

Math 489AB Applicable Linear Algebra and Linear Analysis Fall 2008

Class Meets: MW 5:30 – 8:15 in MH 442

Instructor: Dr. Tyler McMillen

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Office Hours: MTW 3:15 - 5:15, or by appointment.

Texts: *Matrix Analysis*, by R.A. Horn and C.R. Johnson, and *Linear Functional Analysis*, by B.P. Rynne and M.A. Youngson (2nd ed.) Optional: *Linear Algebra and its Applications*, by G. Strang, and *Real Analysis*, by H.L. Royden

Course Website: <http://math.fullerton.edu/tmcmillen/M489> Here you will find examples, homework solutions and other material. I will not use Blackboard, unless I need to reach you by email. So if you don't regularly check this account, I strongly recommend that you have your e-mail automatically forwarded to one that you do check frequently.

Homework: Homework is a very important part of this course, and will be regularly assigned, collected and (at least partially) graded. In order that your homework can be promptly graded and returned, late homework will not be accepted. You may also be asked to present your solutions in class, and to critique the work of other students.

Exams: There will be three midterm examinations, tentatively scheduled for Wednesday, October 1, Wednesday, November 5, and Monday, December 15, 5-8 pm (the date for the final as called for in the class schedule). No makeup exams will be given.

Grading: The semester grade will be based:

- 25% on your homework average
- 25% on each of the midterm examinations

Plus/minus letter grades will be given when appropriate. In borderline cases, I reserve the right to raise any student's semester grade for contributing to our class with a positive attitude, hard work, and active participation.

Holidays:

- Monday, September 1: Labor Day
- Monday - Friday, November 24 – 28: Fall (Thanksgiving) Recess

Additional Comments:

Math 489, Applicable Analysis and Linear Analysis, is not just a course in applications. A primary purpose of this course is to prepare you with the theoretical background and mathematical sophistication necessary for the remaining coursework in the applied math program. However, Linear Algebra and Analysis are not merely background topics, but powerful tools in and of themselves. Linear Algebra and Analysis play a central role in many areas of applied mathematics, and this material will be heavily used in your other courses. A solid grasp of linear algebra is the basis for doing good applied mathematics. Therefore, emphasis will be placed on developing your analytical and writing skills.

Class attendance is mandatory. Should you be forced to miss a class, it is your responsibility to obtain the lecture notes and assignments from one of your classmates. As a courtesy to me as well as to your classmates, please arrive on time and remain seated until class is dismissed. If you absolutely must leave early, please let me know and sit near the door, so that you can leave with minimal disruption to the class. **Please turn off all pagers and cell phones.**

It is very important in any mathematics course, and particularly in one as intense as this, to attend class, to do all assigned reading and homework conscientiously and thoroughly, and to get any questions you might have cleared up as quickly as possible. You are strongly encouraged to get help in class, before or after class, during scheduled office hours, or any other time you can catch me. You are also welcome to contact me via e-mail or phone. Studying with your fellow students is also strongly encouraged. However, assignments must be written up on your own, and any source of help other than your text, instructor or classmates must be cited. Work that is directly or nearly directly copied, even from a cited source, will not receive credit.

The material in this course is the result of centuries of work by hundreds of mathematicians and scientists. Mastering the material and doing well in this course, and in the applied mathematics program in general, will require a substantial commitment of time. Plan to spend two to three hours on homework for each hour spent in class (that is, twelve to eighteen **additional** hours per week). Since everyone learns at a different rate, you may find that you require more time.

Academic Dishonesty:

Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. Since dishonesty in any form harms the individual, other students and the university, policies on academic integrity are strictly enforced. I expect that you will familiarize yourself with the academic integrity guidelines found in the current student handbook.

Academic dishonesty is cheating - obtaining or attempting to obtain credit for work by the use of any dishonest, deceptive, fraudulent, or unauthorized means, or helping someone else commit

such an act. Examples include, but are not limited to:

1. Unacceptable examination behavior – communicating with fellow students, copying material from another student’s exam or allowing another student to copy from an exam, possessing or using unauthorized materials, or any behavior that defeats the intent of an exam.
2. Plagiarism – taking the work of another and offering it as one’s own without giving credit to that source, whether that material is paraphrased or copied in verbatim or near-verbatim form. **You are specifically not allowed to use or copy the work of a current or former student, or to take solutions from printed or electronic sources. You may only use course materials that have been explicitly approved by your instructor and that are freely available to all your classmates.**
3. Unauthorized collaboration on a project, homework or other assignment where an instructor expressly forbids such collaboration.
4. Documentary falsification including forgery, altering of campus documents or records, tampering with grading procedures, fabricating lab assignments, or altering medical excuses.

The first violation of these standards will result in a score of zero on the assignment or exam. A second violation will result in a grade of F for the course, and will be reported to the Dean of Students. You are encouraged to see me prior to submitting an assignment or taking an exam if you have any questions regarding these issues.

Emergency Information:

In the event of an emergency such as earthquake or fire:

- Take all your personal belongings and leave the classroom.
- Use the stairways located at the east, west, or center of the building. Do not use the elevators. They may not be working once the alarm sounds.
- Go to the lawn area towards Nutwood Avenue, at least 150 feet from the nearest building. Stay with class members for further instruction.
- For additional information on exits, fire alarms and telephones, **Building Evacuation Maps** are located near each elevator.
- Anyone who may have difficulty evacuating the building, please see your instructor.

Tentative schedule:

Week	Dates	Sections
1	Aug 25, 27	MA Ch. 0, 1.1
2	Sep 1, 3	Labor Day, 1.1, 1.2, 1.3
3	Sep 8, 10	1.3, 1.4, 2.1, 2.2, 2.3
4	Sep 15, 17	2.5, 2.6, 3.1
5	Sep 22, 24	3.2, 3.5, 4.1, 4.2
6	Sep 29, Oct 1	Review, Midterm 1
7	Oct 6, 8	5.1 – 5.4
8	Oct 13, 15	5.5 – 5.8
9	Oct 20, 22	6.1, 7.0, 7.1
10	Oct 27, 29	7.2 7.3, 7.4
11	Nov 3, 5	Review, Midterm 2
12	Nov 10, 12	LFA Ch. 1, 2, Contraction Mapping Theorem
13	Nov 17, 19	Ch. 3, Fourier Series, Ch. 4
	Nov 24 - 28	Fall break
14	Dec 1, 3	Ch. 6,7
15	Dec 8, 10	Ch. 8
	Dec 15 (5-8 pm)	Midterm 3