

**Math. 419. Linear Algebra, Fall 2009/10**

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

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**Textbook** G. Strang, Linear algebra and its applications. 4th ed. Thomson Learning Inc. 2006.

**Office Hours:** Tue:10-11:30, Th: 10-11:30 (Crysler Center, Commons), W:12-1 (3064 East Hall).

**Outline of the course:**

<b>Week</b>	<b>Topic</b>	<b>Sections</b>	<b>HW</b>
1	Linear equations	<b>1.1-1.3</b>	<b>1.2:</b> 8,10,20,22; <b>1.3:</b> 4,6,10,16,18,20
2	Matrix multiplication	<b>1.4-1.6</b>	<b>1.4:</b> 6,10,12, 24,54; <b>1.5:</b> 30,34,48 ; <b>1.6:</b> 12,18,40,44,66
3	Vector spaces	<b>2.1-2.3</b>	<b>2.1:</b> 2,5,7,20; <b>2.2:</b> 4,10,24,36,42,68; <b>2.3:</b> 2,14,16,24,34
4	Linear transformations	<b>2.4,2.6</b>	<b>2.4:</b> 4,7,12,28,36; <b>2.6:</b> 2,6,8,16,22,28,34
5	Inner product	<b>3.1-3.2</b>	<b>3.1:</b> 6,12,22,28,42; <b>3.2:</b> 4,8,12,16
6	Least squares	<b>3.3-3.4</b>	<b>3.3:</b> 4,6,12,24,40,41; <b>3.4:</b> 4,6,14,16,18,24,25
7	Determinants I	<b>4.1-4.2</b>	<b>4.2:</b> 4,6,12,16,34
8	Determinants II	<b>4.3-4.4</b>	<b>4.3:</b> 6,10,12,16,22; <b>4.4:</b> 2,14,18,28
9	Eigenvectors	<b>5.1-5.2</b>	<b>5.1:</b> 12,16,24,32; <b>5.2:</b> 8,10,13,30,32,36,42;
10	Eigenvectors II	<b>5.3-5.4</b>	<b>5.3:</b> 2,8,20,24; <b>5.4:</b> 6,8,26,36,40
11	Jordan forms	Appendix B	<b>B:</b> 1,4,6,7,handout
12	Positive definite matrices	<b>6.1-6.3</b>	<b>6.1:</b> 8,15; <b>6.2:</b> 4,8,14,24; <b>6.3:</b> 2,8,15
13	Review		

**Homework:** Collected weekly on Thursday.

**Exams:** Midterm Exam (to be announced) and Final (Dec. 22, 8:00-10:00 or 10:30-12:30).

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

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