Student lectures

• Everyone should plan on giving a 10-15 minute lecture to the rest of class at some point during the semester
• Topic is of your choosing, and I am happy to discuss topics if you want
• Could involve presentation of slides, a preconstructed iPython notebook, a live demo, ...
Possible topics

• A Python language feature that you find curious or confusing, and steps you’ve taken to understand it further
• A Python package (either in the standard library, or a 3rd party library) that does something you find useful
  - image processing (PIL), machine learning (sklearn), visualization (matplotlib, PyMOL, etc.), text processing, finite element analysis, symbolic math (sympy), data analysis (pandas), molecular modeling, etc.
• A comparison between how to do something in Python and some other language or environment (incl. performance)
Possible topics (continued)

• An exercise you’ve worked on in class, highlighting things you’ve learned
• A proposal for an interesting new exercise that we could develop for the class
• A bug or missing feature you’ve fixed in one of the course exercises (visualization components?)
Possible topics (continued)

• A computational problem that you’ve worked on outside of class, including a description of methods and tools
  - a new algorithm you learned, some data you’ve analyzed, a homework problem you solved, a talk you’ve previously given

• A scientific paper that you’ve read that performs some interesting computation, including a description of its basic elements and some thoughts about how you might solve such a problem
Special guest lecture next Monday 9/21
Matt Bierbaum, Physics grad student, Cornell

• An insider’s guide to performance optimization in scientific computing
  - algorithms, programming languages, memory cache, integration of high-level languages and compiled kernels, N-body simulation algorithms, GPUs, etc.

• An insider’s guide to collective behaviors in mosh pits