Department of Mathematics & Statistics
Concordia University

MATH 494 (MAST 699/MAST 833), Sec. CC
Topics in Pure & Applied Mathematics
Galois Cohomology/Class Field
Fall 2025

Instructor: Dr. C. Pagano
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Office Hours: Tuesdays, 16:00-17:30, **Z**oom or in person.

Class Schedule: Tuesdays, 17:45-20:15. In person, LB 928 SGW.
Mid-term break: no classes between October 11, 2025, and October 17, 2025.

Textbook: Neukirch & Schmidt & Wingberg, *Cohomology of number fields*, Springer GTM 228 (not compulsory).
The digital and print versions of the textbook will be available at: https://www.bkstr.com/concordiastore/home
NOTE: Students should order textbooks as early as possible, especially for print versions in case books are back ordered or there are any shipping delays.

The textbook will be available at the library.

Topics: The main goal of this course is to prove the main theorems of local and global class field theory, through the lens of the cohomological approach. As such, a significative portion of the course will be focused on abstract group cohomology (both in the discrete and profinite case), with a focus towards Galois cohomology. We will develop the material from scratch, so no prerequisite exposure to homological algebra is required.

Evaluation: 30% Assignments, 70% Final presentation.

If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.

Student Services
You may wish to access the many services available to you as a Concordia student. An overview of these resources can be found here: https://www.concordia.ca/students/services.html

Academic Integrity and the Academic Code of Conduct

This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: https://www.concordia.ca/conduct/academic-integrity.html" *[Undergraduate Calendar, Sec 17.10.2]*

Behaviour

All individuals participating in courses are expected to be professional and constructive throughout the course, including in their communications.

Concordia students are subject to the Code of Rights and Responsibilities which applies both when students are physically and virtually engaged in any University activity, including classes, seminars, meetings, etc. Students engaged in University activities must respect this Code when engaging with any members of the Concordia community, including faculty, staff, and students, whether such interactions are verbal or in writing, face to face or online/virtual. Failing to comply with the Code may result in charges and sanctions, as outlined in the Code.

Intellectual Property

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Extraordinary circumstances

In the event of extraordinary circumstances and pursuant to the Academic Regulations the University may modify the delivery, content, structure, forum, location and/or evaluation scheme. In the event of such extraordinary circumstances, students will be informed of the change.