Math417: Partial Differential Equations for applications

Basic Course Information

Lecturer: Chengbo Wang (cwang@math.jhu.edu)
Course Webpage: http://math.jhu.edu/~cwang/417S11/
Office Hours: Krieger 222, Thursdays 3--4 PM, or by appointment
Lecture: TTh 12:00 PM--1:15 PM, in Maryland 104
Grader: Hongtan Sun (htsun@math.jhu.edu) in Krieger 207

We anticipate covering Chapters 1-5 and 7, and selected material from Chapters 10, 12, and others.

Grading Policy: 30% Homework, 30% Midterm Exam, 40% Final Exam.
Regrades: Disputes regarding homework grading should be discussed with your grader.
For midterm exam, if you believe a grading error was made, return the test paper to me before the end of the class of Mar 15, together with a note explaining which problem is in dispute and what correct work of yours was overlooked.

Homework: Homework will be posted on course homepage and will be collected on the Tuesday of the next week, before class.
The following rules apply to homework:

- Turn in homework on time. No late homework will be accepted.
- Study groups are encouraged, but homework has to be written down independently.
- Write clearly, stable your homework, with your name clearly at the top. The grader might choose not to grade your homework if it is too messy.
- The lowest score will be dropped when computing your overall homework grade.

Additional Supports

Math Help Room at Krieger 213: Monday--Thursday from 9AM--9PM and Fridays from 9AM--5PM.

Exams
There will be one in-class Midterm examination (March 10). The final exam will be take home final.

Midterm exam is closed book, closed notes. There will be no make-up exams. You are expected to attend class and take exam as it is scheduled. If you have time conflicts with the exam or need special arrangements, you must notify the instructor in writing at least one week in advance. For excused absences for mid-term, the grade for a missed exam will be a weighted average of the grades from the final. Unexcused absences count as a 0.

Special Aid, Academic Ethics and more details: check http://math.jhu.edu/~cwang/417S11/syllabus.html
Lecture Schedule and Assignment

Disclaimer: The schedule is approximate, and is always subject to change. Problem sets are due on Tuesdays in class. No late problem set will be accepted.

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<tr>
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| 1  | Feb 1, 3    | Introduction
             Derivation
             Boundary conditions (BC) | 1.1--1.5   | Feb 8    |
| 2  | Feb 8, 10   | Separation of variables
             Heat equation | 2.1--2.4   | Feb 15   |
| 3  | Feb 15, 17  | Laplace equation
             Fourier series | 2.5.1--2.5.2
             3.2--3.3   | Feb 22    |
| 4  | Feb 22, 24  | Fourier series
             Term by term differentiation | 3.3--3.4   | Mar 1    |
| 5  | Mar 1,3     | Fourier series: complex form
             Inhomogeneous Problems | 3.5--3.6
             8.2--8.3   | Mar 8     |
| 6  | Mar 8,10    | **Review I**
             **Midterm Exam** | NA        |          |
| 7  | Mar 15,17   | Wave equation
             Maximum principle, Uniqueness | 4.1--4.5
             2.5.4, .... | Apr 5     |
|    |             | **Spring Vacation**                              |           |          |
| 8  | Mar 29, 31  | Sturm-Liouville problem
             Worked example
             Self-adjoint operator | 5.2--5.5   | Apr 5    |
| 9  | Apr 5,7     | Rayleigh quotient
             Robin BC | 5.5, 5.6, 5.8 | Apr 12   |
| 10 | Apr 12, 14  | Approximation properties
             Large eigenvalues
             Higher dimensional PDEs | 5.9--5.10
             7.2--7.4   | Apr 19    |
| 11 | Apr 19,21   | Higher dimensional PDEs
             Selected Topics | 7.5--7.6   | Apr 26    |
| 12 | Apr 26      | Selected Topics
             Selected Topics | NA        |          |
| 13 | May 3       | Selected Topics
             **Review II** |           |          |