Instructor: Filix Maisch  
Meetings: MWF 11 - 11:50 AM  
Office Hours: KIDD 348, MW 3:30 - 4:30 PM  
Text: Elementary Linear Algebra by Kenneth Kuttler

Enforced Prerequisites: Math 254 or Math 254H with a C- or better ... or ... instructor permission.

Attendance: Regular attendance to lecture is expected.

Honor Code: Students are expected to be familiar with Oregon State University’s Expectations for Student Conduct. You may review these with the following web link (you will have to type-in the underscores):

http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct.pdf

Statement Regarding Students with Disabilities: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term. Students who believe they are eligible for accommodations should contact DAS immediately at 737-4098.

Course Description: This course covers matrix algebra, determinants, systems of linear equations, and computational aspects of eigenvalues and eigenvectors.

Course Content: Systematic solution of systems of linear equations; matrix operations; elementary matrices; matrix invertibility and inverses; determinants; linear independence of vectors; linear transformations and their matrices; subspaces including column space and null space; bases; dimension; eigenvalues and eigenvectors; eigenspaces; algebraic and geometric multiplicities; diagonalizability; complex eigenvalues and eigenvectors.

Schedule: See web for tentative term schedule.

Evaluation: Your grade is determined by online homework, quizzes, a midterm, and a final.

- Online Homework ... 50 (Total of six sets worth 10 points each, taken out of 50.)
- Quizzes ................... 50 (Top five of six quizzes worth 10 points each.)
- Midterm .................. 100 (Monday, Feb. 12th, 11-11:50 AM)
- Final ....................... 200 (Monday, March 19th, 6-7:50 PM)

Grades will not be harder than:

360 - 400 A/A-, 320 - 359 B+/B-, 280 - 319 C+/C, 240 - 279 D, 0 - 239 F.

Resources: Your primary resource is me. Make use of my office hours and come by as soon as you have any questions related to your study of linear algebra. Another resource is the Math and Statistics Learning Center (aka MSLC) in Kidder 108H, which is a great place to drop in for help.
**Homework:** Homework is done online using WeBWorK (linked on the web page). Here is the link (you will have to type-in the underscores):

webwork.science.oregonstate.edu/webwork2/Math341_Maisch/

Your username is the same as for your onid account. So if your OSU e-mail address is smithz@oregonstate.edu then your username is smithz. E-mail me ASAP if it doesn’t work. Your password is your OSU student ID number (no dashes). Due dates below have a 48 hour grace period built-in. If you run into any issues (questions, server crashes, etc.) working on the problems during the grace period, no accommodation will be made. Homework CANNOT be completed after the grace period ends, no exceptions.

Homework 1: 01/19/2018  Homework 2: 01/26/2018  Homework 3: 02/09/2018  
Homework 4: 02/23/2018  Homework 5: 03/02/2018  Homework 6: 03/16/2018

Each assignment is worth 10 points. Getting 80% or better on each is enough for full credit. Below that you start to lose credit prorated to 80%.

**Tests:** Note that **no calculators** of any kind are allowed on the midterm nor the final. You are allowed both sides of one 3x5 inch handwritten note card for the midterm and both sides of one 4x6 inch handwritten note card for the final. Tests are not allowed to be made-up unless the circumstances are truly exceptional and contact requesting the accommodation is made PRIOR to the test.

**Quizzes:** During some meetings (see term calendar for dates) a 10 point quiz will be given during class. The **quiz problems** are either exactly the same as, or extremely similar to, the **suggested homework**, which is listed by quiz correspondence (see web page). You must produce the solution from scratch and without use of notes nor a calculator. Quizzes are not allowed to be made-up unless the circumstances are truly exceptional and contact requesting the accommodation is made PRIOR to the quiz.

**Specific Learning Outcomes:** A successful student in Math 341 will be able to...

1. Use Gaussian elimination to determine the solution set of a system of linear equations, and describe the solution set.
2. Perform matrix operations, including finding the inverse or showing no inverse exists for a square matrix.
3. Calculate determinants of square matrices and apply properties of determinants to draw conclusions about solution sets of linear equations and invertibility of matrices.
4. Find and use the matrix representation of a linear transformation associated to the standard basis in Euclidean space \( \mathbb{R}^n \).
5. Use the definition to determine whether a subset of \( \mathbb{R}^n \) is a subspace.
6. Determine if a collection of vectors is linearly independent or dependent, and find the span of a set of vectors.
7. Use the rank-nullity theorem to draw conclusions about solution sets to linear systems and the invertibility status of square matrices.
8. Determine a basis for and the dimension of a given subspace, including the null space and column space of a matrix and the eigenspaces of square matrices.