MATH 256 102 2023W1 Differential Equations

Brief Description

This course provides an introduction to solution methods for ODEs for engineering students. Topics include:

I. First-order ODEs (integrating factors, separable equations)

II. Second-order, constant coefficient ODEs (real, repeated and complex roots; homogeneous and inhomogeneous)

III. Systems of ODEs

IV. Laplace Transform methods

V. Fourier series

VI. Solution of partial differential equations by separation of variables

Instructors

Section 102 - Neil Balmforth, M/W/F 12:00-13:00, LSK 200

Section 101 - Miranda Holmes-Cerfon, M/W/F 12:00-13:00, Math100

TAs and Office Hours

TA for section 102: Peilin Wu (peilinwu@math)

(Email him for help with webwork. Note: Please email me during weekdays as I will be away on weekends and won't see emails)

Peilin's hours in the MLC are online on Wednesdays, 5:00-7:00pm

Additional in-person office hours: (Tuesdays 5:00-6:00pm)

More information:

Consult the webpage

www.math.ubc.ca/~njb/Math256.htm

for more information, including sample exams, video lectures and more

Textbook

There is no required textbook for the course. Some additional recommended books which cover very similar

content include:

Jiri Lebl, "Notes on Diffy Qs". Available for free online at this link:

https://www.jirka.org/diffyqs/

Boyce and DiPrima, "Elementary differential equations and boundary value problems"

E. Kreiszig, "Advanced Engineering Mathematics"

You are *strongly encouraged* to simultaneously read at least one of these books, for extra problems and for the additional perspective.
Background Knowledge
Here are some topics you should be familiar with prior to the course.
a selection of background topics
complex numbers
notation

Assignments
WeBWork Assignments
Access via "WebWork" tab (please note that you should get redirected correctly to WebWork through this link; you might get an "LTI launch error" if you try to access the 256 WebWork from another page, be warned...)
By popular demand, the webwork with lowest score will be dropped

Exams
There will be two in-class midterm exams and a final exam. The tentative dates are
Midterm 1: 50 minutes, 11th October (switched by popular request)
Midterm 2: 50 minutes, 10th November (switched by popular request)
Final: 2.5 hours, to be determined by registrar
Students who miss a midterm exam for a valid reason will have their grade averaged proportionally over the other exams.

Grading
50% final exam
19%/19% for midterm 1/midterm 2
12% Webwork Assignments

Where to get help
Go to office hours (posted above)
Post a question to Piazza (access via "Piazza" tab). You are encouraged to monitor Piazza and post questions
or respond to other students' questions. The instructors and TAs will NOT access this forum,
Reach out to the TAs
Go to the Math Learning Centre (MLC)

University Policies

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on the UBC Senate website.

Course Summary:

Date Details Due

Wed Oct 11, 2023 Midterm 1 due by 11:59pm

Fri Nov 10, 2023 Midterm 2 due by 11:59pm

Final Exam