Math 418/518 Survey of Partial Differential Equations DRAFT 20200611

Times/Locations
Lectures M W F 11:00AM - 11:50AM location TBA, recitations W 5:00PM - 5:50PM location TBA starting Sep. 2 There will be quizzes in recitation.
Whether class will meet in person or by means of zoom is to be announced. If via zoom, please check your email 5-10 mins. before scheduled class time.

Instructor
Brian Hassard, location TBA, 645-8808, hassard@buffalo.edu
My office hours are Mon 3-4, Wed 3-4, and by appointment. Do not hesitate to come during office hours or make an appointment if you have lengthier questions.

TA/Help Center/Tutors
??/??, ?? Mathematics, 645-88?? ??@buffalo.edu has office hours ___________

Course Description
(Undergraduate; 4 hours credit) Surveys elementary differential equations of physics; separation of variables and superposition of solutions; orthogonal functions and Fourier series. Introduces boundary value problems, Fourier and Laplace transforms. (Graduate; 3 hours credit) Fourier series, sine and cosine series, mean convergence, point-wise convergence, orthogonal functions. Linear ordinary differential equations, solution by Laplace transforms, solution by power series. Green's functions. Partial differential equations: solution of boundary value problems by series, methods of separation of variables, solution of boundary value problems by integral transformations, classification and stability of equations. Additional reading on selected topics.

Prerequisite
MTH241 and MTH306

Texts

Topics
The course will cover Haberman, most Chapters 1-4 and portions of Chapter 5, 7, 8, 9, 10, and 12.

Paper and WebWork Homework, Exams
Paper HW questions will be posted on the class website http://www.nsm.buffalo.edu/~hassard/418/. Some of these questions will be later identified as an assignment to be turned in. At the top of the first page, please include your name, MTH 418 or MTH 518, and assignment number. For each question, write a clear exposition of your solution (including sentences to explain your work where appropriate).
Paper HW will be submitted via https://www.gradescope.com/. When the instructor sets up the first HW assignment on gradescope, you will receive instructions from gradescope. Use a cam-scan application on your cell phone or tablet to scan your HW to a pdf, and email the pdf to yourself. Then visit gradescope course MTH418 and upload your HW.

WeBWork at http://ww2.math.buffalo.edu/webwork2/2020_8_MTH418_Hassard/ will become available each Sunday within a few minutes of midnight, The normal due date will be three weeks later, a few minutes before midnight on Monday.

There will be two in class exams during the term and a final during final exam period. You are permitted one 8.5x11 sheet of paper with notes/formulas for each exam. Material covered in the exam is anything in the book or presented in lecture.

Grades
For 418, the in-class tests will each count 17%, the final 34%, (paper) homework 10%, WebWork 15%, and recitation participation/quizzes 7%.

For 518, the in-class tests will each count 18%, the final 36%, (paper) homework 13%, and WebWork 15%.

Plus and minus letter grades will be assigned, based on the course total out of 100 points. A course total of 90 points is a guaranteed ‘A’, 80 points is at least a ‘B’, 70 a ‘C’ and 60 a ‘D’. The grades will likely be better than with this scheme: see http://www.nsm.buffalo.edu/~hassard/418/howigrade/ for my grade process.

Accommodations, Incompletes
If you have a diagnosed disability (physical, learning or psychological) which will make it difficult for you to carry out the course work as outlined, or requires accommodations such as recruiting note takers, readers or extended time on exams and/or assignments, please advise me during the first two weeks of the course so that we may review arrangements for accommodations.

If any situation arises that will prevent you from completing the course, contact me at 645-8808 to request an incomplete. See https://catalog.buffalo.edu/policies/explanation.html The incomplete will be granted provided the situation is beyond your control AND you have completed 50% or more of the course with an average grade of 50% or greater.

Academic Honesty
You are expected to adhere to the letter and spirit of academic honesty. You can discuss assignments with other students, but the details of the solution as submitted are originally yours. Violations of academic integrity will be investigated.

Course relevance
MTH 418 is part of degree programs in Bioinformatics And Computational Biology, Civil Engineering, Engineering Physics, Mathematics, Mechanical Engineering, and Physics. MTH 518 is part of degree programs in Mathematics and Economics.

Dates

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<tr>
<th>Mon Aug 31</th>
<th>First day of 418/518 class</th>
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<tbody>
<tr>
<td>Fri Sept 25</td>
<td>HW1 due</td>
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<td>Fri Oct 9</td>
<td>Test 1</td>
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<td>Fri Oct 23</td>
<td>HW2 due</td>
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<td>Fri Nov 6</td>
<td>Test 2</td>
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<td>Fri Nov 13</td>
<td>last day to resign</td>
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<td>Fri Nov 20</td>
<td>HW3 due</td>
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