

**MATH 3150 PDES FOR ENGINEERS, SECTION 1
SPRING 2014 SYLLABUS**

Instructor: Fernando Guevara Vasquez.

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Office hours: MW 9:30-10:30am or by appointment.

Textbook: *Linear Algebra & Differential Equations*, Edwards et al. ISBN 9781269425575. This is a custom print book available only at the University Bookstore (price: about \$210)

<http://www.bookstore.utah.edu/utah/CourseMaterials.aspx?search=978126942557>

This is the very same book used in Math 2250, if you have taken this class recently.

About 90% of the material in this class comes from the book: *Applied Partial Differential Equations with Fourier Series and Boundary Value Problems*, fifth ed. by Haberman (ISBN: 978-0321797056).

Price: about \$130. Keep in mind that all references (e.g. problem numbers) will be made with respect to the custom print. If you use the Haberman book, **you are responsible for making sure that you are doing the right problems**, as references may be different and some assigned problems may not even be in the Haberman book (but are in the custom print).

Prerequisites: Vector Calculus (Math 2210 or 1260 or 1280 or 1321), ODEs and linear algebra (Math 2250 or Math 2270/2280 series).

Hours and Classroom: MW 10:45-11:35, WEB L110

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

Material covered: 4.1–4.4, 4.7–4.8, 4.10, 12.1–12.4, 13.1–13.5, 14.1–14.6, 15.1–15.6, 16.1–16.7

Course Website: Class notes, assignments and other important announcements are available from Canvas for registered students:

<https://utah.instructure.com/>

Grading: weekly homeworks 20%, surprise quizzes 10%, two midterms (20% each) and a comprehensive final exam (30%).

Quizzes: Expect about 5 in class surprise quizzes. These are **short, ten minutes, 1-2 problems, quizzes** administered at the **beginning of the class** (hence you encouraged to come in time for class). There are no make ups for missed quizzes. The lowest quiz grade will be ignored.

Exams:

Midterm 1: Wed Feb 12 (tentative date)

Midterm 2: Wed Apr 9 (tentative date)

Final: Mon Apr 28, **10:30am-12:30pm** (per university's final exam schedule)

Homework: Homework is due in class. No late homework will be accepted. The lowest homework grade will be ignored. Each homework assignment includes a list of recommended problems, out of which only a few will be graded. **Students need only to turn in the graded problems.** You are **strongly encouraged** to solve all the assigned problems as they may be part of the quiz and/or exam material.

Programming: Sample code will be given in Matlab for assignments that require programming. No previous programming experience is necessary for this class.

Letter grades: If X is your percentage grade, then $\{X \geq 93\% \Rightarrow A, X \geq 90\% \Rightarrow A-, X \geq 87\% \Rightarrow B+, X \geq 83\% \Rightarrow B, X \geq 80\% \Rightarrow B-, X \geq 77\% \Rightarrow C+, X \geq 73\% \Rightarrow C, X \geq 70\% \Rightarrow C-, X \geq 67\% \Rightarrow D+, X \geq 63\% \Rightarrow D, X \geq 60\% \Rightarrow D-, X < 60\% \Rightarrow E\}$. Letter grade assignments can be changed at the discretion of the instructor.

Make-up and regrading: Any conflict leading to missed exams or super quizzes are your responsibility and must be arranged ahead of time or within a week past the test. Failure to do so may result in a zero for the corresponding test. Regrading inquiries must be submitted in writing within a week of the test being returned.

Honor Code: You are expected to abide by the University of Utah Honor Code and to avoid any instances of academic misconduct, including but not limited to: (1) possessing, using, or exchanging improperly acquired written or oral information during an exam, (2) substitution of material that is wholly or substantially identical to that created or published by another individual(s), and (3) false claims of performance or work.

Mathematics Tutoring Center: FREE tutorial is available in room 155 of the T. Benny Rushing Mathematics Center (adjacent to the LCB and JWB). Hours are 8am-8pm Monday-Thursday and 8am-6pm on Friday. For more information consult the website below. **Note:** Not all tutors can help with Math 3150, so please make sure you check the schedule before going to the Math Center.

<http://www.math.utah.edu/ugrad/mathcenter.html>

Students with Disabilities: 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, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

Some useful links

- This syllabus: http://www.math.utah.edu/~fguevara/math3150s14_syllabus.pdf
- You might find the videos and problems from the website of the Khan Academy helpful <https://www.khanacademy.org/>

Strategies for Success

- Attend class. Being engaged everyday helps you learn, of course.
- Read the relevant text book sections *before* you attend class.
- Plan to do homework daily.
- Know how grades are computed *before* its too late.
- Form study groups with other students. Working in groups helps students self-evaluate what they know and what they don't know better than students working by themselves.