Math 309E Course Information  
Winter Quarter 2014  
Linear Analysis

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<tr>
<td>Time and Place</td>
<td>MWF 2:30 – 3:20pm Bagley Hall (BAG) 260</td>
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<tr>
<td>Instructor</td>
<td>Andrey Sarantsev</td>
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<td>Instructor's Office</td>
<td>Padelford Hall (PDL) C552</td>
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<tr>
<td>Instructor's email</td>
<td><a href="mailto:ansa1989@math.washington.edu">ansa1989@math.washington.edu</a></td>
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<tr>
<td>Office Hours</td>
<td>Tue 1-3pm, Wed 11am-12pm, 4-5pm in my office or by appointment</td>
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Syllabus. This course covers two main topics: (i) systems of first-order ordinary differential equations (ODE): solutions, stability, phase portraits, and (ii) partial differential equations (PDE): Fourier series, classic boundary value problems, separation of variables method, heat, wave and Laplace equations.

Departmental Course Web Page.  

Prerequisites. Math 124/5/6, Math 307/8, grade 2.0

Do you need this? This course is often chosen by future STEM (Science, Technology, Engineering and Math) majors. However, it is pretty advanced, so it is likely too hard for students of other majors, e.g. humanities, arts, business, pre-med, communications, etc. If you are in such major or do not yet have any major, think twice before registering for this course!

Textbook. Linear Analysis, William E. Boyce. The course covers Chapters 7, 10 and part of Chapter 9. There is not much difference between the 8th and 9th edition of the book aside from maybe a different ordering of the problems. However, I will be posting homework assignments on this webpage, so the problem ordering makes no difference.

Quizzes. There are 6 quizzes on Fridays of weeks 2, 3, 4, 6, 7, 8. Each quiz is 20 minutes at the beginning of the lecture and contains 1 problem. It is closed book (no cheat sheet is allowed). However, you can use a calculator; see “Calculators” below. You can drop the lowest quiz score.

Exams. There is one midterm on February 7, in class, which covers everything before itself (systems of ODE) and contains 4 problems. The Final Exam is on Tuesday, March 18, 2:30-4:20pm. It is cumulative (covers the whole course) and contains 7 problems. You are allowed a cheat sheet of standard form: 8.5x11 inches, double-sided. You do not need to submit it after the midterm. You can also use a calculator: see “Calculators” below.
Homework. Homework is due on Wednesday at 10:00pm. There are 7 assignments, on weeks 2, 3, 4, 5, 7, 8, 9. Please drop your homework into the mailbox at my office. It will be handwritten (no Webassign). It will be graded by an undergraduate grader and returned next week. You can drop the lowest homework score.

Grading Scheme. It is preliminary and is subject to change. The median will be in the range 3.0–3.1. You are allowed to drop the worst homework.

- 15% homework
- 6% each quiz (except the dropped one)
- 20% Midterm
- 35% Final Exam

Grading Issues. Each quiz and the midterm will be handed back to you the Monday after it was given. Re-grade requests can be made during the week following this exam.

Make-Ups. Late homework will not be accepted for any reason. In case of observance of religious holidays or participation in university sponsored activities, arrangements must be made at least 1 week in advance for exams. You will be required to provide documentation for your absence. Make-up exams will not be given. If you miss an exam due to unavoidable, compelling, and well-documented circumstances, the other two exams will be weighted more heavily.

Calculators and Notes. Calculators which can do calculus (with “CALC” buttons or signs of d/dx near a button) are prohibited on quizzes and exams. This rule will be strictly enforced. Absolutely no exceptions will be made. However, it is useful to have a scientific calculator: it is recommended but not required. It must have trigonometric functions, like sin and cos, as well as logarithms and exponentials: ln and exp. In case of doubt, show your calculator to the lecturer before the first quiz, and preferably during the first week.

Registration. If you want to get into this course, but it is already full, try to get into other sections of this course which fit your class schedule. Also, during the first week you should check the online registration system all the time. The Time Schedule is only updated once a day, so for the most up to date information check the Enrollment Summary which is updated every time a change is made (link located in the top right corner of the Time Schedule). There is a lot of moving in and out during the first week, so there is a fairly good chance that you will be able to register in the usual way. You should also attend the lectures, even if you are not formally registered yet. If you do not succeed by the beginning of the second week, then I can give you an overload. At this point, you should visit Padelford C36. Please note that we generally do not give overloads more than 15% of the class size limit.

Respect Issues. Disrespect will not be tolerated. As with all your life, you should treat others just like you yourself would like to be treated. Come to class on time (better never than late) and do not leave class early. If you can special circumstances where you need to arrive late or leave early, please contact me ahead of time and sit close to the door so that you do not distract your classmates when you enter or exit.

Do not use electronic devices during class. If you want to listen to your iPhone, send text messages to your friends, or play on your computer, then don’t come to class. This is completely
disrespectful to me and your classmates. So please put away and turn off your electronic devices before class.

Finally, please show me respect when you have a question for me or when you send me an e-mail. You are well within your right to ask about homework and exam grading, but you will get nowhere if you are argumentative or rude. I will do everything I can to help you all succeed in this course. I put in a lot of extra time and effort to help each of you in any way that I can. In fact, lecturing and having full responsibility for the whole course is not easy at all. This effort deserves and demands your respect! We should all be working together, not against one another.

Class Philosophy. There are two vital rules for success in this classroom.

1. THE HOMEWORK IS THE KEY. In mathematics, breakthroughs in learning rarely occur while reading the text or attending lecture. Mathematics is truly learned when you completely solve a problem yourself and understand the underlying concepts and tools so as to be able to apply them to related problems. The lecture, tutorial sessions, and office hours are valuable tools in guiding you towards learning and discovery, but ultimately the concepts and solutions must be absorbed, understood, and applied by you alone.

   Treat each problem as an exam question and ask yourself, “Can I answer this question without any help and do I understand the underlying principles that this problem conveys?” If your answer is no to either of these question (or if you hesitate at all), then you need more studying and practice.

2. ASK FOR HELP. Many students will hit a wall at some point during the course. Some can’t handle the large workload, while others find difficulty with specific concepts in the course. When these times arrive remember to ask for help. Come to me, ask your classmates for help, visit the math study center and/or visit the student counseling center. If you still stumped send me an email.

   You are never more than a step away from getting help. These are just a few of your options. Please, please, please find help earlier rather than later. You are all smart enough to do well in this course; the question is whether or not you are determined enough.

Attending Office Hours. Even if you do not have any questions, you are very welcome to attend my office hours just to chat about life, expand the material of the course, find out something about me, etc. I will have additional office hours and/or review sessions before each exam, time TBA.

Additional Resources.

1. The Center for Learning and Undergraduate Enrichment (CLUE) holds drop-in tutoring sessions every weekday evening in Mary Gates Hall Commons. See http://depts.washington.edu/clue/ for more details.

2. This is the list of tutors: http://www.math.washington.edu/Undergrad/tutorlists.php

3. The University of Washington is committed to providing access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodations contact the Disability Services Office at least ten days in advance at: 206-543-6450/V, 206-543-6452/TTY, 206-685-7264(FAX), or dso@u.washington.edu.

4. The Student Counseling Center provides academic skills workshop on a variety of topics including stress management, test anxiety, and time management to help you succeed at the
University of Washington. If any of these is an issue for you, check out the schedule of workshops at http://depts.washington.edu/scc/studyskills.html.