COS 333: Advanced Programming Techniques

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COS 333
Course Overview

Robert M. Dondero, Ph.D.
Princeton University

Agenda

- **Introductions**
- Course Description
- Resources
- Topics
- Assignments
- Project
- Schedule
- Policies
- Computing Environment

Introductions: Lead Instructor

- Bob Dondero
  - rdondero @cs.princeton.edu

Introductions: Lead Instructor

- David Walker
  - dpw @cs.princeton.edu

Introductions: TAs

- Graduate student TAs…

Introductions: TAs

- Kuba Alicki
  - ka3866 @princeton.edu

Introductions: TAs

- Bri Butler
  - bb5943 @princeton.edu

Introductions: TAs

- Oleg Golev
  - ogolev @princeton.edu

Introductions: TAs

- Darby Haller
  - dhaller @princeton.edu

Introductions: TAs

- Watson Jia
  - watsonj @princeton.edu

Introductions: TAs

- Andrew Johnson
  - aj3189 @princeton.edu

Introductions: TAs

- Lisa Liu
  - xl2493 @princeton.edu

Introductions: Students

- Not now, but by tomorrow (Friday 9/9) at 5:00PM…
- Please complete **introductory survey**
  - Use ***Survey App*** at https://cos333survey.cs.princeton.edu

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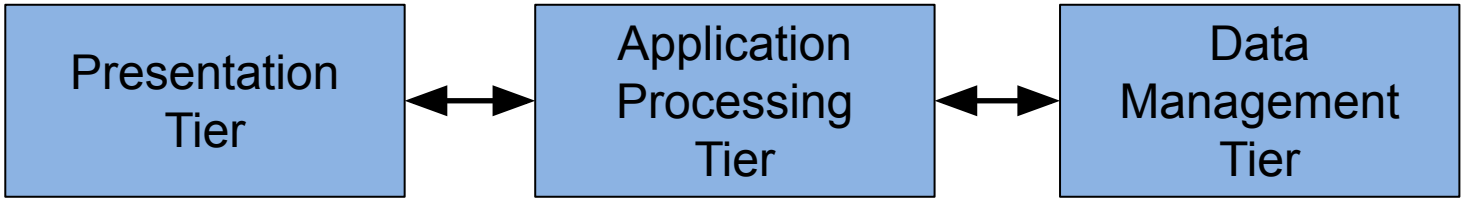
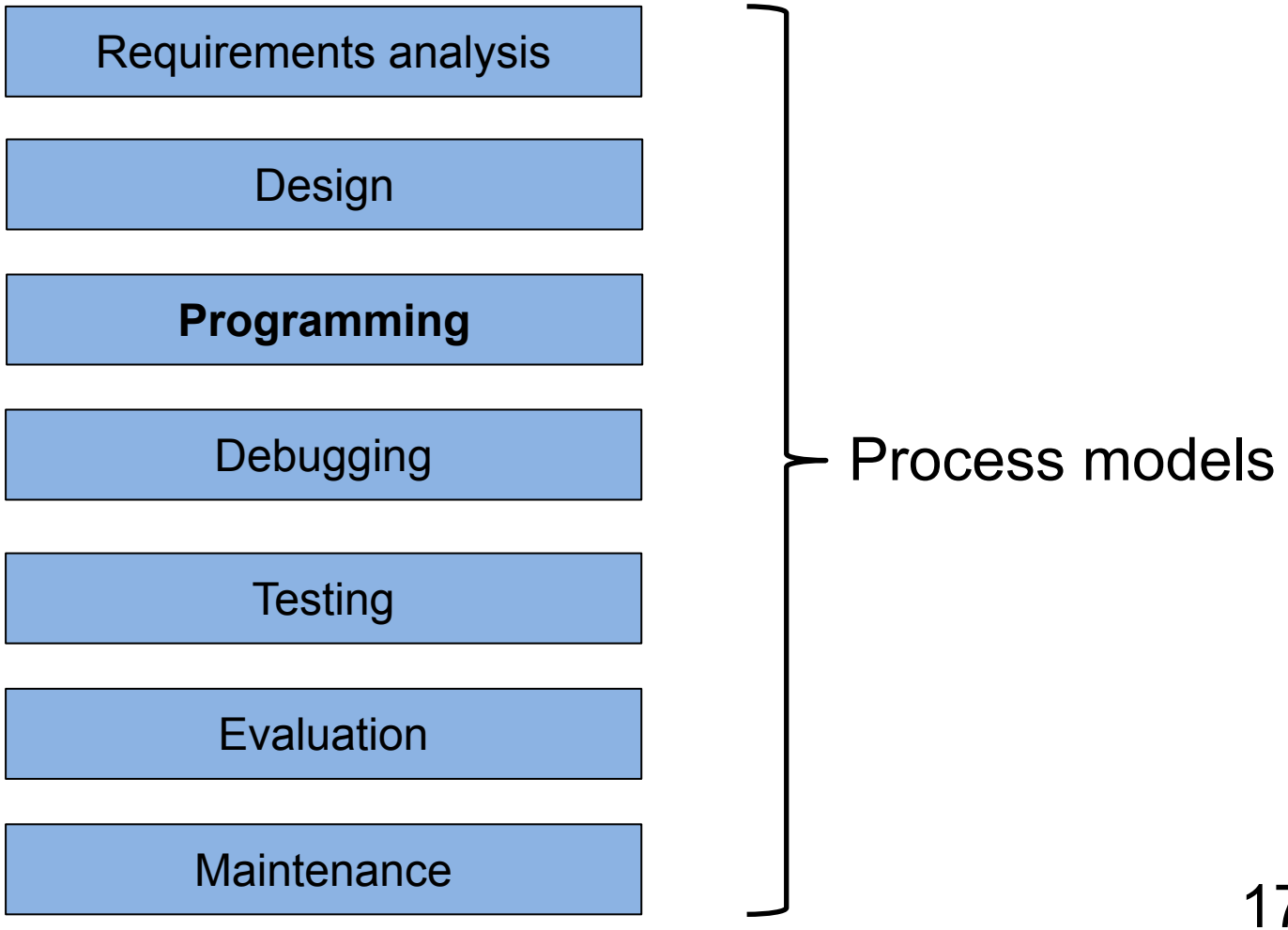
Course Description

Goal 1: ***Three-tier programming***



Course Description

Goal 2: ***Software engineering***



Course Description

- How will we achieve those goals?
  - Lectures
  - Assignments
  - Project

Course Description

- Course prerequisites
  - COS 217
  - COS 226

Agenda

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Resources: Website

(1) Course website

https://www.cs.princeton.edu/courses/cos333/

Resources: Lectures

(2) Lectures

- Slides and handouts via *Topics* page

Resources: Ed

(3) Ed (EdStem, Ed Discussion)

- Access through Canvas:
  - https://canvas.princeton.edu
- Access directly:
  - https://edstem.org/us/courses/23162/discussion/

Resources: Email

(4) Email

- To all instructors (preferred)
  - cos333instructors@lists.cs.princeton.edu
- To one instructor
  - See *General Information* web page or previous slides for email addresses

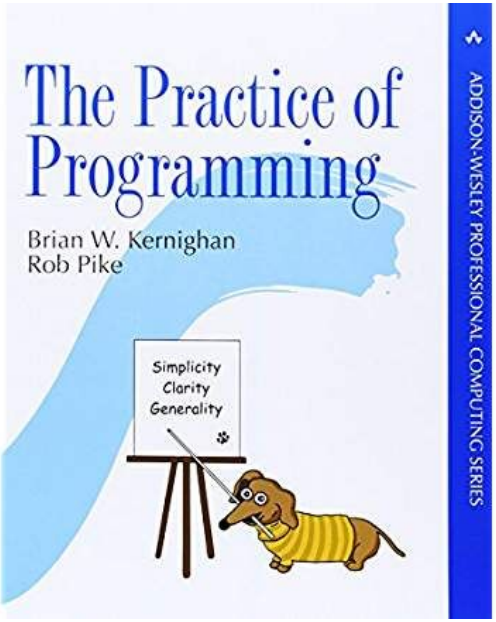
Resources: Meetings

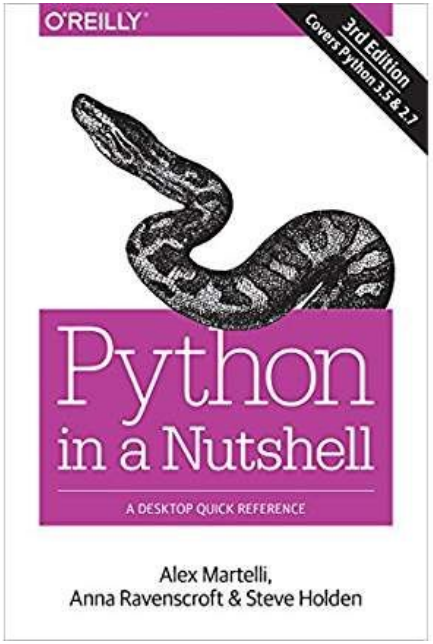
(5) Instructor meetings

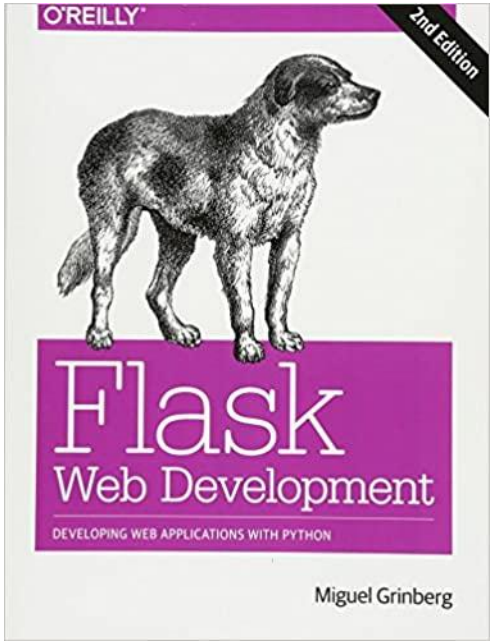
- See *General Information* web page for office hours

Resources: Books

(6) Books

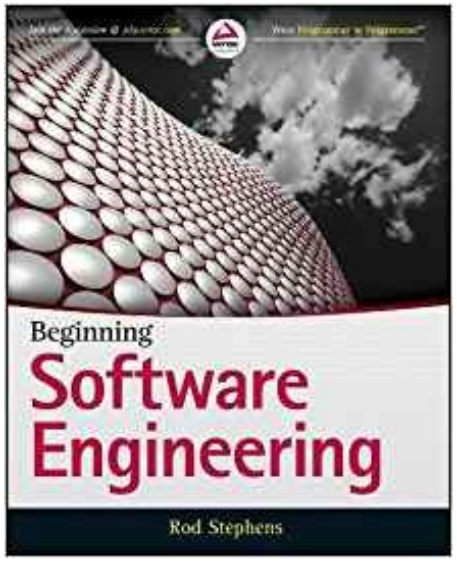






Resources: Books

(6) Books (cont.)



Resources: Other

(7) Other resources

- See links on *Topics* web page
- Particularly helpful:

Resources: Summary

- Resources summary
  (1) Course website
  (2) Lectures
  (3) Ed
  (4) Email to instructors
  (5) Meetings with instructors
  (6) Books
  (7) Other (e.g., Stack Overflow)

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Topics

- Please read the *Topics* web page
  - Subject to change…

Topics

- Version Control Systems
  - Probably not covered in lecture
  - See *Version Control Systems* lecture slides
  - See *Git and GitHub Primer* document

Topics

- The Python Language

Topics

- Database Programming

Topics

- Graphical User Interface (GUI) Programming

Topics

- Network Programming

Topics

- Web Programming

Topics

- CGI Server-Side Web Programming

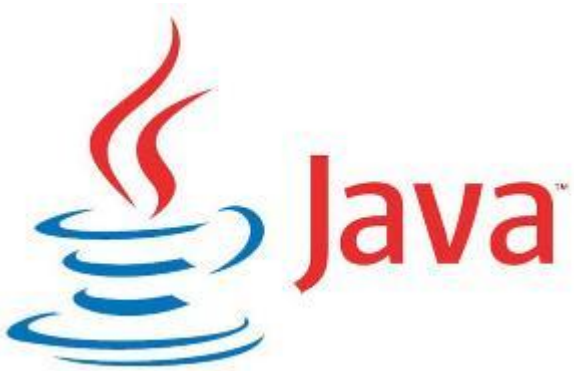
Topics

- Python WSGI Server-Side Web Programming

?

Topics

- Java Server-Side Web Programming

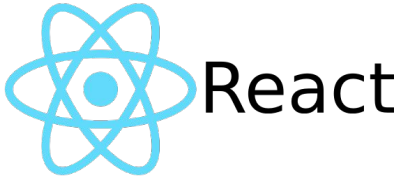


Topics

- The JavaScript Language

Topics

- JavaScript Client-Side Web Programming

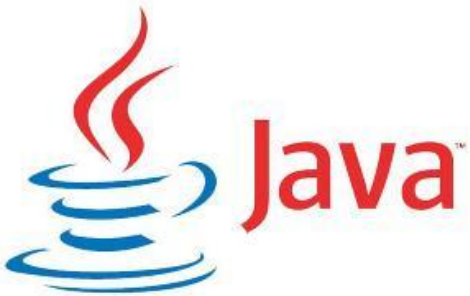


Topics

- CSS Client-Side Web Programming

Topics

- Mobile Programming
  - Probably not covered in lectures



Topics

- Programming with Concurrent Processes

Topics

- Programming with Concurrent Threads

Topics

- Security Issues in Web Programming

Topics

- XML and JSON Programming

Topics

- Software engineering
  - Requirements analysis
  - Design (UML, design patterns)
  - Programming
  - Debugging
  - Testing
  - Evaluation
  - Maintenance (refactoring)
  - Process models

Agenda

- Introductions
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- Resources
- Topics
- **Assignments**
- Project
- Schedule
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Assignments

- Please read the *Assignments* web page

Num	Assignment
1	Registrar's office: command-line version
2	Registrar's office: desktop version 1
3	Registrar's office: web version 1
4	Registrar's office: web version 2
5	Registrar's office: desktop version 2

Assignments

- **Recommendations**:
  - Get the modularity right!
  - Teams of 2
  - Choose your Assignment 1 teammate wisely

Agenda

- Introductions
- Course Description
- Resources
- Topics & Schedule
- Assignments
- **Project**
- Schedule
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Project

- Please read the *Project* web page
  - Teams of 3-5
  - Networked three-tier application
  - Deliverables throughout the semester

Project

- ***ProjectFinder App***
  - https://cos333projs.cs.princeton.edu
  - **Your initial entry is due Sun 9/11 at 5:00PM**

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- Project
- **Schedule**
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Schedule

- Please read the *Schedule* web page
  - Generally:

First half	• Develop project idea • Assemble project team • Assignments 1, 2, 3 • Lectures related to Assignments 1, 2, 3 • Start project
Second half	• Assignments 4, 5 • Lectures related to Assignments 4, 5 • Lectures on more unconstrained topics • Finish project

Schedule

- Schedule notes:
  - Schedule aligns **lectures** with **assignments**
  - Schedule aligns **lectures** with **your project**?

Agenda

- Introductions
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- Schedule
- **Policies**
- Computing Environment

Policies

- Please read the *Policies* web page
  - Some highlights…

Policies

- **Lecture** policies
  - Please be there!
  - Please participate

Policies

- **Project** policies
  - Use any resources you want
  - General constraint: the work must be essentially your own
  - Cite sources

Policies

- **Assignment** policies
  - Use any resources you want
  - General constraint: the work must be essentially your own
  - Specific constraint: **you may not look at any COS 333 assignment solution composed by someone else**
  - Cite sources

Policies

Grading policies:

Course Component	Approx Weight
Assignments	35%
Project	50%
Exam *	15%
Participation adjustment	± 3%

* During final lecture
Will focus on material covered in lectures

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- **Computing Environment**

Computing Environment

- See document: *A COS 333 Computing Environment*
  - On website via *Topics* page

In closing…

Action Items

- By Fri 9/9 5:00PM
  - Use ***Survey App*** to express your expertise and interest in course topics
    - https://cos333survey.cs.princeton.edu

Action Items

- By Sun 9/11 5:00PM
  - Use ***ProjectFinder App*** to indicate your project status and interests
    - https://cos333projs.cs.princeton.edu

Action Items

- Soon
  - Read **course website**, esp. *Policies* page
    - https://www.cs.princeton.edu/courses/cos333/
  - Make sure you're comfortable with Git and GitHub
    - Version Control Systems lecture slides
    - ***Git and GitHub Primer*** doc
  - Create a COS 333 computing env
    - ***A COS 333 Computing Env*** doc

Summary

- Course overview
  - Introductions
  - Course Description
  - Resources
  - Topics
  - Assignments
  - Project
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  - Policies
  - Computing Environment