

Due: Friday, Feb. 9

Class Mon.–Tues., Feb. 5–6, in UMASTR lab, Du Bois 1667.

Get an OIT UMAccess account before then!

Bring a PC-formatted floppy disk or 100 MB Zip disk,  
or have access to an OIT “U-drive”.

**Instructions:** Be sure to follow the format guidelines in the course description handout. Anywhere you are asked to use MATHEMATICA, of course you include the relevant computer printout.

1. Do page 20, Exercise 12:
  - (a) First apply the Gauss-Jordan algorithm with paper and pencil (except that you may use a calculator or computer for doing arithmetic). Write your answer in what we have called “vector form”.
  - (b) Check your answer by solving the given linear system *as given*—including all its variables—with MATHEMATICA.
  - (c) With MATHEMATICA, set up and solve the same linear system in matrix form.
2.
  - (a) Do page 21, Exercise 31, by setting up and solving the relevant system of linear equations. For sketching the graph of the fitted cubic, use MATHEMATICA’s `Plot` function.
  - (b) Compare the answer you obtained with that provided by the MATHEMATICA function `Fit`. (You’ll want to consult MATHEMATICA’s help system to learn how to use `Fit`.)
3. Do page 22, Exercise 37. Set this up using the vector notation of Exercise 38, indicating the values of  $\vec{b}$ ,  $v_1$ ,  $v_2$ , and  $v_3$  here. Solve using, of course, the Gauss-Jordan algorithm.
4.
  - (a) Do page 34, Exercise 4 with paper and pencil. Then verify your answer with MATHEMATICA’s `RowReduce` function.
  - (b) Do page 35, Exercise 18 with paper and pencil. Then verify your answer with MATHEMATICA.
5. Part (a) of this problem is deferred to Set 2; part (b) is omitted entirely.