MATLAB Start to Finish Curriculum

Format

Each week there will be one short (<=30 minutes) live (and recorded) lecture given by the instructors, in which they will demonstrate examples and answer questions. They will then provide example problems to do outside of lecture, which can be reviewed on an individual, by-request basis and at the beginning of the next class.

Student Led Review is a class session in which students are encouraged to ask questions about homework or lecture content, and then encouraging other students to try and provide an answer. If no questions arise, ask some of the students and have them write solutions on the spot. This should be excellent for reinforcing knowledge and curating the teachers for future classes.

Schedule

Week | Topic | Description | Practice Problems :----:|:----:|:----:|:----: 1 | MATLAB Fundamentals | Layout of the MATLAB window, 1 index language, basic syntax, thinking with matrices, 'import'-ing, scripts vs live scripts, plotting. | plotting exercises, function definitions, live scripts and scripts 2 | Advanced Plotting | Customizing plots programmatically, plotting functions | Complex plotting exercises based on previously written functions 3 | Student Led Review | ~ | ~ 4 | Numeric vs. Symbolic | Differences between numeric and symbolic functions, how to use them to simplify math | Interconversion of symbolic and numeric involving complicated functions, plotting 5 | Evaluating Integrals, Iterative Solving | Functions of functions, how to integrate a function (numerically and symbolically), use this to iteratively solve | Give example from thermodynamics homework of our iterative solver, ask to fix/improve 6 | Student Led Review | ~ | ~ 7 | Mini-Project | Small version of the thermodynamics project | Write an EOS, plot it over a range, manipulate according to a provided PDE 8 | Mini-Project Help | Answer questions and help debug the Mini-Project | ~ 9 | Student Led Review and Project Presentations (optional) | ~ | ~