

Syllabus for AerE 581 – Perturbation Methods

General Information

Instructor: Alric P. Rothmayer
2235 Howe Hall, roth@iastate.edu

Office hours: to be arranged (generally open, but send an email before coming over)
Course homepage: <http://www.public.iastate.edu/~aere661/homepage.html>

Course Structure:

Textbook: Holmes, *Introduction to Perturbation Methods* (available in bookstores)

Grading: Midterm exam (25%), project (in lieu of final exam) (25%), homework (25%) and quizzes (25%). All quizzes and examinations are closed book and comprehensive. Quizzes will be unannounced and given each Friday at the start of class. Quizzes will be about 10 minutes long and will cover all recent lecture material. Homework will be collected periodically throughout the semester. There will be no make-up examinations or make-up quizzes. The first two missed quizzes will not be counted, providing that you have a legitimate excuse which is communicated to me on, or before, the day of the quiz. The project will be a detailed reproduction of material from one or two research papers, or a section of a book. The project must have sufficient depth and complexity. Copies of the materials to be reviewed must be given to me on the date assigned in class, and I must approve the project. Problems which are connected to your research may be used for projects.

Homework: You should discuss questions about the homework with me as problems arise. It is your responsibility to make sure that you understand the homework. Turn in all homework solutions (even incorrect solutions). I do give consideration for effort on homework. Homework is the place to make mistakes, so I don't necessarily expect everything to be done 100% correct (especially the first time through). Just make sure that you talk to me about the problems you are having trouble with, and realize that you may have to do a problem several times, or more, to get it right.

Accommodations: Please address any special needs or special accommodations with me at the beginning of the semester or as soon as you become aware of your needs. Those seeking accommodations based on disabilities should obtain a Student Academic Accommodation Request (SAAR) form from the Disability Resources (DR) office (515-294-6624). DR is located on the main floor of the Student Services Building, Room 1076.

Course Goals and Objectives

1. Basic ideas behind perturbation methods
2. Method of matched asymptotic expansions
3. Method of multiple scales
4. Other specialized perturbation methods and applications

Pet Peeves and Suggestions

1. Please be on time (especially on quiz and test days), coming in late can be very disruptive.
2. Keep up with the lecture material, it's easy to get behind !
3. Read the book to get an alternate perspective.
4. Do not study and do homework at the last minute. Pace yourselves.
5. If you are having problems, see me early – don't wait until it's too late.
6. You may consult each other as much as you want on the homework, but you will be better off doing it yourself.
7. Turn off your cell phone!