

Linear Algebra. Math-4100, Fall 2007
Assignment 2

Due Thursday, September 20, by 4pm. (Either in class, or my mailbox in AE 301, or under my door AE 405).

Reading

Sep. 10 and 13: **Strang** Sections 3.1–3.3.

Sep. 17 and 20: **Strang** Sections 3.4–3.5.

Problems

You are welcome to consult the text and notes and discuss the problems with other people. However, the solutions should be *yours*. Please indicated on your papers, who you discussed the problems with. *Please submit extra credit problems on a separate sheet of paper.*

1. Read *worked example* 2.7 B. Don't hand in anything for this problem.
The next two problems contain some simple questions; write brief justifications/calculations to support your answers.
2. Problem 2.7 #7, 16, 19.
3. Problem 2.7 #37.
4. Read *worked example* 3.1 A. Don't hand in anything for this problem.
5. Problem 3.1 #10.
6. Problem 3.1 #24.
7. Problem 3.1 #27.
8. Problem 3.2 #5.
9. Problem 3.2 #7.
10. Problem 3.2 #17, 18.
11. Problem 3.2 #21.
12. Problem 3.2 #31.
13. Problem 3.3 #2(b).
14. Problem 3.3 #17.

E2. (Extra credit) Prove that no reordering of columns and reordering of rows can transpose a typical matrix.

E3. (Extra credit) Suppose A and B are $n \times n$ matrices, and B is a right inverse of A , i.e., $AB = I$. Prove that A is invertible and therefore B is also the left inverse of A . A way to prove it is indicated in problems 3.3 17-19. A related (and a bit tricky) question, if $CD = I$ is it true that $DC = I$? See Problem 3.3 #20.