
COURSE INFORMATION
MATH 2070 WA: Applied Analysis II
WINTER 2025

Lectures: TTh 2:30 PM – 4:00 PM Location: UC 0050

Lab: Th 10:30 AM – 11:30 AM Location: AT 2001

Instructor: Dr. Christopher Chlebovec
Office: RB 2007
Office Hours: T 12:30 PM – 1:30 PM or by appointment

Email: cchlebov@lakeheadu.ca (the best way to contact me!)

Course Site

This course has an online D2L site, which you access through MyInfo, via mycourselink. All information with regards to this course can be found on D2L and should be checked regularly. Class notes and other information will be posted on D2L periodically. Class notes and other materials will be uploaded periodically. It is recommended to use the class notes template alongside the lectures.

Textbooks

There are no required textbooks for this course. Here are some standard references:

- Advanced Engineering Mathematics by D.G. Zill and W.S. Wright (Chapters 7 and 8)
- Essentials of Probability and Statistics for Engineers and Scientists Walpole, Myers, Myers, Ye (Selected topics from Chapters 1-7)

Course Description

The first half of the course will consist of topics from linear algebra and the second half of the course will consist of topics from probability and statistics.

Linear Algebra:

- **Vectors** (three dimensional coordinate system, vectors, the dot product, the cross product, equations of lines and planes, vector spaces, Gram-Schmidt orthogonalization process)
- **Matrices** (matrix algebra, system of linear equations, rank of a matrix, determinants, inverse of a matrix, eigenvalues, power of matrices, orthogonal matrices, diagonalization)

Probability and Statistics:

- **Organization and Description of Data** (frequency distributions, stem-and-leaf displays, descriptive measures, quartiles and percentiles, mean and variance)
- **Introduction to Probability** (sample spaces and events, counting, probability, axioms of probability, elementary theorems, conditional probability, Bayes' Theorem)
- **Probability Distributions** (discrete random variables, binomial, hypergeometric, Poisson, and geometric distribution)
- **Probability Densities** (continuous random variables, uniform and exponential distribution)
- **Inferences Concerning a Mean** (point and interval estimation, estimating population means, hypothesis testing)
- **Regression Analysis** (Simple linear regression, correlation)
*Extra topics may be added, if time permits.

WeBWorK

WeBWorK is a free online homework system that will be required to complete the assignments. The link to access WeBWorK as well as login information will be provided to you on D2L.

Class Policies

While attendance is not mandatory, it is strongly recommended that you attend class, as your presence enriches the learning experience. If you choose to come, please arrive on time, as punctuality is appreciated. Additionally, ensure that your phone is turned off during class to minimize distractions. For quizzers, midterms and exams, please note that

no books, cell phones, or other electronic devices are allowed, and according to university policy, these devices must not be on your person during assessments.

You are allowed to use one of the following non-programmable calculators during quizzes and exams (see

<https://www.lakeheadu.ca/programs/departments/software-engineering/programs/ug/calculator-policy>):

- Casio FX-991-MS
- Sharp EL-546-XB-WH
- Texas Instruments TI-30Xa
- Texas Instruments TI-30X IIS

Books, cell phones, or other aids are not allowed during the quizzes and exams. Cell phones or other electronic devices are not allowed to be on your person during quizzes and exams, per university policy.

Labs

The lab will also be used to facilitate your understanding of the material and it will be beneficial to attend. Concepts will be reinforced through explanations and examples.

Accommodations

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please visit: <http://studentaccessibility.lakeheadu.ca>

Evaluation

A. Assignments (10 %)

Assignments posted on WeBWorK. *Late assignments will not be accepted.*

B. Quiz I (10%)

Quiz I is tentatively scheduled on **Thursday, January 30** during the lab time and will cover topics from linear algebra.

C. Exam I – Midterm Exam (35%)

The midterm is tentatively scheduled on **Thursday, February 13** during class time and will cover topics from linear algebra.

D. Quiz II (10%)

Quiz II is tentatively scheduled for **Thursday, March 20** during the lab time and will cover topics from probability and statistics.

E. Exam II - Final Exam (35%)

The final exam will be a two-hour exam and will cover topics from probability and statistics. The date of the exam will be provided as soon as it is scheduled.

Important Dates

First Day of Classes: Monday, January 6, 2025

Final Date to Register (Add): Friday, January 17, 2025

Winter Study Week: February 17, 2025 – February 21, 2025

Final Date for Withdrawal (Drop): Friday, March 7, 2025

Good Friday: Friday, April 18, 2025 (no classes)

Easter Monday: Monday, April 21, 2025 (no classes)

Final Day of Classes: Friday, April 4, 2025

Examination Period: April 7 – 17, 2025 (11 days)

Examination Contingency Date: April 19, 2025

