Complex Functions and Partial Differential Equations

MATH 3032 – Winter 2022

Instructor: Dr. Serhii Myroshnychenko, **email:** smyroshn@lakeheadu.ca

Schedule:

- ✓ Lectures: Tuesday, Thursday 11:00 – 12:30 EST via Zoom.
- ✓ Labs: Monday 11:00 – 12:00 EST via Zoom.
- ✓ Office hours: Friday 9:00-10:00 EST, Thursday 17:00-18:00 EST or by appointment via Zoom.

Recommended textbook:

- *Advanced Engineering Mathematics*, D.G. Zill and M.R. Cullen published by Jones and Bartlett.

Important dates:

- The first day of class: Monday, January 10.
- Final date to register: Friday, January 21.
- February Break: Monday, February 28 – Friday, March 4 (no classes).
- Final date to withdraw: Friday, March 11.
- The last day of class: Thursday, April 7.
- Midterm: Thursday, February 24.
- Final exam: TBD by the University.

Exams: There will be one midterm exam during a **lecture**. The final exam will be scheduled by the registrar's office. The exams will be closed book with no calculators or other aids allowed.

Grade: Please note that **no** alternate grading scheme will be used in this course.

Written Homework	20%
Online Assignments (WeBWorK)	20%
Midterm	20%
Final	30%
Quizzes	10%

Homework: Written HW is assigned **every three weeks**. Online assignments are assigned **weekly**.

Lab Hour: No new material will be covered in the labs. The lab will reinforce concepts through examples, as well as provide students with the opportunity to ask questions about the content given in class or assignment problems. Though the lab is not mandatory, it is very beneficial to attend and **required to take quizzes**.

Course Policies:

1. Late assignments will be **accepted and reviewed, but not graded**. There will be **no** make-up exams. If you miss the midterm for a legitimate reason which you can document (e.g. doctor's

note), the weight of the midterm will be *transferred* to the final exam. The documented proof of absence should be provided no later than 3 days after the is scheduled.

2. All electronic devices (phones etc.) are prohibited during the exams. In case when such a device is detected during the exam (**activated or not**), it would be treated as an **academic misconduct** situation.

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 soon as possible. For more information please visit:

https://www.lakeheadu.ca/students/student-life/student-services/accessibility/

Awards and scholarships for current/returning students:

https://www.lakeheadu.ca/studentcentral/financing-budgeting/scholarships-for-current-returning

Any questions? Feel free to reach out to the instructor by e-mail or ``in-person'' with any questions, concerns, comments you might have. Also, check-out the following useful page for several related student resources:

https://www.lakeheadu.ca/students/student-life/student-conduct/resources

Tentative schedule

Week	Topics	WeBWorK Due Dates (Saturdays)	Written HW Due Dates (Fridays)
1	Series Solutions of Linear Ordinary Differential Equations. Bessel and Legendre functions.	22/01	28/01
2	Orthogonal Functions. Fourier Series.	29/01	
3	Classical PDEs and Boundary-Value Problems.	05/02	
4	Separable Partial Differential Equations.	12/02	18/02
5	Sturm–Liouville Problem. Bessel and Legendre Series.	19/02	
6	Heat equation. Wave equation. Laplace's equation.	26/02	
midterm cut-out			
7	Non-homogeneous Boundary-Value Problem. Fourier Series in Two Variables.	05/03	11/03
8	Boundary Value Problem in other Coordinate Systems.	12/03	
9	Integral Transform Method.	19/03	
10	Function of a Complex Variable.	26/03	01/04
11	Series and Residues. Evaluation of Real Integrals.	02/04	
12	Conformal Mappings.	09/04	