

Preliminaries



CS 331: Data Structures and Algorithms
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Agenda

- Course overview & Administrivia
- Prerequisites
- Topics & Resources
- Grading
- Dev environment & Class procedures

Data Structures

- How do we store, organize, and retrieve data on a computer?

& Algorithms

- How can we efficiently (in space/time) carry out some typical data processing operations?
- How do we analyze and describe their performance?

Prerequisites

- I assume you are ...
 - fluent in some programming language
 - familiar with procedural & OO paradigms
 - comfortable with development processes:
 - compilation, debugging, testing

Python

- We'll use the Python programming language to explore data structures & algorithms
- Easy-to-learn, clean (“one obvious way to do” things), and popular language
- Ton of useful, powerful libraries

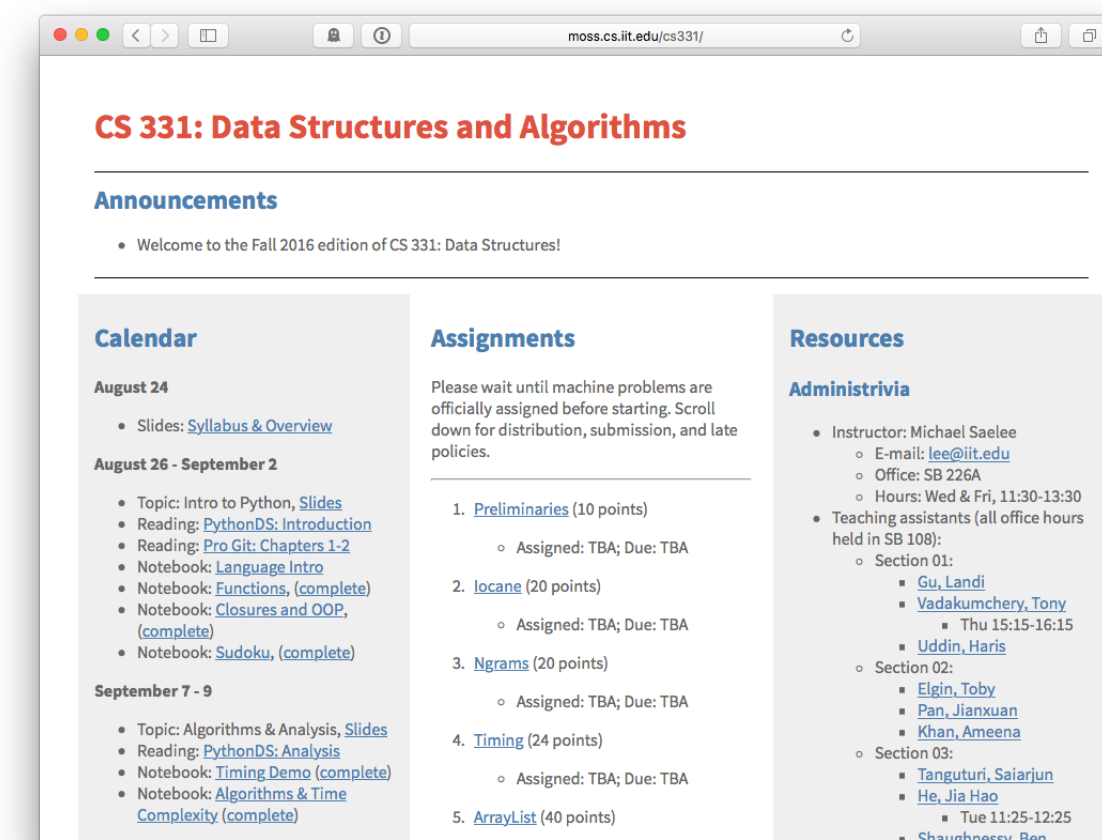
Topics

- Python crash course
- Algorithmic analysis
- Linear data structures (Lists, Stacks, Queues)
- Hashing and Hashtables (aka Maps)
- Recursion and Trees

Online resources

1. Course website: moss.cs.iit.edu/cs331/saelee

- static information
- lecture calendar, slides, external resources, etc.



Online resources

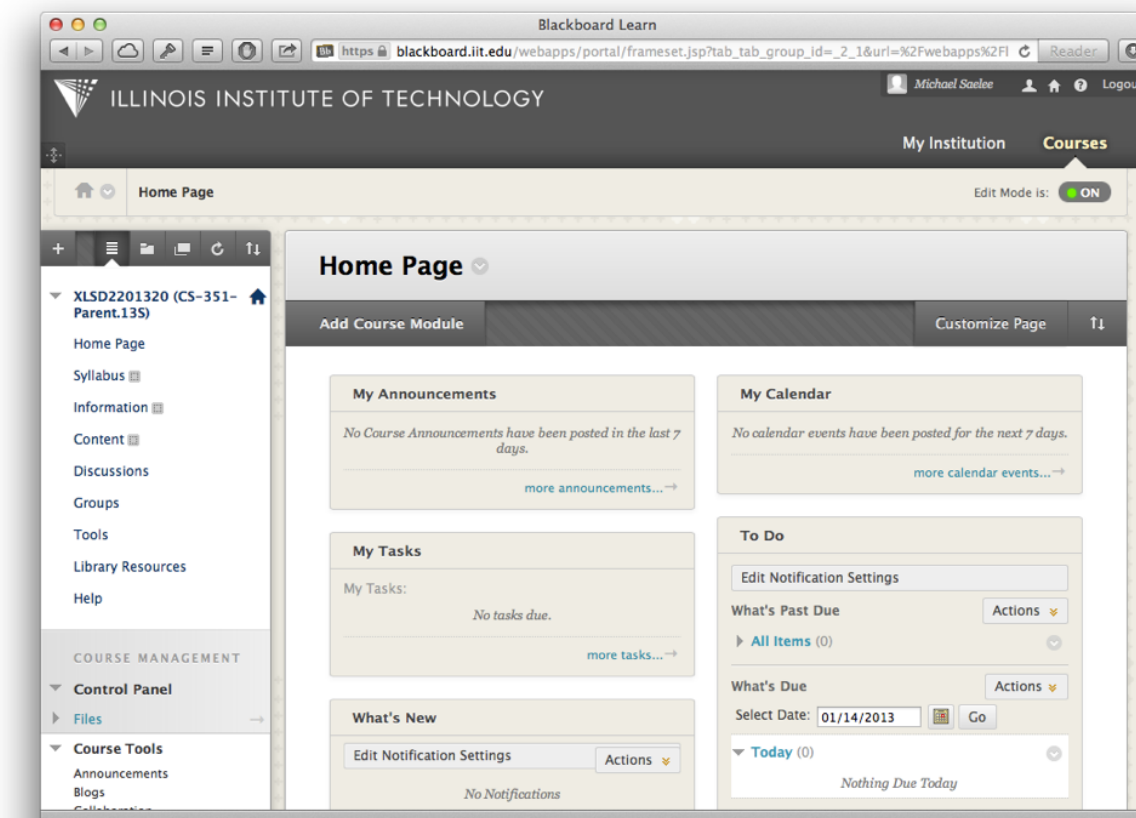
2. Learning platform: Mimir

- interactive lab and lecture notebooks (using Project Jupyter)
- quizzes for self-evaluation

Online resources

3. Blackboard

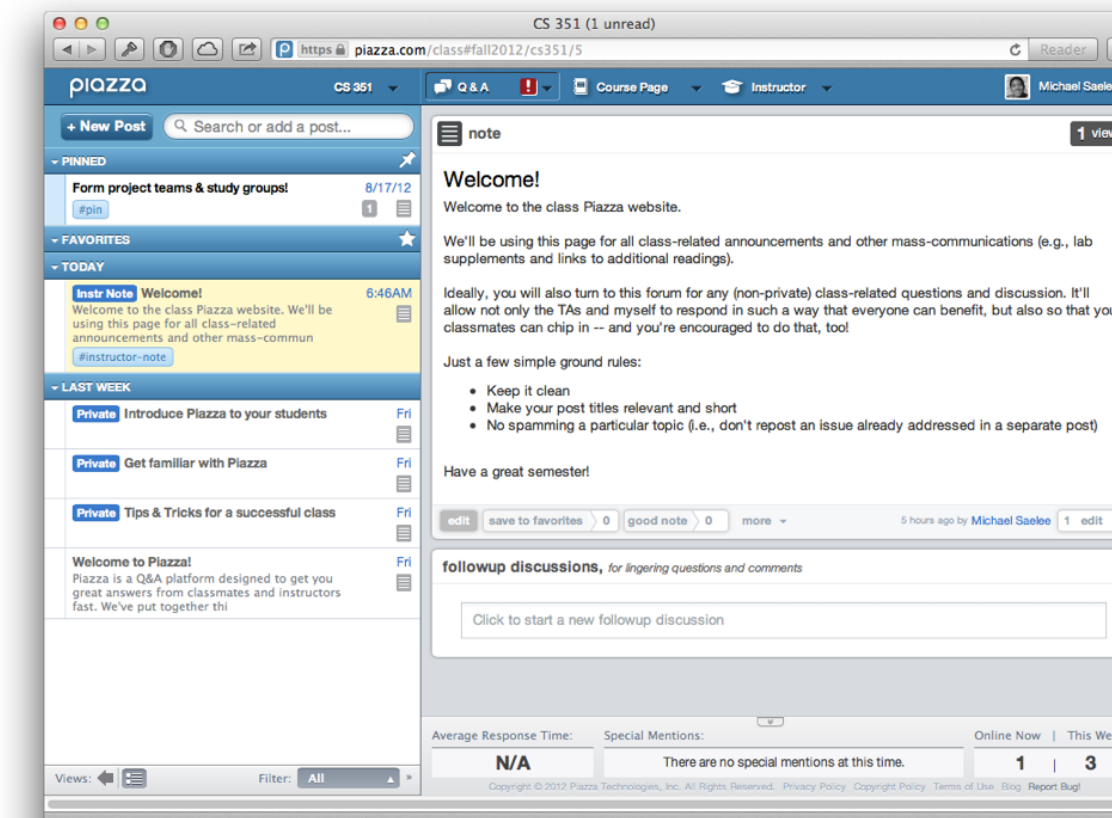
- *only for grade reporting!*



Online resources

4. Piazza: discussion forum

- all class-related questions
- monitored by TAs
- scales *way* better than e-mail



Teaching Assistants (SB 108)

- Section 04: **Ismael Lopez**

- Hours: Mon/Wed 7PM-8PM

- Section 04: **Jay Huang**

- Hours: 12:15PM-2:15PM

- Section 04: **Sahill Sharma**

- Hours: Mon 10:25AM-11:25AM,
Wed 10AM-11AM

- Section 05: **Noah Dela Rosa**

- Hours: Fri 1:45PM-3:45PM

- Section 06: **Samuel Golden**

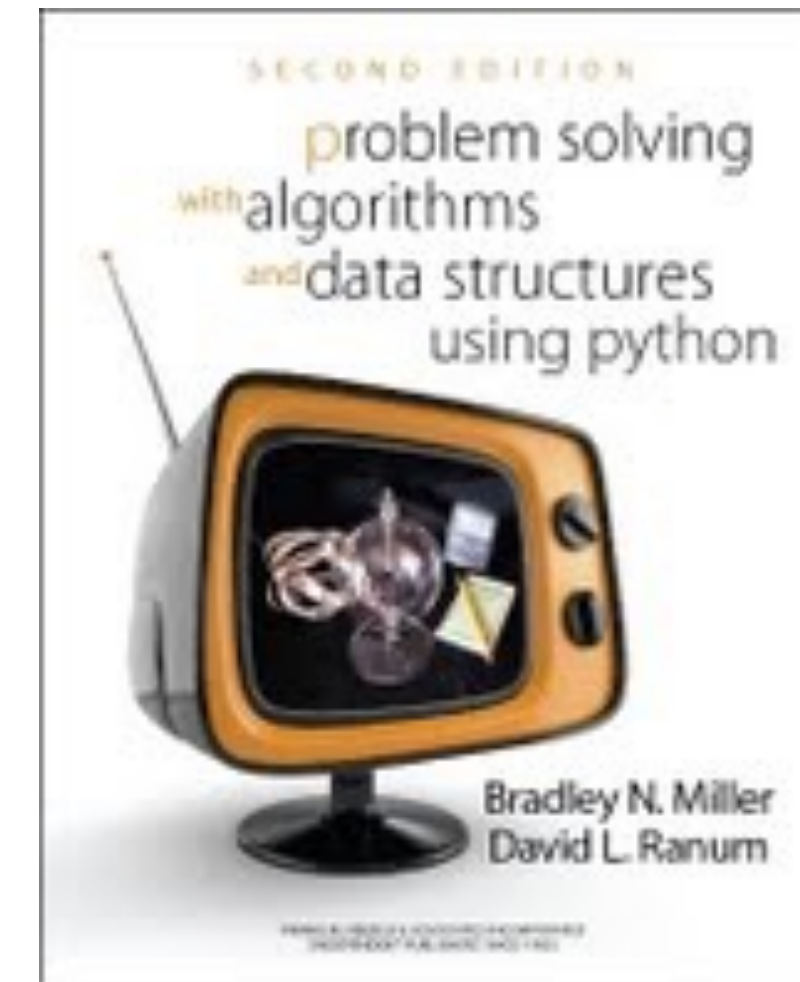
- Hours: Tue/Thu 3:30PM-4:30PM

- Section 05/06: **Safa Slote**

- Hours: Tue 11:30AM-12:30PM

Supplements

- The Python Tutorial (docs.python.org/3/)
- Problem Solving with Algorithms and Data Structures Using Python



Grading

- 30% Machine Problems
- 10% Quizzes / Self-evaluation
- 60% Exams (3 total: 2 midterms + final)

On Exams

- Exams are all *cumulative*
- Tentative midterm exam dates published on class website
- Sep 20, Oct 25: coverage will end at least 1 week before each exam

Machine Problems

- New programming assignment every week
- All assignments are retrieved and submitted on Mimir
- Provided codebase covered in preceding lectures

Jupyter Notebook

- In-browser Python development platform
- “Cells” can contain plain text, code, output (and more)
- All lecture notes, demos, and assignments will be distributed as notebook files

Jupyter Notebook

- You can optionally install a notebook server on your own computer for convenience
- Install via Anaconda (“classic” Jupyter Notebook with Python3) — see <http://jupyter.org/install.html>

Interactive Lectures

- Lecture notebooks released as 0-point “assignments”
- Open on Mimir (or download into local notebook server) to edit and follow along during class
 - Class is usually one long interactive demo. Bring your laptop to follow along!
- Completed notebooks will be posted on the class website

§ Questions & Demo