

# Math 313: Introduction to Linear Algebra

Fall 2016, Class numbers 60283 and 61693

<b>Instructor</b>	Andrew Gillette agillette@math.arizona.edu Office: Mathematics 516 Office Phone: 520-621-6888 (no voicemail) Office Hours in Math 220: Wed 2-3pm in Math 516: Mon 1-2pm, Fri 1-2pm, or by appointment.
<b>TA</b>	Thomas Doehrman thomasdoehrman@email.arizona.edu Office hours / study session time will be posted on class website.
<b>Class Website</b>	<a href="http://math.arizona.edu/agillette/teaching/f16.html">http://math.arizona.edu/agillette/teaching/f16.html</a>
<b>Class Times</b>	60283 MWF 10-10:50am in Engineering 307 61693 MWF 12-12:50pm in Bio Sciences West 237 Due to full enrollment, you may only attend the section in which you are enrolled.
<b>Exam Dates</b>	There will be five 30 minute in-class exams, each worth 80 points. Exam dates: Sep 12, Sep 30, Oct 19, Nov 7, Dec 2.  Final Exam for 60283 (10am) class: Fri Dec 9 2016 10:30 am - 12:30 pm Final Exam for 61693 (12pm) class: Thu Dec 15 2016 10:30 am - 12:30 pm  Final Exam Regulations are posted at <a href="https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information">https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information</a> and the Final Exam Schedule is posted at <a href="http://www.registrar.arizona.edu/schedules/finals.htm">http://www.registrar.arizona.edu/schedules/finals.htm</a>
<b>Required Materials</b>	<ul style="list-style-type: none"><li>• “Linear Algebra and its Applications” by Lay, Lay, and McDonald, custom version for UA from 5th edition, published by Pearson. Available at the UA Bookstore.</li><li>• Access to MATLAB software. More information on how you can obtain MATLAB will be provided later in the semester; it will not be needed immediately.</li></ul>
<b>Course Topics</b>	Linear equations, matrices, and determinants. Vector spaces and linear transformations. Eigenvalues and inner products. This material covers most of Chapters 1 - 6, with some subsections skipped. We will also have an introduction to MATLAB and its uses in linear algebra. Course calendar appears on class website.
<b>Prerequisites</b>	Math 129. Concurrent registration in Math 223 is helpful, but not required.
<b>Written Homework</b>	There will be 15 homework assignments during the semester, each worth 10 points. Your single highest and two lowest homework scores will be dropped. Homework will be due roughly every other class meeting, except when there is an exam or a holiday. Assignments, due dates, and policies will be posted on the class website. Written homework is due at the <b>beginning of class</b> , no exceptions.
<b>In-class exams</b>	There will be 5 exams during the semester, each worth 80 points. Exams will be held during 30 minutes of a regular class meeting. No calculators are allowed during exams.

**Grading Policy** You can earn up to 720 points in this course from exams and homework. Grades will be determined by the number of points you accrue and will be set as follows:

	points	percent		points	percent
homework (12 x 10 pts)	120	16.7%	A	648 - 720	90 - 100%
exams (5 x 80 pts)	400	55.5%	B	576 - 647	80 - 90%
final (1 x 200 pts)	200	27.8%	C	504 - 575	70 - 80%
			D	432 - 503	60 - 70%
			E	0 - 431	0 - 60%

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal>, respectively.

**Attendance** I expect you to attend every class. Please communicate with me in advance if you know you will have to miss a class, especially an exam. If you are not finding class time valuable for any reason, please let me know – I would rather hear your feedback than wonder why you are not in attendance. Excessive or extended absence from class is sufficient reason for me to administratively drop you from the course. In particular, if you miss the first two class meetings or have 3 or more absences in the first month of the course, you may be administratively dropped.

The UA’s policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>.

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. <https://deanofstudents.arizona.edu/absences>

**Missed exams** In general, if you miss an exam, you will receive a grade of 0 for that exam. However, in complex and unusual circumstances that are beyond your control, a make-up exam may be given on a case-by-case basis. This will require providing a detailed account of the situation and supporting documents. Approval in these cases is at the sole discretion of the instructor and/or the Dean of Students.

**Gradescope** Your exams and some of your homework will be graded with the assistance of an online service called Gradescope. During the first week of class, you will receive an email inviting you to sign up for an account through Gradescope. You must complete the enrollment process **before Tue Aug 30**. There is no fee for the service.

**Phones off!** Class time is an important and wonderful sanctuary from our super-connected lives. I put my phone in “airplane mode” before class each day and I expect you to do the same. If you have a truly essential text, tweet, post, snap, pin, insta-whatever, please step outside of the classroom so as not to disturb your classmates.

**Drop-in tutoring** The mathematics department runs the Mathematics Teaching Lab in the Math 220, where instructors are available to answer questions about any upper division math course, including ours. It is staffed Mon-Fri 10am-4pm.

<b>Academic Integrity</b>	<p>Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <a href="http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity">http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity</a></p> <p>Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions.</p> <p>If you feel that you are not on track to receive the grade you deserve, please contact me in person or by email before it becomes a larger issue.</p>
<b>Threatening Behavior</b>	<p>The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <a href="http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students">http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students</a></p>
<b>Non-discrimination</b>	<p>The University is committed to creating and maintaining an environment free of discrimination; see <a href="http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy">http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy</a></p>
<b>Accommodation</b>	<p>Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit <a href="http://drc.arizona.edu">http://drc.arizona.edu</a>.</p> <p>If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate. Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.</p>
<b>Syllabus Changes</b>	<p>Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor. Any such changes will be announced in class and posted on the class website.</p>
<b>Course Objectives</b>	<p>By the end of the course, students should be able to:</p> <ol style="list-style-type: none"> <li>1. State precise definitions of key terms introduced in the course, including systems of linear equations, vectors, vector spaces, dimension, linear independence, matrix terminology, eigenvectors and eigenvalues.</li> <li>2. Carry out basic computations from linear algebra by hand, such as row reduction, determinant calculation, etc, as well as use MATLAB to carry out more intensive computations.</li> <li>3. Produce simple deductive arguments that follow from the definitions and justify steps in deductive arguments based on basic logical principles.</li> <li>4. Write sentences that explain the relation between key ideas in linear algebra and the algorithms that allow their calculation, e.g. the definition of a linearly independent set of vectors versus the computation of a linear independent set of vectors from a spanning set.</li> </ol>