TOPICS IN APPLIED MATH
(Applied Inverse Problems)
MATH 8530/ SPRING 2013

CRN 18462, TR 11:00 am – 12:15 pm, Sparks Hall 137

Instructor: Alexandra Smirnova
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Office hours: TR 12:30 pm – 1:30 pm or by appointment

Description: Inverse problems in geophysics, hydrology, infectious diseases, biomedical imaging, chaos theory, and finance. Regularization algorithms and regularized numerical procedures. Parameter selection and stopping rules. Computational aspects.


Software: MATLAB Student Version 7.10 or later.

Prerequisite: Grade of C or higher in Differential Equations and Numerical Analysis.

Withdrawal: If you withdraw from this class on or before W-day (Tuesday, March 5 2013) you will receive a W. If you hardship withdraw after this date you will receive a WF unless your average is 70% or higher (www2.gsu.edu/~wwdos/hardship.html)

Procedures: Class meets twice a week. Taking good notes during the class is of paramount importance. Homework will be assigned in
each class. After the class read the book, read your notes and do as many of the homework problems as you can prior to the next class. Try to get the remaining problems explained in the beginning of the next class or during the next office hours. **You are responsible for all material covered in class, whether or not you attended this class.**

**Quizzes/Team competitions:** There will be quizzes and team competitions during the semester. Their purpose is to take attendance and to keep you up-to-date in the course. **Make-up quizzes/competitions will not be given, except when special conditions exist.**

**Projects:** There will be 3 midterm projects and the final project. **Late projects will receive a grade of 0.** Any conflicts must be worked out ahead of time. **There will be no make-up projects except in an extreme verifiable emergency.**

**Midterm projects due dates:** February 21, March 14, and April 18. **Final Project:** April 25.

**Grading:** There will be a total of 200 points possible for this course. The points are distributed as follows

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<tbody>
<tr>
<td>Three midterm projects</td>
<td>105 = 35*3</td>
<td>52.5%</td>
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<tr>
<td>Final project</td>
<td>60</td>
<td>30%</td>
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<tr>
<td>Quizzes/Team competitions</td>
<td>35</td>
<td>17.5%</td>
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Your total accumulated points will determine your final letter grade

- **A+** 197-200
- **A** 180-196
- **B+** 177-179
- **B** 160-176
- **C+** 157-159
- **C** 140-156
- **D** 120-139
- **F** 0-119

**Academic Dishonesty:** Plagiarism and cheating are serious offenses and may be punished by failure on the project. Repeated cheating will result in a grade F for the course. See the University's policy on Academic Honesty: (www.gsu.edu/~wwdocs/codeofconduct_conpol.html).
**Conduct Policy:** Turn off cell phones before entering the classroom – having them “go off” in class is considered disruptive behavior and can result in your being administratively dropped from the course. In fact, **any type of inappropriate conduct may result in your being administratively dropped from the course.** See the University’s Policy on Disruptive Behavior in the *General Catalog*, p. 19 ([www.gsu.edu/images/Downloadables/UG_05_06.pdf](http://www.gsu.edu/images/Downloadables/UG_05_06.pdf)) or *On Campus*, the official student handbook ([www2.gsu.edu/~wwwdos/codeofconduct_adminpol_a.html](http://www2.gsu.edu/~wwwdos/codeofconduct_adminpol_a.html)).

**Inclement Weather Policy:** If the University is closed due to inclement weather, any quiz/team competition that may have been scheduled for that date will be administered on the next available class date. If an assignment is due that day, it will be due the next class.

**Studying:** You *must* work on this course every week. The pace is hectic and allowing yourself to fall behind will end in disaster.

This course syllabus provides a general plan for the course; deviations may be necessary.