

THE UNIVERSITY OF WESTERN ONTARIO

Math 4123A/9023A – Rings and Modules

Course Outline for Fall 2013

Instructor: Professor DM Riley
Department of Mathematics, MC 136
Office Hours: by appointment (please send email or ask in class).
DMRiley@uwo.ca

Timetable: Tues. and Thurs. 11:00 to 12:30, Location TBA

Textbook: An Introduction to Ring Theory, by Paul M. Cohn, Springer, 2000.

Topics:

Basic module theory (including short exact sequences, presentations, freeness, direct products and sums, Hom), the language of categories, linear algebras, chain conditions, composition series, Wedderburn's theorem, the Krull-Schmidt Theorem, Noetherian rings, polynomial rings, the Euclidean algorithm, factorization, principal ideal domains, modules over PIDs, the primary decomposition theorem, algebraic integers, direct products of rings, Zorn's Lemma, tensor products of modules and algebras, the invariant basis number.

Prerequisites: Math 3020A/B and 3120A/B or equivalents

Evaluation:

- Five assignments worth 10% of the final mark each
- One in-class midterm examination worth 20% of the final mark
- One final examination worth 30% of the final mark
- Performance expectations are significantly higher in Math 9023A than in Math 4123A

SENATE POLICY ON PREREQUISITES:

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/scholastic_discipline_undergrad.pdf.

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

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 his or her 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/accommodation_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/medical_document.pdf.