Introduction

- course topics

- basic course information
Course topics

Motivation

• modern computers are inexpensive, fast, have lots of memory
• it is easy to collect, store, transmit large amounts of data
• numerical software makes advanced algorithms simple to use

Main topics

• numerical linear algebra (linear equations, least squares, \ldots)
• nonlinear optimization, nonlinear least squares
• introduction to floating point numbers and rounding error
• examples from data analysis, statistics, image processing, control, \ldots
High-level languages for numerical computing

• MATLAB

• GNU Octave (www.octave.org)

• Python (via the libraries NumPy, SciPy, matplotlib, . . . )

• R (www.r-project.org)

• Julia (www.julialang.org)

• . . .
Course information

Course material

• textbook, lecture notes, homework assignments posted at
  www.seas.ucla.edu/~vandenbe/ee133a

• homework solutions on CCLE course website

Course requirements (see syllabus on CCLE website)

• weekly homework, most assignments include MATLAB exercises

• closed-book midterm exam (Tuesday, May 3, 6PM)

• closed-book final exam