



Math 312: Introduction to Number Theory

Winter Term 1, 2026-27

INSTRUCTOR:

Nahid Walji

CONTACT:

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CLASS SCHEDULE:

Mon/Wed/Fri, 11am-noon,
CHEM C124

CREDITS:

3

OFFICE HOURS:

See course webpage

LAND ACKNOWLEDGEMENT:

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the $x^w m \partial k^w \partial y \partial m$ (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next on this site. We work with gratitude on it.

COURSE DESCRIPTION:

Euclidean algorithm, congruences, Fermat's theorem, applications. Some diophantine equations. Distribution of the prime numbers.

PREREQUISITES:

One of MATH 220, MATH 223, MATH 226, CPSC 121. and 9 additional credits of mathematics courses.

TEXTBOOK:

None required.

For additional reading, we recommend:

- Elementary Number Theory, K. H. Rosen.
- An Introduction to the Theory of Numbers by Niven, Zuckerman, Montgomery.
- The Higher Arithmetic by H. Davenport.
- Introduction to Theory of Numbers by Hardy & Wright.

GRADING:

- | | |
|------------|-----|
| • Homework | 10% |
| • Midterms | 40% |
| • Final | 50% |

ASSESSMENTS OF LEARNING:

Students are assessed through their submitted work and participation. A student must finish a significant amount of term work in order to pass the course. Work will be graded on clarity as well as on mathematical correctness.

Under no circumstances will there be a possibility for a student to provide additional work in order to adjust their grade.

HOMEWORK:

- Homework will typically be assigned once a week.
- It will be due on Sundays by 11:59pm, and posted the week before.
- Late homework is not accepted.
- Homework will be graded for completion only.

You are allowed to use LLMs (such as ChatGPT) for help when you are working on your homeworks, provided they are declared, but you must write up solutions in your own words. Please keep in mind that LLMs are not guaranteed to be factually accurate, and that the use of AI tools is not permitted during the midterms or final.

Collaboration on the homework sets is encouraged, but please note that you cannot write the solutions together. Copying solutions from another student, from the web, or from any other source, and turning them in as your own is a violation of the Academic Code.

MIDTERM:

- Midterm 1 will take place on **Friday October 9th**, in class.
- Midterm 2 will take place on **Friday November 13th**, in class.
- There are no “make up” midterms. If you miss a midterm due to valid reasons, the weight of that midterm is passed onto the other midterm and the final.

FINAL EXAM:

- It will cover all topics from class, unless specified otherwise.
- See our Canvas site for further details, closer to the December exam period.

UNIVERSITY POLICIES:

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website.

GENERAL SYLLABUS INFORMATION:

The Mathematics Department has standard syllabus information. This includes standardised policies for:

- Academic concessions (ie missed homework + midterm)
- Academic integrity (ie cheating)
- Registration issues (your instructors have no control over anything to do with registration)
- Misc. student resources

You can find that information [here](#).