Math 340 syllabus (Fall 2008)

• **Instructor:** Yong-Geun Oh

Class: MWF 8:50 - 9:40, B 239 Van Vleck

Office/office hour: 715 Van Vleck, TuTh: 9:50 - 10:50 or by appointment

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TA : Guillemo Mantilla, 318 Van Vleck, 263-3239, Office hour: TuTr 11 - 12

• **Textbook:** Linear Algebra, 9th edition by B. Kolman & D. R. Hill

• **Exam:** There will be two midterm exams one on **Oct 1 (Wednesday)** and the other on **Nov 14 (Friday)** both **in class**. The final will be at **10:05AM - 12:05PM, Dec 14, Sunday**.

There will be no make-up exam !!!

• **Homework :** Each homework is due by Friday in class of the following week.

• **Quiz :** There will be weekly quizzes in TA's discussion session.

• **Grading Policy:** Final 40 %, each midterm 20%, HW & Quiz 20%

Homework Assignments

- **Week 1: Sept 3, 5 :** *Matrix and matrix multiplication*
  1. Section 1.2: 5, 7 (a)(d), 8 (b), 10, 13, 19.
  2. Section 1.3: 11(a)(b)(c)(e), 12(e), 14(a)(b), 21(b), 30
  3. Section 1.4: 3, 5, 16, 29, 32
- **Week 2: Sept 8 - 12:** *Echelon matrix and solving linear systems*
  1. Section 1.5: 1, 3, 4, 6(b), 16, 22, 35, 36, 46
  2. Section 2.1: 2(b), 4(b), 6(a), 8 S
  3. Section 2.2: 2(b), 6(a), 8(a), 15
- **Week 3: Sept 15 - 19:** *Elementary matrix and finding* A^{-1}
  1. Section 2.3: 7, 14, 20
  2. Section 2.4: 2(b), 6
  3. Section 2.5: 3, 7
  4. Section 3.1: 1, 11(b), 13
- **Week 4: Sept 22 - 26:** *Determinants and the inverse matrix*
  1. Section 3.2: 1(d), 3, 17, 26(b)
  2. Section 3.3: 3, 5, 15
  3. Section 3.4: 1, 9, 11
  4. Section 3.5: 1
- **Week 5: Sept 29 - Oct 3: Review and in-class midterm I**

- **Week 6: Oct 6 - 10:** *Vector space and its subspaces*
    1. Section 4.1: 3, 5, 12(a), 16
    2. Section 4.2: 2, 10, 12
    3. Section 4.3: 1, 3, 10, 15, 31
- **Week 7: Oct 13 - 17:** *Span and linear independence*
    1. Section 4.4: 1(b), 2(c), 3(b)(c), 11
    2. Section 4.5: 1, 4, 13(c), 16
    3. Section 4.6: 1, 4, 6, 7, 11
- **Week 8: Oct 20 - 24:** *Dimension and coordinates*
    1. Section 4.6: 12, 15, 19(c)
    2. Section 4.7: 4, 5, 17, 22
    3. Section 4.8: 1, 2, 8
- **Week 9: Oct 27 - 31:** *Rank and inner product*
    1. Section 4.9: 1(b), 6, 17(b)
    2. Section 5.1: 6, 9, 27
    3. Section 5.3: 9(a), 11(b), 12(a), 14(a), 16, 24, 25
- **Week 10: Nov 3 - 7:** *Gram-Schmidt process*
    1. Section 5.4: 5, 10, 13, 32
    2. Section 5.5: 1, 2, 5, 7, 15, 19
- **Week 11: Nov 10 - 14: Review and in-class midterm II**
- **Week 12: Nov 17 - 21:** *Kernel, range and matrix of linear transformation*
    1. Section 6.1
    2. Section 6.2: 4, 9, 11, 14, 18, 22
    3. Section 6.3: 5, 13, 21, 22(a)(b)
- **Week 13: Nov 24 - 28:** *Eigenvalues, eigenvectors and diagonalization*
    1. Section 6.5: 1, 5, 7
    2. Section 7.1: 4, 7(a)(b), 11, 21, 22
    3. Section 7.2: 2, 9, 11(a)(c), 12, 19
- **Week 14: Dec 1 - 5:** *Diagonalization of symmetric matrices*
    1. Section 7.3: 4, 16, 17
    2. Applications of linear algebra (Not required for the final).
- **Week 15: Dec 8 - 12: Catch-up and Review**