Instructor: James Adler (james.adler [at] tufts.edu)  
Office: BP-209  
Office Hours: TR 10:30-11:45am or TR 1:30-3:00pm or  
Office: BP-101  
By Appointment

Required Materials:

- Textbooks: There are no required texts for this class. However, there are many books and websites that present material relevant to this course. A few suggestions have been listed on the Canvas Reading List page, but these are neither required reading nor a complete list of good references. Most of these are readily available electronically through the Tufts library.

- Programming Software: The programming for this course can be done in any language that you choose. Matlab is probably the easiest to pick up if you are not familiar with any other (and even if you are). All Tufts students have access to Matlab in the ITS Computing Center @ Eaton Hall. You can also install Matlab on your personal computer via the Tufts site license. To obtain the license and install Matlab see the following link. Other possibilities include using python with numpy/scipy/matplotlib, or even julia. If you would like to use another option, please discuss this with me. For resources on Matlab, including some tutorials, see the Canvas Modules link.

- Discussions: Students are encouraged to regularly visit the Discussions forum for the course (linked on Canvas). Students can ask questions about homework, projects, coding, and any other topics related to the course. Either myself, the TA, or other students (preferred) may answer these questions.

Homework:

There will be about 6 homework assignments during the semester worth a total of 60% of your grade. The assignment due dates can be found on the “Assignment” tab on Canvas. These assignments combine some pencil-and-paper exercises with programming questions. The first homework assignment will not be due until the third week of class. I strongly suggest that you use this time to familiarize yourself with Matlab (or your language of choice) if you do not already know it. There will be no leniency granted for late assignments due to unfamiliarity with programming.

All homework assignments are due by 5:00pm on the date specified. Everyone is allowed a one-time 24 hour extension for free for the homeworks. Each additional 24 hours, however, costs you 10 points on the homework. Here’s the catch, though, it’s cumulative...So let’s say you turn in HW1 one day late. You lose no points. But if on the next assignment you also turn it in 24 hours late, that is actually your second late homework and you lose 10 points. So if you turn in every assignment 1 day late for the rest of the semester, on that last assignment you’ll lose 50 points.

You are encouraged to collaborate with other students and to check your solutions. However, you must submit your own solutions in your own writing.

Course Project:

There will be one final project worth 40% of your grade. This will involve several components due throughout the semester, in which you will be asked to research a topic of your choice related to numerical methods for PDEs. You may choose a topic related to anything discussed in the course (or not discussed but still related to Numerical PDEs) and investigate it in more depth. The following 4 components make up the project:

1) Proposal: (5%) You will submit a two-page proposal of your research, discussing why the specific topic is interesting and what you will analyze or study. This proposal will then be “reviewed” by your classmates.

2) Review: (5%) Each student is required to read one other student’s proposal and give feedback on the potential and plausibility of the proposed analysis, including giving suggestions for further research.

3) Paper: (15%) For the remaining part of the semester, you will work on the proposed research, taking into account your peer’s comments, and creating a no more than 10 page document discussing your findings.

4) Presentation: (15%) You will finally give a short 10-15 minute presentation to the class on your work.

More details on each assignment, including due dates and specific expectations, can be found on Canvas.
Exams:
There will be no exams in the course, however, students are required to abide by the university and the department’s guidelines on academic integrity. The full department policy on exams and grading can be found on the department website, here, as well as the university’s policies, here.

Course Grade:
Your final grade will be based on the percentages described above. The numerical score may or may not be scaled before it is translated into a grade following the conversion table here:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>&gt;98</td>
</tr>
<tr>
<td>A</td>
<td>93-98</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
</tr>
<tr>
<td>B-</td>
<td>80-82</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
</tr>
<tr>
<td>C-</td>
<td>70-72</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
</tr>
<tr>
<td>D</td>
<td>63-66</td>
</tr>
<tr>
<td>D-</td>
<td>60-62</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60</td>
</tr>
</tbody>
</table>

The instructor reserves the right to decide whether or not to scale grades until the very end of the semester.

Learning Objectives:
The learning objectives for this course include 1b-e, 2a-c, 3a-d, 3f, 4a-d, 5b, 5d-f, and 6b on the list of learning objectives for PhD program in Mathematics.

Student Accessibility Services:
Tufts University values the diversity of our students, staff, and faculty, recognizing the important contribution each student makes to our unique community. Tufts is committed to providing equal access and support to all qualified students through the provision of reasonable accommodations so that each student may fully participate in the Tufts experience. If you have a disability that requires reasonable accommodations, please contact the Student Accessibility Services office at Accessibility@tufts.edu or 617-627-4539 to make an appointment with an SAS representative to determine appropriate accommodations. Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.

Sexual Misconduct/Sexual Assault Statement:
Sexual Misconduct, including Sexual Assault, is a form of discrimination based on sex or gender that violates federal Title IX regulations and is prohibited by Tufts policy. Tufts is committed to providing an education and work environment that is free from sexual misconduct (see Tufts Policy on Sexual Misconduct and Nondiscrimination). Federal law, state law, and Tufts policy require that sexual misconduct (sex/gender discrimination, sexual harassment, sexual assault, sexual exploitation, stalking, as well as relationship, dating and domestic violence) are subject to the same kinds of support and same accountability measures as any other protected category. For more information about protected categories, please see the Tufts non-discrimination statement.

If you or someone you know has been harassed or assaulted, you may contact the Office of Equal Opportunity at (617) 627-3298 or file an anonymous complaint at http://tufts-oeo.ethicspoint.com/ For anonymous resources and support please go to OEO’s resource page. You may also call in confidentiality the Tufts Counseling and Mental Health services at (617) 627-3360 or Tufts’ Ears for Peers at (617) 627-3888 during business hours, or the Boston Area Rape Crisis Center at (800) 841-8371 all day every day.

Final Comments:
• You are responsible for knowing all information contained in this syllabus. All other announcements will be sent to your Tufts email and/or posted on Canvas. You are expected to check these announcements and messages regularly and inform your instructor of any issues with deadlines in a reasonable amount of time.
• Ask questions if you don’t understand. Don’t be afraid to visit me during office hours, where we can go over material and homework you don’t quite understand.
• Come to class! I don’t take attendance, but that’s where the learning takes place. Also please arrive on time and try not to leave early so as not to disturb your classmates. Electronic devices are not allowed during class.
• You do not have my permission to post photos or recordings of this class online or propagate them or any other course material in any other fashion.
• Sleep! It’s the number one way to improve your mathematics ability. Just not during class...
• Mathematics jokes are welcome at any time during class. Please keep it appropriate though...