

Math 220: Linear Algebra (Item #6431)

Winter 2019 in 17-206 M – F: 10-10:50am

Syllabus

Instructor Information

- i. Instructor: Dusty Wilson
- ii. Office: 29-341
- iii. Phone: 206-592-3338
- iv. Office Hours: Monday: 9-9:50 am, Tuesday: 9-9:50 am, Wednesday: 9-9:50 am and Thursday 8-9:50 (9 am on the 6th floor of the Library in the MRC)
- v. home page: <http://people.highline.edu/dwilson>
- vi. e-mail: dwilson@highline.edu
- vii. facebook: [facebook.com/dustywwilson](https://www.facebook.com/dustywwilson)

Course Description

Introduction to Linear Algebra: Row operation, matrix algebra; vector spaces, orthogonality, Gram-Schmidt orthogonalization, projections, linear transformations and their matrix representations, rank, similarity; determinants; eigenvalues, eigenvectors, and least squares.

Student Learning Outcomes

- i. Solve systems using Gauss-Jordan elimination.
- ii. Identify and orthogonalize the basis of a vector space.
- iii. Apply matrix methods to model a data set using least squares regression.
- iv. Calculate and interpret the eigenvalues and eigenvectors of a matrix.
- v. Identify, create, and apply linear transformations using matrix methods.
- vi. Construct a mathematical proof.

Text

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

Prerequisite

Math 152 with a minimum grade of 2.0.

Calculators

A graphing calculator is required for this course.

- i. The TI-84 calculator is recommended. The use of symbolic calculators will not be allowed during exams. Furthermore, the use of all calculators may be prohibited during some exams (forewarning will be given).
- ii. Very limited class time will be spent explaining the use of calculators.
- iii. 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.

- i. **Paper Homework:**
This is designed to be straight-forward skills-based homework. The assigned problems are due at the beginning of homework presentations (unless otherwise specified). Your work must be neat, organized, and clearly labeled.
- ii. **Homework Presentations:**
Assigned Problems: You are to work the problems assigned on the syllabus (unless otherwise noted).
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).
 - iii. 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).
 - iv. You must be able to produce a written copy of your presented work if called upon to do so.
 - v. Students may lose points if they leave class early during homework presentations.
 - vi. Students may create and share an original linear algebra themed artistic piece (poem, short story, song, painting ...) in place of one homework presentation.
 - vii. If time does not allow all students to present, then those who did not present will be prioritized for a future presentation.
 - viii. The percentage grade will be calculated based upon the number of presentation opportunities given each individual student.

Other

These assignments will be announced in class.

Tests

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

- i. Part 1: No calculator portion of the exam
The time allotted will vary but may be as brief as 20 minutes.
- ii. Part 2: Calculator portion of the exam
- iii. This will last for the full 50 minute class period.
- iv. The exams will be cumulative, but will emphasize the material covered since the last test.
- v. 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.
- vi. Spoken and written communication, smart devices, sharing materials (including calculators) etc. during exams is prohibited.

Final Exam

A comprehensive final exam will be held in the regular class meeting room. See the quarterly class schedule for dates and times. 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%, Other: 4%, Final: 30%.

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

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). Smart non-human devices are banned during tests.
- iii. **Math Resource Center:** Cost-free mathematics tutoring is available at the MRC. The MRC is located on the sixth floor of the library (Bldg 25).
- iv. **Faculty Advising:** Highline College instructors are a wonderful resource for students at any stage of the academic process. Many Highline 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. **Honors:** Highline College offers opportunities for students to participate in an Honors Program tailored to their pathways. Students who fulfill all Honors Program requirements may become eligible for a scholarship during their final quarter and receive recognition at Highline's commencement ceremony.
If you are interested in the Honors Program, I invite you to pursue an honors project in this class. Please approach me within the first three weeks of the quarter, and we will work together to develop a plan for completing an advanced academic or professional project. After completing the project and earning a 3.5 GPA in this course, an "honors" notation will appear on your official Highline transcript.
I also encourage you to attend the Honors Information Session on Wednesday, January 9, 2019 from 12:15pm – 1:15pm in building 3, room 102, where you can learn more about the Honors Program and honors projects!
- vi. **Academic Dishonesty:** Cheating, plagiarism, and other forms of academic dishonesty are unacceptable at Highline 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.
- vii. **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.

- viii. **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 at <https://hctextalerts.highline.edu/>).
- ix. **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.
- x. **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. January 11th: Last Day for 100% Tuition Refund
 - ii. January 28th: The last day to drop without incurring a "W"
 - iii. February 12th: Financial Aid Applications for Spring Quarter are due
See <https://financialaid.highline.edu/> for more information about Financial Aid
 - iv. February 12th: The beginning of registration for Spring Quarter
 - v. March 8th: The last day to officially withdraw with a "W"