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, . . . )
• nonlinear optimization, nonlinear least squares
• introduction to floating point numbers and rounding error
• examples from data analysis, statistics, image processing, control, . . .
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
• possibly a small project or extended last homework
• closed-book midterm exam (Monday, November 2, 4pm)
• closed-book final exam