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Math 693b: Literature


Author: John C. Strikwerda.

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Class notes and web-page.

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### Syllabus

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<th>Chapter</th>
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<td>12</td>
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## Grading

<table>
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<th>Component</th>
<th>Weight</th>
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<tr>
<td>Homework</td>
<td>60%</td>
</tr>
<tr>
<td>Project</td>
<td>40%</td>
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* ≈ 7 assignments; first ≈ 3 mostly theoretical with some computational components, last ≈ 4 “purely” computational.

× Details to be discussed.
Most class attendance is “OPTIONAL” — Homework and announcements will be posted on the class web page. If/when you attend class:
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- Please pay attention.
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- Please turn off mobile phones.
- Please be courteous to other students and the instructor.
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- Please be on time.
- Please pay attention.
- Please turn off mobile phones.
- Please be courteous to other students and the instructor.
- Abide by university statutes, and all applicable local, state, and federal laws.
Please, turn in assignments on time. (The instructor reserves the right not to accept late assignments.)
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The instructor will make special arrangements for students with documented learning disabilities and will try to make accommodations for other unforeseen circumstances, e.g. illness, personal/family crises, etc. in a way that is fair to all students enrolled in the class. Please contact the instructor EARLY regarding special circumstances.
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Students are expected and encouraged to ask questions in class!
Missed midterm exams: Don’t miss exams! The instructor reserves the right to schedule make-up exams, make such exams oral presentation, and/or base the grade solely on other work (including the final exam).
Expectations and Procedures, III

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- Missed final exam: Don’t miss the final! Contact the instructor ASAP or a grade of incomplete or F will be assigned.
Expectations and Procedures, III

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- Missed final exam: Don’t miss the final! Contact the instructor ASAP or a grade of incomplete or F will be assigned.

- **Academic honesty**: submit your own work — but feel free to discuss homework with other students in the class!
Honesty Pledges, I

- The following **Honesty Pledge** must be included in all programs you submit (as part of homework and/or projects):
Honesty Pledges, I

The following **Honesty Pledge** must be included in all programs you submit (as part of homework and/or projects):

- I, (your name), pledge that this program is completely my own work, and that I did not take, borrow or steal code from any other person, and that I did not allow any other person to use, have, borrow or steal portions of my code. I understand that if I violate this honesty pledge, I am subject to disciplinary action pursuant to the appropriate sections of the San Diego State University Policies.
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- Work missing the honesty pledge may not be graded!
Honesty Pledges, II

Larger reports must contain the following text:
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I, (your name), pledge that this report is completely my own work, and that I did not take, borrow or steal any portions from any other person. Any and all references I used are clearly cited in the text. I understand that if I violate this honesty pledge, I am subject to disciplinary action pursuant to the appropriate sections of the San Diego State University Policies. Your signature.
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I, (your name), pledge that this report is completely my own work, and that I did not take, borrow or steal any portions from any other person. Any and all references I used are clearly cited in the text. I understand that if I violate this honesty pledge, I am subject to disciplinary action pursuant to the appropriate sections of the San Diego State University Policies. *Your signature.*

Work missing the honesty pledge *may not be graded!*
Math 693b: Computer Resources

You need access to a computing environment in which to write your code; — you may want to use a combination of Matlab (for quick prototyping and short homework assignments) and C/C++ or Fortran (or something completely different).

Free C/C++ (gcc) and Fortran (f77) compilers are available for Linux/UNIX.

You may also want to consider buying the student version of Matlab: http://www.mathworks.com/

SDSU students can download a copy of matlab from http://edoras.sdsu.edu/~download/matlab.html

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Math 531, Math 537 and Math 693a

531 ⇒ PDEs
- Boundary value problems for the heat and wave equations: eigenfunction expansions, Sturm-Liouville theory and Fourier series. D’Alembert’s solution to wave equation; characteristics. Laplace’s equation, maximum principles, Bessel functions.

537 ⇒ ODEs
- Theory of ODEs; existence and uniqueness, dependence on initial conditions and parameters, linear systems, stability and asymptotic behavior, plane autonomous systems, series solutions at regular singular points.

693a ⇒ Advanced Numerical Analysis (Numerical Optimization)
Math 693b: Informal Prerequisites

Math 531 and (Math 541 or Math 542 or Math 543 or Math 693a) and Mathematical Software (e.g. matlab)

Essential knowledge of PDEs, some experience with “mathematical programming” in some language (e.g. matlab), and linear algebra.

Knowledge of Fourier, Real, and Complex analysis is not required, but incredibly useful!

If you don’t know how to write code, this class will be VERY PAINFUL.