Advanced Applied Analysis, MATH 422/522, Section 1, Spring 2013

Instructor: Leonid Kunyansky
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Office hours: TBA
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Section webpage: http://math.arizona.edu/~leonk
Texts: F.B. Hildebrand, Advanced Calculus for Applications
D.A. McQuarrie, Mathematical Methods for Scientists and Engineers.

The course will cover the following topics: applications of vector calculus, complex variables, Sturm Liouville theory, Fourier series and transforms, separation of variables in classic partial differential equations.

Tentative calendar:

2 weeks: vector calculus review, integration over several variables.
2 weeks: complex variables, including simple residue theorem problems.
1 week: Sturm-Liouville Theory
2-3 weeks: Fourier Methods (series, transforms)
3-4 weeks:
Laplace/Poisson equations, via separation of variables.
Heat equation: separation of variables, Fourier transform.
Wave equation: separation of variables, Green’s functions.

Attendance: Students are expected to attend every scheduled class; it is the student’s responsibility to keep informed of any announcements, syllabus adjustments or policy changes made during scheduled classes. Students who will have missed three or more classes without an officially documented explanation will be dropped from the class. Students who have not submit three or more homeworks will also be dropped. Students are expected to behave in accordance with the Student Code of Conduct and the Code of Academic Integrity; those can be found at http://deanofstudents.arizona.edu/policiesandcodes.
**Homework/ Quizzes:** Homework will be assigned regularly, typically each week. **No late homework will be accepted.**

**Exams:** There will be one or two midterms, worth either 100 points or 75 points each. The final exam is worth 200 points. It is scheduled for **Thursday, May 9, from 8:00 – 10:00 am.**

**Grading:**
The total number of points received for the homeworks will be scaled to yield maximum 200 points. The final grade will be calculated using the following table:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>85% to 100%</td>
<td>A</td>
</tr>
<tr>
<td>75% to 85%</td>
<td>B</td>
</tr>
<tr>
<td>65% to 75%</td>
<td>C</td>
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<tr>
<td>55% to 65%</td>
<td>D</td>
</tr>
<tr>
<td>0% to 55%</td>
<td>E(fail)</td>
</tr>
</tbody>
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**Students with disabilities:**
If you anticipate issues related to the format or requirements of this course, please meet with your instructor to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (621-3268; [http://drc.arizona.edu](http://drc.arizona.edu)). You should notify me of your eligibility for reasonable accommodations by Tuesday, January 15. Then we will discuss how to coordinate your accommodations.

**Students withdrawing from the course:**
If you withdraw from the course by February 5, the course will be deleted from your enrollment record. If you withdraw from the course by March 5, you will receive a grade of W. The University allows withdraws after March 5, but only with the Dean’s signature. Late withdraws will be dealt with on a case by case basis, and requests for late withdraw with a W without a valid reason may or may not be honored.

**Incompletes:**
The grade of I will be awarded if all of the following conditions are met:
1. The student has completed all but a small portion of the required work.
2. The student has scored at least 50% on the work completed.
3. The student has a valid reason for not completing the course on time.
4. The student agrees to make up the material in a short period of time.
5. The student asks for the incomplete before grades are due (right after the final).