MATH 349-010 Elementary Linear Algebra
TR 9:30–10:45, EWG 207 Fall 2017
Web Page: `http://www.math.udel.edu/~edwards/download/m349/f17home.html`
(also referenced from QR code at end of document)

Instructor: Prof. D. A. Edwards Office Hours: M 1:30–2:30 W 9:30–10:30 or by appointment
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Introduction (Revised)

Welcome to Elementary Linear Algebra! Since many of you are not mathematics majors, the focus of this course will be on the *applications* of linear algebra, rather than the *theory* behind it (except when explaining the theory will enhance your understanding of the concepts). I will be passing around a sheet today asking your major. Then I will try to present examples from those subjects so that you can see how linear algebra is applied to your area of interest.

The text for this course is *Linear Algebra: A Modern Introduction*, 4th ed., by Poole. **The text is required**, since you will be assigned both reading and homework problems from the book. Though we will be covering most of the material in the book, I will be presenting some of the material in a different order. In addition, I will also be lecturing from various other sources, so class attendance and participation is necessary for successful mastery of the material.

In this class we will be using Mathematica for both homework and exams. The University has a license so that you can download your own free version; see

`http://udeploy.udel.edu/software/mathematica-11-for-students/`

for more details.

If you have any questions, contact me during my office hours or make an appointment. **Extra copies of handouts are available at the Web page listed above.**

Please silence cellular phones before entering the classroom. There will be no makeup classes for snow days unless mandated by the University.

Electronic Communication

I do not use Sakai or Canvas. Important announcements (corrections to typographical errors, etc.) will be handled by e-mail. Also at the URL

`http://www.math.udel.edu/~edwards/download/suggest.html`

you will find an anonymous suggestion box.

Homework

The most effective way to succeed in this course is to do all the homework assignments. I select the problems carefully to illustrate the most important topics in the course. Even if you are registered as a listener, I recommend doing the homework, and I will review it.

In most cases, homework will be distributed on Thursdays during lecture (the first assignment is attached to this introduction), and will be due at the beginning of class the following Thursday. The homework will cover material up through the day of its distribution. **ABSOLUTELY NO LATE HOMEWORK WILL BE ACCEPTED!** If you must miss a due date because of University business, it is your responsibility to make sure the homework gets to me ***before*** the due date. Since mathematics is a subject where the material for one section builds on the section before, it is critical that you keep up to date on the homework: hence the stringent policy. However, to calculate your semester-long homework average, I will drop your two lowest homework scores. Therefore, low scores for assignments where you were pressed for time can be erased as long as you don't have too many of them.

Though you may not copy directly from another's paper or use someone else's ideas as your own[1], I encourage you to discuss the homework problems with your classmates. Any scientific endeavor is rarely done in a vacuum; therefore it is to your advantage to learn the benefits of collaborating. Model homework solutions will be placed on reserve in the library after the assignment is due. Hopefully these will assist you in learning the material.

Homework assignments should be folded like a book with the following information on the "front cover":

Name
Math 349-010—Edwards
Assignment Number
Date

You will turn in your assignments this way so that your grade may be placed on the inside, thus ensuring your privacy. I will make every effort to ensure that your graded homework is returned in a timely manner.

Each homework assignment will consist of ten questions. Of those, some randomly selected problems will *not* be graded. For these questions, you will receive one point if you attempted the problem. For the problems that will be graded, you may receive up to four points, depending on the completeness and accuracy of your solution.

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[1] For more details regarding academic dishonesty, see the Student Handbook (`http://www.udel.edu/stuguide/`).

Obviously, I can assign only a select few homework problems to be turned in. Therefore, I choose ones which, if mastered, show adequate understanding of the material. The examinations will largely be based on the material covered in the homework assignments. However, you are encouraged to try other problems in the book for practice.

Exams

There will be four exams in the course; the dates are listed on the attached schedule. **NO MAKEUP EXAMS WILL BE GIVEN!** The first three will be 70 minutes long and will take place during a regular lecture period. The final exam will be two hours long. Each exam will contain problems which must be done using Mathematica.

Attached to each examination will be a course evaluation form, so that I may receive your suggestions for how the course could be improved. These forms will be seen only by me, so if you have comments that you wish the department to hear, please contact them directly.

When the exams are returned, they will have a numerical score and a letter grade on them. The numerical score is your score for the exam; *the letter grade is your grade for the course* to that point, including all homework scores.

Assessment

Your grade for the course will be determined in two stages. First your *raw score* will be calculated using the *higher* of the two algorithms:

1) The exams will count for 90% of your grade (final counts double), and the homework counts 10%.
2) The exams will count for 80% of your grade (final counts double), and the homework counts 20%.

Therefore, performing well on the homework will not only help you learn the material, it can also directly help your grade. (In the past, it has been my experience that the vast majority of students improve their grades by using their homework scores.) Then each of the raw scores will be scaled to determine final grades.

Tentative Schedule

Note: This is only a tentative schedule; there may be deviations from it.

week of August 28: sections 1.1, 1.2, vector analysis (parts of sections 2.3 and 3.5)
August 29: Homework 1 distributed
week of September 4: sections 1.2, 2.1, 2.2
September 7: Homework 1 due; Homework 2 distributed
week of September 11: sections 2.2, 2.4, 3.1, 3.2
September 14: Homework 2 due; Homework 3 distributed
week of September 18: sections 3.1–3.3
September 21: Homework 3 due; Homework 4 distributed
September 26: sections 3.3, 3.5, 6.1
September 28: Exam I (covers vector analysis, chapters 1 and 2, sections 3.1, 3.2)
week of October 2: sections 3.5, 6.1–6.3
October 5: Homework 4 due; Homework 5 distributed
week of October 9: sections 5.1, 6.3, 7.1, 7.2
October 12: Homework 5 due; Homework 6 distributed
week of October 16: sections 5.1–5.3, 7.1, 7.3
October 19: Homework 6 due; Homework 7 distributed
October 24: sections 3.6, 6.4, 7.3
October 26: Exam II (covers sections 3.3, 3.5, 5.1–5.3, 6.1–6.3, 7.1, 7.2)
week of October 30: sections 3.6, 6.4–6.6
November 2: Homework 7 due; Homework 8 distributed
week of November 6: sections 4.2, 6.6
November 9: Homework 8 due; Homework 9 distributed
week of November 13: sections 4.1, 4.2, 4.5
November 16: Homework 9 due; Homework 10 distributed
week of November 20: Thanksgiving recess
November 28: sections 4.3, 4.4
November 30: Exam III (covers sections 3.6, 4.1, 4.2, 6.4–6.6, 7.3)
December 5: section 4.4
December 7: review
December 7: Homework 10 due; supplemental study material distributed
TBA: Final Exam (covers entire course, but especially sections 4.3, 4.4)

Course Web Page: