MATHEMATICS 3150-001
Spring 2020, 2 Credits

Instructor: Hallie Elich, call me “Hallie” rhymes with “valley”
Contact: elich@math.utah.edu
Course meets: MWF 10:45-11:35 a.m. in WEB L110
Office location: LCB 311
Office hours: To be announced; also by appointment


Canvas: Go to http://utah.instructure.com/ and login.
From there, under the Courses tab, you should see your 3150 course. We will use Canvas in place of a class web page. I will post announcements, assignments, and scores on Canvas. Lecture notes are NOT posted. You are also responsible for announcements made in class. You should feel free to utilize Canvas for discussions with classmates. The fastest way to contact me, though, is via elich@math.utah.edu rather than through Canvas.

Prerequisite: “C” or better in [MATH 2250 OR (MATH 2270 AND MATH 2280)] AND [MATH 2210 OR MATH 1260 OR MATH 1280 OR MATH 1321].

Course Description: Fourier series and boundary-value problems for the wave, heat, and Laplace equations, separation of variables in rectangular and radial geometries, Fourier transform.

Welcome to Partial Differential Equations for Engineering Students! Despite this being only a 2-credit course, it is demanding and will require that any gaps in prerequisite knowledge be filled quickly. To succeed, it is imperative that you devote time regularly to working homework problems and do not fall behind. Learn by doing! Inspired by the importance of this, homework counts for a significant portion of your grade. It’s also important to attend class and engage in active learning. Ask questions. If you work and think hard and seek help when needed, you’ll vastly improve your problem-solving skills. This is a challenging and rewarding experience that aims to prepare you for your future careers.

In addition to attending my office hours, I strongly recommend forming study groups and utilizing Canvas for discussions. Also, PLEASE take advantage of the additional resources as outlined on the next page.
Tutoring Lab:
T. Benny Rushing Mathematics Student Center (located underground btwn LCB and JWB; can access downstairs from LCB first floor), Room 155, M - Th 8 a.m. - 8 p.m., F 8 a.m. - 6 p.m. (closed Saturdays, Sundays and holidays). Free general tutoring. You should check their posted tutor schedule to see when a 3150 tutor is available. See: https://www.math.utah.edu/undergrad/mathcenter.php. There are some convenient study areas right outside the lab; there’s also a lounge area with a fridge and microwave.

Private Tutoring:
University Tutoring Services, 330 SSB (they offer inexpensive tutoring). There is also a list of private tutors for hire at the Math Department office in JWB 233.

Computer Lab:
also in the T. Benny Rushing Mathematics Student Center, Room 155C. M - Th 8 a.m. - 8 p.m. F 8 a.m. - 6 p.m. Link to computer lab is http://www.math.utah.edu/ugrad/lab.html. Great place to use Maple or Matlab.

Course Objectives:
- Understanding the meaning of PDEs and boundary conditions. Derivation of the heat, wave, and Laplace equations. Recognizing applicability of PDEs to real-world problems.
- Solving PDEs using separation of variables technique. This method is the cornerstone of the course and is connected with the superposition principle and Fourier series.
- Learning the Fourier transform and how to apply it in order to solve PDEs.

Grade Components:
Homework  25%
Quizzes  25%
Exams  25%
Final  25%

Homework assignments will be posted to Canvas. Although we’ll keep a running problem list (more problems will be added typically after each class to a growing list), homework will generally be due every other week. Do not wait until the last minute to start your homework; this schedule is intended to give you flexibility and make the most of our time. Solution keys will be posted after each deadline for your convenience/self-checking. Late homework is not accepted, and your homework must be stapled, fringe-free, legible, and delivered in hard paper copy. No electronic homework is accepted. Homework will be due on 1/24, 2/7, 2/21, 3/6, 3/27, 4/10. Your lowest homework score will be dropped.
There will be a 20-minute open-book, open-notes quiz every other week (not including exam weeks). Also, your homework and quiz due dates alternate weeks. There are no makeup quizzes. For this reason, your lowest quiz score will be dropped. Here are the quiz dates 1/17, 1/31, 2/28, 3/20, 4/17.

Exams will be closed-book, closed-notes and take place on Friday, Feb. 14 and Friday, Apr. 3. You must contact me in advance in the event of a documentable emergency, serious illness, etc.

The final exam is comprehensive. It will take place in our usual classroom on Tuesday, April 28 from 10:30 a.m. - 12:30 p.m.

Grading Scale:
A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), E (0-59).

Expectations:
Attend class, read the text and work the examples, take notes, complete homework assignments, participate and ask questions, respect. Devote sufficient time to this class. Practice to improve your problem-solving skills. Group work is fine, but make note with whom you collaborate and write up your own work. You are responsible for reading all course e-mail correspondence and for all announcements made in class and on Canvas. I expect you to come to me with questions during office hours, by appointment, or by e-mail (allow 24 hour response time during weekdays). All electronic devices must be silenced (during class, too) and stored out of sight during exams!

Calculators:
No calculators will be allowed on quizzes or exams.

Academic dishonesty:
Strictly not tolerated and subject to an automatic E in this course; your enrollment in this course indicates that you understand and will follow my and University policies regarding academic dishonesty. As defined in the University Code of Student Rights and Responsibilities, academic misconduct includes, but is not limited to, cheating, misrepresenting one’s work, inappropriately collaborating, plagiarism, and fabrication or falsification of information. It also includes facilitating academic misconduct by intentionally helping or attempting to help another student to commit an act of academic misconduct. Let me know if you have questions on this or are unsure what constitutes “cheating.”
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

Important Dates:

1/17      Last day to drop (delete) classes
1/20      MLK, Jr. Day–no class
2/14      Exam I
2/17      Presidents’ Day–no class
3/6       Last day to withdraw
3/8-3/15  Spring Break–no class
4/3       Exam II
4/21      Last day of classes
4/28      Final Exam (10:30 am - 12:30 pm, our usual room)

We will cover most of the material in chapters 1-4 and 10 of the text.

Disclaimer: This syllabus has been created as a preview of the course, and I have tried to make it as accurate as possible. I reserve the right to make reasonable changes to the above policies as I deem appropriate. Any such changes will be announced.