

Assignment Instructions

MATH-UA 252/MA-UY 4424

Numerical Analysis, Summer 2021

M T W Th: 11:10am–1:15pm
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There will be weekly homework assignments due on Gradescope. No late homework will be accepted without **prior** approval with supporting documentation.

It is encouraged that you review the Academic Integrity Policy and note that:

- It is OK to discuss with other students the mathematical aspects, algorithmic strategy, code design, techniques for debugging, and compare results. You must however explicitly acknowledge any help that you receive from any source.
- Each student must write the solutions independently. Copying of any portion of someone else's solution or allowing others to copy your solution is considered cheating.
- Code sharing is not allowed. You must type (or create from things you've typed using an editor, script, etc.) every character of code you use. There is no substitute for debugging your own code; looking at or copying someone else's code is not the same.

Guidelines for Assignment Submission:

- Sometimes you will be required to submit code files but you are always encouraged to do that if you used code to compute your answers.
- Written homework should be typed via L^AT_EX, or written extremely neatly. You don't have to download any software or packages, you can use Overleaf.
- There will be a separate zero-point assignment on Gradescope for submitting codes; codes must be submitted to get points. Always submit plain text files (extension .m for Matlab, or .py for python), and do not submit things like Matlab worksheets that cannot be opened in a simple text editor. Each problem should be a separate code, and please name your files reasonably so the grader can find the codes as needed.
- Submitting code by itself (or numbers by themselves) will not suffice to get full points on a homework. The grader cannot possibly look at and debug all of your codes. The grader should be able to grade without looking at your code. If you only submit a final answer, and it is wrong, you leave no other option but to get zero points. So, always explain what you did with equations in the answer, and then give the answers your code gave. This should be an exercise in communication.
 - For example, if a question asks you to give the numbers for a certain iteration, write down that iteration with a mathematical formula in the answer instead of just giving numbers.

- ☐ You are practicing here an important skill of reporting mathematical information to others, not just giving answers for a grade; communicating mathematics is an important part of your STEM education. You are also convincing us you know which formula from class is the right one to use.
- Do not use **sym** in Matlab, i.e., do not use symbolic algebra in this class. This class is about computing with floating-point numbers, not symbolic computing, which is an important but distinct tool.
- How to present your information effectively:
 - ☐ Plot figures with thought and care. Errors should be plotted on a logarithmic scale, not linear, so you can see it going down instead of flat lines. The plots should have axes labels, tick marks, and legends, and be easy to understand at a glance.
 - ☐ Export figures from Matlab or other plotting software to a scalable graphics format (.eps, best is to use .pdf, .dxf) rather than raster graphics or bitmaps (.jpg, .png, .gif, .tif). If your graph is hard to read for you, it is hard to read for us. Make sure it is clear. If you use L^AT_EX use PDF format with pdflatex.
 - ☐ Often a picture will provide a much better understanding of the results. Instead of large tables, or printouts of Matlab matrices, make a plot.
 - ☐ Do not submit pages of numbers unless there is a really good reason as it is not an effective way to present the information.
 - ☐ A picture by itself is not enough! You must write an explanation to go with the figure, especially what you learn from the figure (think of figure captions in scientific papers).
 - ☐ If you do print things, use fprintf to format the output nicely instead of printing large matrices. Also use format compact and other format commands to control how MATLAB prints things.