Math 342 - 40656 - Linear Algebra II (4)
Syllabus - OSU - Winter 2014

Instructor: Filix Maisch  e-mail: maischf@math.oregonstate.edu
Meetings: MWF 11 - 11:50 AM  phone: 541-737-7127
Room: SSC 133  office: Kidder 332  off. hrs: MWF 10 - 10:50 AM
Required Text: Linear Algebra Done Wrong, Sergei Treil (link on course web page)
Web: people.oregonstate.edu/~maischf/

Attendance: Regular attendance will be expected, but roll will not be taken.

Honor Code: Students are expected to be familiar with Oregon State University’s Statement of Expectations for Student Conduct. Please review this statement at the following web link:
http://oregonstate.edu/admin/stucon/achon.htm

Accommodations: 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 the following topics: Vector spaces, linear transformations, eigenvalues, diagonalization, inner product spaces, and orthogonality.

Prerequisites: MTH 341

Schedule: See web for tentative term schedule.

Evaluation: Your grade is determined by 7 homework assignments, a midterm, and a final. Here is the point breakdown:

- Homework - 150 (Top 6 of 7 homework scores worth 25 points each.)
- Midterm - 80 (Friday, Feb. 7th, in-class)
- Final - 120 (6 PM, Monday, March 17th)

Grades will not be harder than:
315 - 350 A/A-, 280 - 314 B+/B-, 245 - 279 C+/C, 210 - 244 D, 0 - 209 F.

I will not be using blackboard for this course. A “keep track of my own grade” sheet is included at the end of this syllabus.

Resources: Your primary resource is me. Make a note 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 Learning Center (aka MLC) in Kidder 108H, which is a great place to drop in for help (be aware that not all tutors in the MLC will be able to help you with this material). It is open from 9 AM to 4 PM, Monday through Friday, from the second week onward. I’ll be in there on Thursdays.
**Homework:** Each homework assignment will be available on the course web page at least one week before they are due in-class (due dates shown on tentative term calendar). Late homework will not be accepted. If for some reason you have to miss a class on a day homework is due, you may either slide it under my office door (by noon) or scan and e-mail me your assignment (by noon).

**Tests and Quizzes:** Calculators are not allowed on the midterm nor on the final. For the midterm, you are allowed both sides of one 4x6 inch handwritten note card, and for the final, you are allowed both sides of one 5x8 inch handwritten note card.

**Specific Learning Outcomes:**

1) Identify abstract vector spaces and write arguments (proofs) about them using the main definitions regarding linear independence, bases, linear transformations and their matrix representations, change of bases, subspaces, spectral theory, etc.

2) Identify inner product spaces and write arguments regarding orthogonality, norms, adjoint linear transformations, unitary transformations, isometries, etc.

3) Utilize the Gram-Schmidt algorithm to convert a system of vectors to an orthogonal system.

4) Find the characteristic polynomial, eigenvalues, and eigenvectors of square matrices and write arguments using the concepts in general, including diagonalizability, as they apply to square matrices of any size.

5) Find singular value decompositions of square matrices and understand its significance.
Write down your scores!

(1) Homework 1: ......out of 25
(2) Homework 2: ......out of 25
(3) Homework 3: ......out of 25
(4) Homework 4: ......out of 25
(5) Homework 5: ......out of 25
(6) Homework 6: ......out of 25
(7) Homework 7: ......out of 25
(8) Midterm: ......out of 80
(9) Final: ......out of 120