

1 Course Outline

Text: *Notes on DiffY QS*, Jiri Lebl

A free version is available here

<http://www.jirka.org/diffyqs/>

In this course, we will consider some of the more advanced topics in differential equations. The key topics we will consider include,

- Series solutions to differential Equations.
- Solutions using transforms.
- Eigenvalue problems.
- Partial differential equations

Depending on time constraints other topics of interest to the class may be added.

Lectures will be held using Brightspace. There will be a lecture tab in the content section of the course webpage. Follow the Ultra link to the lectures. A room will open 5min before the start of the lecture. To access the recordings, go to the Ultra link. There will be three horizontal bars on the left side of the Sessions heading. Click there and select Recordings. You should see a list of the recorded lectures.

Homework and tests will use Webwork. Both may be accessed from the content tab of the course page.

2 General Information

Instructor David Iron

Times Monday, Wednesday and Friday 10:25-11:25

Location Brightspace

Web Page Brightspace

Office hours Wednesday 2:00-3:30 and Thursday 1:00-2:30

3 Instructor Information

Name David Iron

Office Chase 322

Phone (902) 494-2385

email iron@mathstat.dal.ca

4 Grading

Homework 40%

Term Tests 20%

Final Exam 40%

5 Grading Scheme

The grading scheme is as follows:

A+	A	A-	B+	B	B-	C+	C	C-	D	F
[90, 100]	[85, 90)	[80, 85)	[77, 80)	[73, 77)	[70, 73)	[65, 70)	[60, 64)	[55, 60)	[50, 55)	[0, 50)

6 Course Topics and Approximate Dates

week Jan 6 Introduction and Boundary Value Problems- Section 4.1

week Jan 11 Fourier Series - Section 4.2 and 4.3

Jan 15 Homework 1 due. Homework due every Friday (excluding test weeks) henceforth.

week Jan 18 Fourier Series continued - Section 4.4 and 4.5

week Jan 25 Partial Differential Equations - Section 4.6

Jan 29th Test 1

week Feb 1 Separation of Variables - Section 4.6

week Feb 8 Wave Equation - Section 4.7

week Feb 15 Reading week

week Feb 22 Heat Equation - Section 4.8

Feb 26 Test 1

week Mar 1 Laplace Equation - Section 4.9

week Mar 8 Laplace Equation - Section 4.10

week Mar 15 Eigenvalue Problems - Section 5.1 and 5.2

week Mar 22 Eigenvalue Problems - Section 5.3

week Mar 29 Power Series Solutions - Section 6.1 and 6.2

week Apr 5 Power Series Solutions - Section 6.3

Apr 8 Test 3

7 Course Policies

- Assignments will be due on Fridays at midnight.
- Assignments will be made available on the day following a due date.
- Late assignments will not be accepted.
- Test will be open from 8am to 6pm. There will be no class held on Test days, but I will be available in the class at the scheduled time to answer questions.
- Provisions for make up tests must be arranged before the test day.

8 University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate Missed or Late Academic Requirements due to Student Absence As per Senate decision instructors may not require medical notes of students who must miss an academic requirement, including the final exam, for courses offered during fall or winter 2020-21 (until April 30, 2021). Information on regular policy, including the use of the Student Declaration of Absence can be found here:

https://www.dal.ca/dept/university_secretariat/policies/academic/misssed-or-late-academic-requirements-due-to-student-absence.html

. 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. Code:

https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

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

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>

- Fair Dealing Guidelines:

<https://libraries.dal.ca/services/copyright-office/fair-dealing.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>

- Ombudsperson:

https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities-where-to-get-help/ombudsperson.html

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>