

Introduction to Commutative Algebra Fall 2024

PMATH 446 / PMATH 646

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Class Schedule

| Course | Meet Days | Meet Time | Location | Instructor(s) |
|---------------------------------------|---------------------------------------|----------------------|----------|--|
| PMATH 446 / PMATH 646 001 [LEC] | Mon, Wed, Fri <i>Sep 4 - Dec 3</i> | 02:30PM - 03:20PM | E2 1736 | B. Webster <i>ben.webster@uw...</i> |

schedule data automatically refreshed daily

Instructor & TA (Teaching Assistant) Information

Instructor: Ben Webster : ben.webster@uwaterloo.ca (<mailto:ben.webster@uwaterloo.ca>).

Office: MC 5429

Office Hours (subject to change): Monday 3-4, Wednesday 10:30-11:30 or by appointment.

TA: TBA

Information about the course, including assignments, exams, and schedule will be posted on [the course website](https://bwebster.notion.site/Commutative-algebra-Fall-2024-1a569f15830d41f18beaa6a8b6a9b4ce?pvs=4). (<https://bwebster.notion.site/Commutative-algebra-Fall-2024-1a569f15830d41f18beaa6a8b6a9b4ce?pvs=4>). Assignments will be submitted through Crowdmark and marks will be posted on LEARN.

Course Description

Calendar Description for PMATH 446 / PMATH 646:

Module theory: classification of finitely generated modules over PIDs, exact sequences and tensor products, algebras, localisation, chain conditions. Primary decomposition, integral extensions, Noether's normalisation lemma, and Hilbert's Nullstellensatz.

PMATH 446: Prereq: PMATH 348

PMATH 646: Antireq: PMATH 446

Learning Outcomes

No explicit learning outcomes defined for this course.

Tentative Course Schedule

Texts / Materials

| Title / Name | Notes / Comments | Required |
|---------------------------------|--|----------|
| Commutative Algebra by Eisenbud | Waterloo students can download a copy from: https://link-springer-com.proxy.lib.uwaterloo.ca/book/10.1007/978-1-4612-5350-1 | No |
| Course notes | Will evolve over the course of the term. DO NOT download a copy at the start and assume those will be applicable all term. Current version available here: https://www.overleaf.com/read/yfygypnwqhkfk#5d70a7 | Yes |

Student Assessment

There is no defined grading scheme for this course.

Assignment Screening

Administrative Policy

University Policy

Academic integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check [the Office of Academic Integrity \(https://uwaterloo.ca/academic-integrity/\)](https://uwaterloo.ca/academic-integrity/) for more information.]

Grievance: A student who believes that a decision affecting some aspect of their university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70, Student Petitions and Grievances, Section 4 \(https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70\)](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70). When