

Linear Algebra
11-11:50 am

Math 220
17-101

Winter 2016
Item #6452

Instructor: Dusty Wilson
Office: 29-341
Phone: 206-592-3338
Fax 206-870-4803
Office Hours M, W, Th, F: 8 – 8:50am in 29-341. T, W, F: 9 – 9:50am in 29-341, Th: 9-9:50am in 26-319 (the MRC). Also by appt.
home page <http://people.highline.edu/dwilson>
e-mail dwilson@highline.edu
facebook [facebook.com/dustywwilson](https://www.facebook.com/dustywwilson)

Course Description: (5 credits) Systems of Equations, row operations, matrix algebra, vector spaces, orthogonality, Gram-Schmidt, projections, linear transformations, matrix representations, rank, similarity, determinants, Eigenvalues, Eigenvectors, and least squares.

Course Objectives: *The student will*

- Solving systems of linear equations using Gauss-Jordan method
- Find a least squares polynomial fit to data points
- Identify, create, and apply linear transformations
- Identify a basis for a vector space and orthogonalize a basis
- Find the eigenvalues and eigenvectors of a matrix
- Construct and understand a mathematical proof

Text: *Linear Algebra with Applications* (5th ed.), by Otto Bretscher. Bring the book to class!

Prerequisite: Math152 with a minimum grade of 2.0. Math 153 is recommended.

Calculators: A graphing calculator is required for this course.

- 1) The TI-83/4 is recommended. Symbolic calculators such as the TI-89 or nSpire CX CAS will not be allowed during exams. Furthermore, the use of all calculators may be prohibited during some portion of exams (forewarning will be given).
- 2) You will be asked to remove the cover of your calculator during exams.
- 3) Very limited class time will be spent explaining the use of calculators.
- 4) Calculators may be rented from the math department on a first come first serve basis.

Homework: There are two parts of the homework with the format and grading criteria for homework is as follows.

- 1) Paper Homework:
 - a) This is designed to be straight-forward skills-based homework. The assigned problems are due at the beginning of homework presentations. Your work must be neat, organized, and clearly labeled.
- 2) Homework Presentations:
 - a) **Assigned Problems:** You are to work the problems assigned on the syllabus (unless otherwise noted).
 - b) **Presentations:** About once a week we will have a homework day. Students will be randomly assigned an order and then given the chance to select a problem from among those assigned. Students will then present the work and solution for their problem on the whiteboard. Students who attend, but do not present will receive attendance credit. Additional credit will be given for undertaking more challenging problems (and less than full credit given for warm-up questions).

- 3) If students are not present when given the opportunity to select a problem, the next student will take their place (and the tardy student will shift down the list).
- 4) You must be able to produce a written copy of your presented work if called upon to do so.
- 5) Students may lose points if they leave class early during homework presentations.
- 6) Students may create and share a linear algebra themed artistic piece (poem, short story, song, painting ...) in place of one homework presentation.

Tests: There will be tests which unless otherwise announced will have two parts:

- 1) Part 1: No calculator portion of the exam
 - a) About 20 minutes of each homework presentation day prior to an exam will be set aside for a no calculator section of the exam.
- 2) Part 2: Calculator portion of the exam
 - a) This will last for the full 50 minute class period.
- 3) The exams will be cumulative, but will emphasize the material covered since the last test.
- 4) If you miss a test, a score of 0% will be assigned. All tests must be taken during the scheduled class time. *No make-up tests.*
- 5) Spoken and written communication as well as sharing of calculators during exams is prohibited.

Extra Credit: A 10% boost to your Final Exam score will be given for completing pre- and post-lecture assignments.

- 1) Pre-lecture (5%): Before each new section is lectured on, you must (by hand) make a copy of each definition/theorem or box in the given section of the text and submit them at the start of class.
 - a) For example, in section 1.2 this would mean copying the boxes on (1.) vectors and vector spaces, (2.) standard representations of vectors, (3.) solving a system of linear equations, (4.) reduced row-echelon form, and (5.) types of elementary row operations.
- 2) Post-lecture (5%): You must recopy your lecture notes. The two versions do not need to be identical and the recopied version can be an improvement on the original notes. In order to receive credit, you must turn in both copies of notes clearly organized by section number. Both copies must be hand written unless prior arrangements are made. At least initially, I will look at these during homework presentations.
- 3) This assignment may be begun at any time during the quarter, but late work will not be accepted.
- 4) Note: This is a new policy to me (Dusty) and you can expect that there may be adjustments made to deadlines and format of submissions. These will be announced in class.

Other: These assignments will be announced in class.

Final Exam: A comprehensive final exam will be held in the regular class meeting room. The date and time of the final are listed in the quarterly. The final exam is mandatory and a grade of 0.0 may be assigned at the instructor's discretion to those who fail to take the final exam.

Grading: Paper Homework: 5%, Homework Presentations: 10%, Exams: 51%, 4%: Other, Final: 30%.

95-100%	4.0	%%%	GPA	%%%	GPA	%%%	GPA	%%%	GPA
93-4%	3.9	82%	3.2	75%	2.5	68%	1.8	61%	1.1
91-2%	3.8	81%	3.1	74%	2.4	67%	1.7	60%	1.0
89-90%	3.7	80%	3.0	73%	2.3	66%	1.6	59%	0.9
87-8%	3.6	79%	2.9	72%	2.2	65%	1.5	58%	0.8
85-6%	3.5	78%	2.8	71%	2.1	64%	1.4	57%	0.7
84%	3.4	77%	2.7	70%	2.0	63%	1.3	0-56%	0.0
83%	3.3	76%	2.6	69%	1.9	62%	1.2		

Policies and Notes:

- i. **Attendance:** You are responsible for all material covered in class including all announced changes to the schedule and assigned course work. (If you miss class, *you* are still responsible for everything in class).
- ii. **Devices:** The use of non-human smart gadgets in class is discouraged (except when requested).
- iii. **Math Resource Center:** Cost-free mathematics tutoring is available at the MRC. The MRC is located in building 26, room 319.
- iv. **Faculty Advising:** Highline Community College instructors are a wonderful resource for students at any stage of the academic process. Many HCC instructors have career experience, are knowledgeable about campus resources, and can assist students in reaching their educational goals through degree planning. If you have an advising question, feel free to approach your instructor. If your instructor cannot answer your question, s/he will help you find someone who can.
- v. **Academic Dishonesty:** Cheating, plagiarism, and other forms of academic dishonesty are unacceptable at Highline Community College and may result in lower grades and/or disciplinary action. It is both your right and responsibility to be familiar with the document entitled: Student Rights and Responsibilities code WAC 132I-1210 adopted by the Board of Trustees of Community College District 9 on December 13, 2007. This is available in the counseling center.
- vi. **Special Concerns:** If you have any special concerns about this class, please talk to me personally in my office. The more I know about you individually, the more I can help you be successful in this course. If you need course adaptations or accommodations because of dis-Ability; if you have emergency medical information to share with me; or if you need special arrangements in case the building must be evacuated, please provide me with the Letter of Accommodation you have received from the Office of Access Services. Access Services is located in Building 99 in the Student Development Center.
- vii. **Emergency Procedures:** In the event of an emergency, follow your instructor's directions. If you are told to evacuate the building, take your valuables because you may not be allowed to re-enter. Do not leave campus until your instructor or another campus official tells you to do so. If you may need assistance evacuating, notify your instructor today. To prepare yourself for an emergency, review the evacuation map on the last page of the emergency placard in your classroom and subscribe to HC Alert, a text message service for emergencies (<https://hctextalerts.highline.edu/>).
- viii. **Final Exams:** Your completed final exam will not be returned to you. It belongs to the instructor. However, you may (and should) review your final exam by stopping by the instructor's office the next quarter.
- ix. **School Policies:**
 - i. The Student Rights and Responsibilities Code: A legal document that describes college expectations, students' rights, and outlines the process for resolving disciplinary matters and Code violations. <http://studentservices.highline.edu/srr.php>
 - ii. The College Catalog: Lots of fine print about grades, deadlines, and resources can be found in the catalog at: <http://catalog.highline.edu/>
- x. **Important Dates (dates should be verified online):**
 - i. February 1st: The last day to drop without incurring a "W"
 - ii. February 11th: Financial Aid Applications for Spring Quarter are due
 - iii. February 17th: The beginning of registration for Spring Quarter
 - iv. March 4th: The last day to officially withdraw with a "W"