MATH 305: Applied Complex Analysis (January-April 2026)

Description: This is a course on complex numbers. We will study functions of a complex variable and their theory of differentiation and integration.

Topics:

- Euler's formula
- Roots of a complex number
- Functions of complex variables
- Cauchy-Riemann equations
- Exponential function and logarithm function
- Multi-valued functions and branch cuts
- Contour integrals
- Cauchy's integral formula
- Power series and Laurent series
- Residue theorem
- Argument principle and Rouché's theorem
- Fourier transform

Prerequisites: One of MATH 200, MATH 217, MATH 226, MATH 253, MATH 254.

Textbook: Saff and Snider, Fundamentals of Complex Analysis with Applications to Engineering and Science.

Lectures: Instructor: Sébastien Picard

- MWF, 12pm-1pm, IRC G1

Homework: WebWork problem sets will be assigned once a week. Assignments will be due on Mondays at 11:59pm. Late homework will not be accepted. The lowest homework score will be dropped.

Midterms: There will be two in-class midterm exams: Friday Feb 6 and Friday March 27.

Final Exam: There will be a cumulative final exam scheduled during the UBC examination period.

Grading Scheme: Your total grade will be the highest of the following two options:

- Homework 10%, Midterm 1 20%, Midterm 2 20%, Final 50%
- Homework 10%, Best midterm 30%, Final 60%

Course Policies:

- **Missing homeworks or midterms** The marking scheme allows you to miss (or do poorly on) one homework assignment and one midterm without penalty with no explanation required. These concessions are intended to cover all eventualities including illness and emergency; please use them sparingly.

- **Missing the Final Exam:** You will need to present your situation to the Dean's Office of your Faculty to be considered for a deferred exam.