

MATH 3070 – Theory of Numbers
Fall 2022

Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.

We acknowledge the histories, contributions, and legacies of the African Nova Scotian people and communities who have been here for over 400 years.

Instructor(s): Xiaohang Chen (Shane Chern) xh375529@dal.ca

Office Hours: Chase 254 – Tuesday & Wednesday 03:30-05:00

Lectures: Tuesday & Thursday – 08:35-09:55 – CHEMISTRY 223

Course delivery: In-person

SYLLABUS REVISION form

Course instructors who are revising their syllabus in response to the CUPE strike must obtain approval from their Department Chair for the changes. For simplicity, these changes should be outlined and submitted to Chairs using [this form](#).

Course instructors will also post the ***Syllabus Revision form*** to the course Brightspace site and explain the revisions to students in the course.

Please omit any sections that are not being modified.

Changes to learning outcomes

Original Learning Objectives

The student will gain a solid understanding of classical elementary number theory, especially the theories of divisibility of integers, congruences, and solving quadratic congruences, with both classical and modern applications. This course also serves as a partial prerequisite for MATH 4070/5070: Algebraic Number Theory.

This part remains the same.

Original Course Content

1. Introduction
2. The Factorization of Integers
3. Congruences
4. Quadratic Residues
5. Sums of Squares

6. Continued Fractions
7. Number Theoretic Function
8. Algebraic and Transcendental Numbers
9. Applications of Number Theory (if time allows)

*Parts 6 & 8 will not be covered. Instead, the two parts will be replaced by a 1-lecture expansion of Part 7, on **Generating functions**. In particular, Part 8 would be covered, at least partially, in the subsequent course Math 4070/5070 Algebraic Number Theory based on past course content of the aforementioned course.*

Changes to course assessment

Original assessment

Assessment	Weight (% of final grade)	Date
Assignments	30%	Weekly (usually assigned every Thursday ; due the next Thursday)
Midterm exam	30%	To be announced
Final exam	40%	(Scheduled by Registrar)

* An instruction sheet for assignments can be found in the **Assignment Instructions** posted under “Content -> Assignments” on Brightspace.

* There will likely be **10** (tentative) assignments. The one with the lowest grade, including any missed assignment (= 0 points), will be **dropped** from the final homework score.

Changes made

The only change is the number of assignments. *The number of homework assignments will be reduced to ***6*** from the original tentative 10 (which was expected to be 8 or 9 before the strike) due to the loss of 3 weeks.*