Faculty of Science Course Syllabus
Department of Mathematics and Statistics
MATH 4020, Analytic Function Theory
Winter, 2020

Instructor(s): Robert Milson
Lectures: MWF 08:35-09:55 Chase 319
Office Hours: MWF 12:30-13:30, Chase 203
Laboratories: n/a
Tutorials: n/a

Course Description
Topics include: review of analytic complex functions including topological properties of the plane, exponential, logarithmic, trigonometric and related functions, Cauchy-Riemann equations, integration and the Cauchy theorem. Cauchy's integral formula, residues, the argument principle, applications to real integrals and zero counting, some results of conformal mapping, elliptic functions.

Course Prerequisites
Math 2002 (Math 3080 Recommended)

Course Objectives/Learning Outcomes
Complex numbers
Holomorphicity and CR equations
Complex transcendental functions
Antiderivatives
Cauchy's Theorem and integral formula
Power series
Laurent series
The Residue Theorem
Evaluation of real integrals
Winding number and argument principle
Rouche's Theorem
Conformal Mappings
Elliptic functions

Course Materials
A First Course in Complex Analysis by Beck, Marchesi, Bixton, Sebalka
http://math.sfsu.edu/beck/complex.html
Course Assessment

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (% of final grade)</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Final exam (24h takehome)</td>
<td>40%</td>
<td>TBA</td>
</tr>
<tr>
<td>8 assignments</td>
<td>60%</td>
<td></td>
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</tbody>
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Course Policies

- All assignments are to be a strictly individual effort. Collaboration is not allowed.
- The takehome examination is to be a strictly individual effort. Collaboration with other students and discussions with third parties are not allowed.
- Students are encouraged to review Dalhousie’s guidelines on Academic Integrity (see below)

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

<table>
<thead>
<tr>
<th>A+ (90-100)</th>
<th>B+ (77-79)</th>
<th>C+ (65-69)</th>
<th>D (50-54)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (85-89)</td>
<td>B (73-76)</td>
<td>C (60-64)</td>
<td>F (&lt;50)</td>
</tr>
<tr>
<td>A- (80-84)</td>
<td>B- (70-72)</td>
<td>C- (55-59)</td>
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University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate.

Academic Integrity
At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility
The Advising and Access Services Centre is Dalhousie’s centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).
Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code of Conduct
Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don’t follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can’t be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Diversity and Inclusion – Culture of Respect
Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness
Statement: http://www.dal.ca/cultureofrespect.html

Recognition of Mi’kmaq Territory
Dalhousie University would like to acknowledge that the University is on Traditional Mi’kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).
Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)
https://www.dal.ca/academics/important_dates.html

University Grading Practices
https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Missed or Late Academic Requirements due to Student Absence (policy)
https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html

Student Resources and Support

Advising
General Advising https://www.dal.ca/campus_life/academic-support/advising.html
Science Program Advisors: https://www.dal.ca/faculty/science/current-students/academic-advising.html
Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html
Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html
International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: https://libraries.dal.ca/
Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html
Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html
Copyright Office: https://libraries.dal.ca/services/copyright-office.html

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html
Student Advocacy: https://dsu.ca/dsas

Safety

Biosafety: https://www.dal.ca/dept/safety/programs-services/biosafety.html
Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html
Radiation Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety.html

Scent-Free Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html