SYLLABUS - MATH 3150 section 1, Summer 2020
Partial Differential Equations for Engineers

This course covers all of the material covered in a Fall/Spring semester Math 3150 course. Students will be expected to spend 9+ hours studying outside of lecture each week.

Instructor: Huy Dinh
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Class Hours:: MWF 12:30 – 2:00 PM Mountain Time (use Zoom URL)

Office Hours: After class or by appointment.

Text: Partial Differential Equations for Scientists and Engineers, William H. Nesse
Textbook is posted on the Canvas page.

Class Webpages::
Zoom URL: `https://utah.zoom.us/j/93323197797`
Canvas URL: `https://utah.instructure.com/courses/565918`
Gradescope URL: `https://www.gradescope.com/courses/128483`

Prerequisite: Prerequisites: "C" or better in ((MATH 2250 OR (MATH 2270 AND MATH 2280) AND (MATH 2210 OR MATH 1260 OR MATH 1280 OR MATH 1321)).

Expected Learning Outcomes: Upon successful completion of this course, a student should understand Fourier series and boundary-value problems for the wave, heat, and Laplace equations, separation of variables in rectangular and radial geometries, Fourier transform.

Grading: Please check Canvas for assignment scores. The grades will be calculated as follows:

Homework	30%	A:	93 - 100	C:	73 - 76
Exam 1	20 %	A-:	90 - 92	C-:	70 - 72
Exam 2	20 %	B+:	87 - 89	D+:	67 - 69
Final Exam	30 %	B:	83 - 86	D:	63 - 66
		B-:	80 - 82	D-:	60 - 62
		C+:	77 - 79	E:	0-59

Course Adjustments: The instructor may change course policy as needed.

Lectures: Lectures will follow a flipped format. Recorded video lectures are provided for students. Class times are reserved for working out problems and student questions. Please use the Zoom URL to attend the lectures. Class lectures can be found at `https://www.youtube.com/playlist?list=PLkfmuPOLLnthHE9ICNdGgdgIi16-M8OZS`. Additional lectures can be found at `https://www.youtube.com/playlist?list=PLkfmuPOLLntgXeyQr7mzc6qQIaOZuBv_t`. Which videos to watch will be announced on Canvas at the start of every week. Linked video names closely follow those found in the calendar given below.

Homework: Homework assignments are submitted to Gradescope and due at the beginning of every class period, 12:30 PM. There are no make up or substitute assignments. Late assignments will not be accepted.

Exams: Two midterm exams and a final exam will be given (see schedule for dates). Exam PDF files will be posted on Canvas. Student submissions are accepted through Gradescope. Exam will be posted at noon on the exam date and have a 24 hour submission period, due at noon the following day. There are no makeup exams. Recheduling must be done one week in advance, no exceptions. All exams are cumulative.

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services (CDS), 162 Olpin Union Building, 581- 5020 (V/TDD). CDS will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDS.

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee: http://regulations.utah.edu/academics/6-400.php

Course Content Calendar: This course closely follows the textbook.

Monday, May 11th	transport/flux, continuity equation p. 1–39
Wednesday, May 13th	differential equation and eigenfunctions p. 43–74
Friday, May 15th	inner product spaces and orthogonal functions p. 76–89
Monday, May 18th	least squares function approximation and Fourier series p. 90–101
Wednesday, May 20th	Fourier convergence, Sine and Cosine Series p. 104–113
Friday, May 22th	Midterm 1
Monday, May 25th	Memorial Day Holiday
Wednesday, May 27th	energy spectrum, thermal energy in a rod p. 114–121, 129–133
Friday, May 29th	modeling diffusion, equilibrium solutions p. 135–146
Monday, June 1st	seperation of variables with applications p. 148–159
Wednesday, June 3rd	nonhomogeneous problems p. 161-165
Friday, June 5th	Midterm 2
Monday, June 8th	conservation of momentum and the wave equation wave equation solutions p. 167-184
Wednesday, June 10th	2D phenomena and Laplace equation
Friday, June 12th	Laplace equation solutions on rectangles and disks
Monday, June 15th	Properties of Laplace equation solutions
Wednesday, June 17th	Final Exam

Assignment Calendar: No substitutions or late submission for homework or exam grades.

Wednesday, May 13th	p. 9 (# 1.1), p.20 (# 1.11), p.28 (#1.20)
Friday, May 15th	p. 48 (# 2.4), p.58 (# 2.7), p. 68 (# 2.19 a–d, 2.20 a–d)
Monday, May 18thth	p. 83 (# 2.37, # 2.39), p.89 (# 2.52)
Wednesday, May 20nd	p. 95 (# 2.56), p. 102 (# 3.6, # 3.8 a,c,d,h)
Wednesday, May 27th	p. 108 (# 3.10), p. 113 (# 3.18, # 3.21)
Friday, May 22th	Midterm 1
Monday, May 25th	Memorial Day Holiday
Friday, May 29th	p. 119 (# 3.25), p. 133 (# 4.1)
Monday, June 1st	p. 140 (# 4.2, 4.4, 4.6)
Wednesday, June 3rd	p. 160 (# 4.14 a–c, # 4.18, #4.19)
Monday, June 8th	p. 165 (# 4.20, # 4.22, # 4.23)
Friday, June 5th	Midterm 2
Wednesday, June 10th	p. 176 (# 5.2, # 5.22, # 5.23)
Friday, June 12th	to be assigned
Monday, June 15th	to be assigned
Wednesday, June 17th	Final Exam