

**Math. 513. Linear Algebra**, Winter 2008/09

**Instructor:** Igor Dolgachev, 3064 EH, 763-0151 (office)

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**Textbook** S. Friedberg, A. Insel, L. Spence “Linear Algebra”, 4d edition, Prentice Hall, 2003.

+handouts

**Office Hours:** M 10-11, W 11-12, F 3-4

**Outline of the course:**

<b>Week</b>	<b>Topic</b>	<b>Sections</b>	<b>HW</b>
1	Fields	App. C	handout
2	Vector spaces	<b>1.2-1.3</b>	<b>1.2:</b> 8,13,16,18; <b>1.3:</b> 8(a,b,f),11,14,18,19
3	Dimension	<b>1.4-1.6</b>	<b>1.4:</b> 3a,4a,5a,10,14; <b>1.5:</b> 6,9,13; <b>1.6:</b> 6,7,9,11,17
4	Linear maps	<b>2.1-2.3</b>	<b>2.1:</b> 3,5,9,17,21; <b>2.2:</b> 2(a,f),3,4,5(a,c),9; <b>2.3:</b> 3,11,12
5	Change of bases	<b>2.4-2.5</b>	<b>2.4:</b> 2(a,f),3,5,14,15,23; <b>2.5:</b> 2(a,b),3(c),5,11
6	Linear equations	<b>3.1-3.4</b>	<b>3.1:</b> 2,3,4; <b>3.2:</b> 4a,6a,7,14,17; <b>3.3:</b> 4,6; <b>3.4:</b> 2(h),5,8
7	Determinants	<b>4.1-4.5</b>	<b>4.2:</b> 12,22,25,30; <b>4.3:</b> 7,11,20,27; <b>4.5:</b> 16
8	Eigenvectors	<b>5.1-5.3</b>	<b>5.1:</b> 3(a,d),4(a,g),8,17,18; <b>5.2:</b> 2(a,g),7,14(c); <b>5.3:</b> 2(a,i),6,13
9	Jordan forms	handout	<b>1.3:</b> 24,26; <b>2.1:</b> 28,31,35;handout
10	Inner products	<b>6.1,6.2</b>	<b>6.1:</b> 3,8,11,18; <b>6.2:</b> 2(a,i),9,13; <b>6.3:</b> 20,22(d)
11	Unitary operators	<b>6.4,6.5</b>	<b>6.4:</b> 2(a,f),4,11,13; <b>6.5:</b> 2(a,e),5(d,e),6,9,11,24
12	Quadratic forms	<b>6.2*</b>	<b>6.8:</b> 4(a,c,e),5(a,c),17(c); <b>6.5:</b> 27(a,c,e)

**Homework:** collected weekly on Wednesday.

**Exams:** Midterm Exam (to be announced) and Final (as scheduled).

**Grades:** Homework 30%, Midterm Exam 25%, Final 45%

$A^+ \geq 90\%$ ,  $A \geq 85\%$ ,  $A^- \geq 80\%$ ,  $B^+ \geq 75\%$ ,  $B \geq 70\%$ ,  $B^- \geq 65\%$ ,  $C^+ \geq 60\%$ ,  $C \geq 55\%$ ,  $C^- \geq 50\%$