE OUTLINE: This course has two purposes: introduce certain important classes of commutative rings that appear in algebraic number theory and algebraic geometry, and introduce techniques to study these rings as local geometric objects (affine schemes). Topics: an introduction to the theory of commutative rings. Prime spectrum, localization, Noetherian rings, integral extensions, Hilbert's vanishing theorem, Dedekind rings, completion, dimension theory, sheaves.

EVALUATION OF STUDENT PERFORMANCE:

1. Regular assignments worth 50% of the final grade. There will be 4 sets of assignments chosen from the text, with about 5 problems in each set.
2. A term assignment worth 25% of the final grade.
3. A two-hour final exam worth 25% of the final grade.

TIME and PLACE: May 1-July 7, 4 hours per week.

IMPORTANT SENATE POLICY:

Students are responsible for ensuring that their selection of courses is appropriate and accurately recorded and that all course prerequisites have been successfully completed. If the student does not have the requisites for a course, and does not have written special permission from his or her Dean to enroll in the course, the student may be removed from the course and it will be deleted from the student's record. This decision may not be appealed. A student will receive no adjustment to his or her fees in the event that he or she is dropped from a course for failing to have the necessary prerequisites.

STATEMENT ON ACADEMIC OFFENCES:

‘Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

<http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>’

NEW MEDICAL EXCUSE REGULATIONS:

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean’s Office as soon as possible and contact your instructor immediately. It is the student’s responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a ”Recommendation of Special Examination” form must be obtained from the Dean’s Office immediately. For further information please see: <http://www.uwo.ca/univsec/handbook/appeals/medical.pdf>

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record’s Release Form (located in the Dean’s Office) for visits to Student Health Services. The form can be found here:

<https://studentservices.uwo.ca/secure/medicaldocument.pdf>