

# Math 9023A: Rings and Modules (Fall 2020)

## Essential information

- **Format:** online
- **Instructor:** David Riley
- **Email:** dmriley (at) uwo.ca
- **Office:** MC 136
- **Website:** on OWL (<http://owl.uwo.ca>).
- **Prerequisites:** Math 3020A/B or equivalent.

## Textbook

*Abstract Algebra*, Third Edition, by D.S. Dummitt and R.M. Foote

## Course content

As time permits, the main topics (taken from Chapters 7-10 and 12) will include:

### Rings:

Fractions and Localization  
Chinese Remainder Theorem  
Unique Factorization Domains  
Euclidean Domains  
Principal Ideal Domains  
Algebraic Integers  
Polynomials and Formal Power Series  
Factorization in Polynomial Rings

### Modules:

Generation of Modules, Direct Products and Sums, Free Modules  
Tensor Products  
Exact Sequences  
Injective and Projective Modules  
Zorn's Lemma  
Chain Conditions  
Modules over PIDs

## Evaluation

The final grades will be based on the following components:

- Five assignments (worth 10% each): 50%
- Midterm exam: 25%
- Final exam: 25%

## Accommodation and Accessibility

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at [scibmsac@uwo.ca](mailto:scibmsac@uwo.ca). For further information, please consult the university's medical illness policy at [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_medical.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf).

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a make-up Final Exam). You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation". [http://www.registrar.uwo.ca/examinations/exam\\_schedule.html](http://www.registrar.uwo.ca/examinations/exam_schedule.html)

## Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

**Scholastic Offences** are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website: [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf)

## Student Accessibility Services

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are encouraged to register with Student Accessibility Services, a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both SAS and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction. <http://www.sdc.uwo.ca/ssd/>