ME 352 Homework Format Fall 2008

Homework assignments will consist of a mixture of problem types. Some problems will ask you to perform a specific, short, task. Others will involve the development of programs. This document provides instructions for completing the homework assignments so that you (1) turn in solutions that are professional, (2) create documents that be understood by someone without access to the textbook, (3) provide a reference for your future study of numerical methods.

The goal is to focus on the content and organization of the completed homework assignment.

Basic Requirements

All assignments, no matter how involved, must meet the following standards.

1. Your name, the course number, assignment number, and the date must be clearly legible on the first sheet. No cover sheet is required.
2. Answers must be written legibly. Use of a word-processor is helpful, but not strictly required.
3. Answers must be given in complete sentences.

   Unlabeled computer print-out is *not* acceptable.

4. Plots must be fully labeled as described under "Results", below.

Assignments failing to meet these standards will be recorded with a score of zero.

Format for "Quick Questions"

Some problems require you to perform a simple numerical calculation, or to do some mathematical analysis with pencil and paper. For these types of questions you should include the following in your solution

- A brief statement of the objective to the assigned problem. One sentence is likely to be sufficient.
- Your analysis, with the result clearly identified. A one sentence conclusion is helpful, but not always required. Results of a MATLAB session should be included with your comments on the solution, and not, for example, on a separate sheet.

Format for Comprehensive Problems

Your solution to problems requiring development of MATLAB programs should include:

1. **Problem Overview**

   Do not restate the problem. Rather, give a brief description of what needs to be computed and, where applicable, the numerical method used in the computation. For most problems the *Problem Overview* section will take just one or two sentences.

(see over)

2. **Program Listings**

   Give complete listings of the m-files *you* developed to solve the given problem. Do not list m-files from the MATLAB toolbox, or the NMM toolbox unless you have made changes to the code in these m-files.

   Function m-files should have complete prologues (cf. § 4.1.4 in the text.) All input and output variables must be documented. Documentation of input and output variables in the function prologue is sufficient, i.e., repeating the definition in the descriptive text of the solution is neither required nor desired.

   Describe the role each m-file(s) in obtain obtaining the solution. If more than one m-file is developed, identify the relationships of the different programs. For example, one m-file might be the "main" program (or driver) that calls a built-in function or an NMM function, and another m-file might evaluate an $f(x)$ needed by a built-in MATLAB function.

   Between one and five sentences of descriptive text should be sufficient.

3. **Results**

   Present sample output from running your MATLAB code.

   - *Do not* provide long (more than 1/2 page) text output from the program.
   - *Do* provide sample command line sessions that demonstrate how to run your program.
   - Assume that the reader is familiar with MATLAB and has access to your code.

   Plots generated in your solution should be included in your completed assignment.

   - Plots should be fully labeled.
   - Axes should have labels indicating units.
   - Plots with multiple curves should have legends or other annotation of the curves.
   - Color plots are *not* usually necessary. Learn how to control line styles and symbol types so that plots are legible when rendered by a black and white printer.

   Answer any specifically questions asked in the problem statement.

4. **Conclusion**

   Briefly identify the important features of the results. Give practical interpretation of the output if possible. Describe any unusual or unexpected results. If you could not get your program to work, describe what is going wrong and provide suggestions for future work. Be concise but informative.

   One or two sentences should be sufficient for the conclusion.

The goal of adhering to this format is not to produce homework solutions that occupy many pages. It is more important to be complete than to be verbose. For many assignments, one or two sentences in each section is sufficient. It is acceptable to use similar phrases for each problem in an assignment.