CIT5900
Course Introduction

Instructor: Brandon Krakowsky

Penn Engineering

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- I also teach a specialization on Coursera called Introduction to Programming with Python and Java which is basically an introduction to this course and the Online MCIT program
- And … I just started teaching a brand-new half credit course called How to Use Data in the Online MCIT Program and Online MSE-DS Program

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- What is Analytics at Wharton?
  - We partner with companies to provide real-world datasets to Penn students, faculty, and academic researchers around the world, for research and experiential learning
    - Some of our partners include Microsoft, Comcast, IKEA, McDonald's, Fox , Petco, & Lowe's

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  - We also teach technical workshops and build online courses for students across the university to learn data management, analytics, and technical skills
    - Some of our online courses include Intro to SQL, Python Bootcamp, Intro to Data Visualization, & Data Storytelling

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- Most recently, I became the Head of Experiential Learning & Education at Analytics at Wharton

More About Me – I Play Bass

- I’m a bass player
- I’ve been playing bass for many years
- I play a variety of styles, but prefer music on the funkier side
- I’ve been in many bands, have travelled extensively, and also write and record my own music

More About Me – *Mostly*, I'm a Family Man!

- Finally, I'm a family man
- I've been married for about 18 years, and have 3 daughters, ages 16, 13, and 5
- So … it's a full house!

OK, Enough About Me!

About This Course

TAs for the Course

- **Head TA: Renisa Pati (renisa@seas.upenn.edu)**
- Tianhao Xu (xu000546@seas.upenn.edu)
- Jiawei He (jhe2021@seas.upenn.edu)
- Zairui Yang (zairuiy@seas.upenn.edu)
- Shreyas Singh (shreyas4@seas.upenn.edu)
- Onsang Yau (onsang@seas.upenn.edu)
- Eason Ding (easond@seas.upenn.edu)
- Hongkai Zhang (hongkaiz@seas.upenn.edu)
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Regularly scheduled office hours:

- Office hours will be provided as **a mix of in-person and virtual options!**
- The weekly schedule will be posted on Ed Discussion
- Depending on availability, the times and in-person/virtual locations could change

My Office Hours

- Brandon Krakowsky (lbrandon@wharton.upenn.edu)
- Regularly Scheduled Office Hours:
  - Tue. after lecture until about 5:30, Levin Building Auditorium
  - Thur. after lecture until about 5:30, Levin Building Auditorium
  - By appointment

What Will You Learn in this Course?

- Intro to programming using both Python and Java

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- Intro to programming using both Python and Java
- Code syntax
- Style and conventions
- You will also learn:
  - Code testing
  - Code debugging
  - Code design
  - Code documentation
  - Computational thinking!

Course Topics for Python

- Intro to Programming & The Python Language, & Jupyter Notebook
- Variables, Conditionals, & IDLE
- Intro to Lists & Loops
- Functions & Modular Programming
- Lists, Strings, & PyCharm
- Tuples & Sets
- Unit Testing
- Dictionaries
- File I/O
- Intro to Object-Oriented Programming
- Data Analysis

Course topics are subject to change!

Course Topics for Java

- Intro to Java and Eclipse
- Classes
- Unit Testing
- Arrays & ArrayLists
- Static Variables & Methods
- Polymorphism - Overloading
- Polymorphism – Inheritance, Overriding, & Access Modifiers
- Abstract Classes & Interfaces
- Debugging
- File I/O & Exceptions
- Collections & Maps
- Regular Expressions
- Connecting to Databases
- Version Control & Git

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Python

- Why begin with Python?
  - Great first language and easy to get up and running quickly
  - Easier to learn than Java
  - Allows you to spend more time thinking about programming logic and algorithms, and less time thinking about code syntax

Java

- Why transition to Java?
  - More object oriented and robust
  - Used for many applications
    - For example, Android programming is basically Java programming
  - Used in a number of other courses in the CS department at Penn

Keeping Track of this Course

- Canvas will be used for all course content, homework assignments, quizzes, and exams
  - Canvas Homepage: https://canvas.upenn.edu/courses/1770987
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  - You should be signed up! Keeping up with Ed Discussion is part of the course.
  - Answering questions on Ed Discussion is part of being a good student
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- E-mail Brandon to contact him directly

Course Material Format

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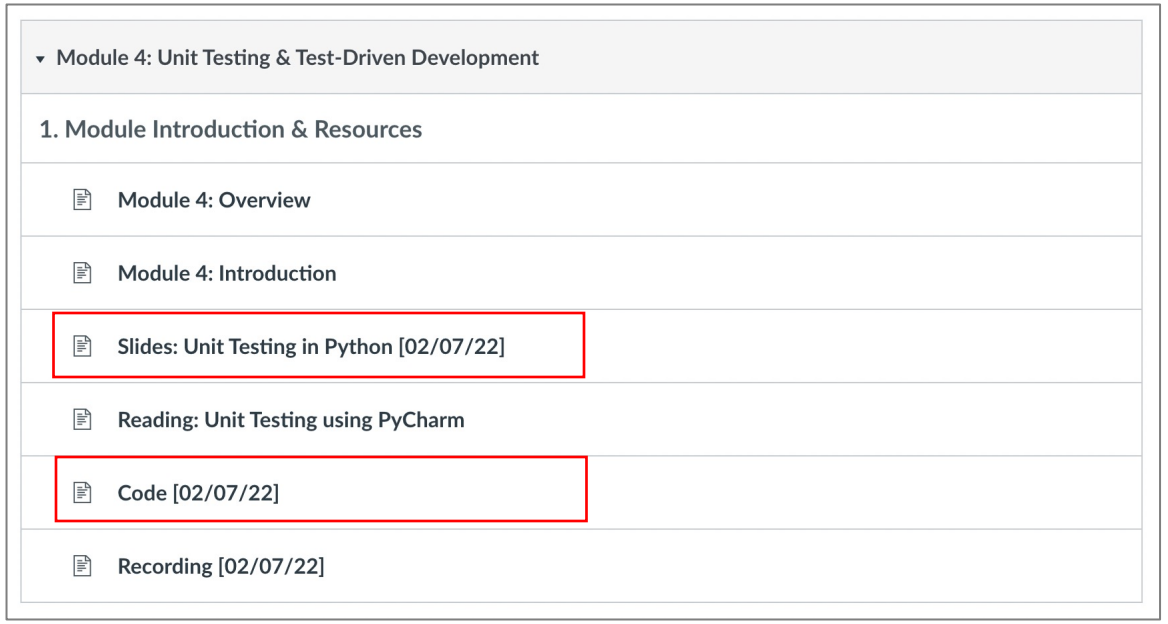

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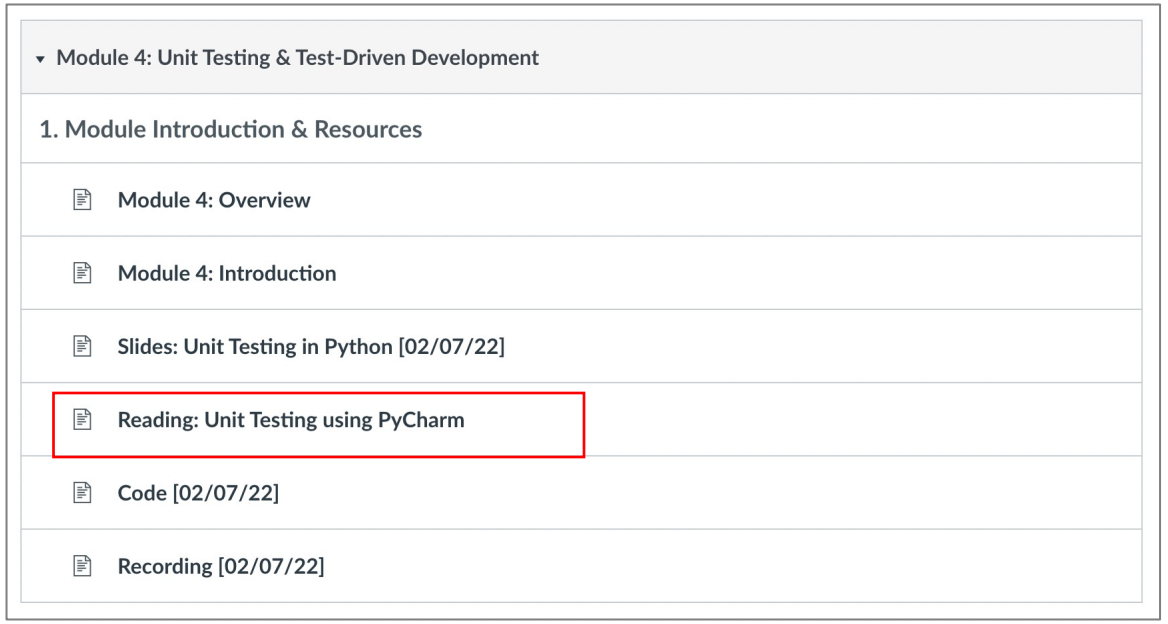

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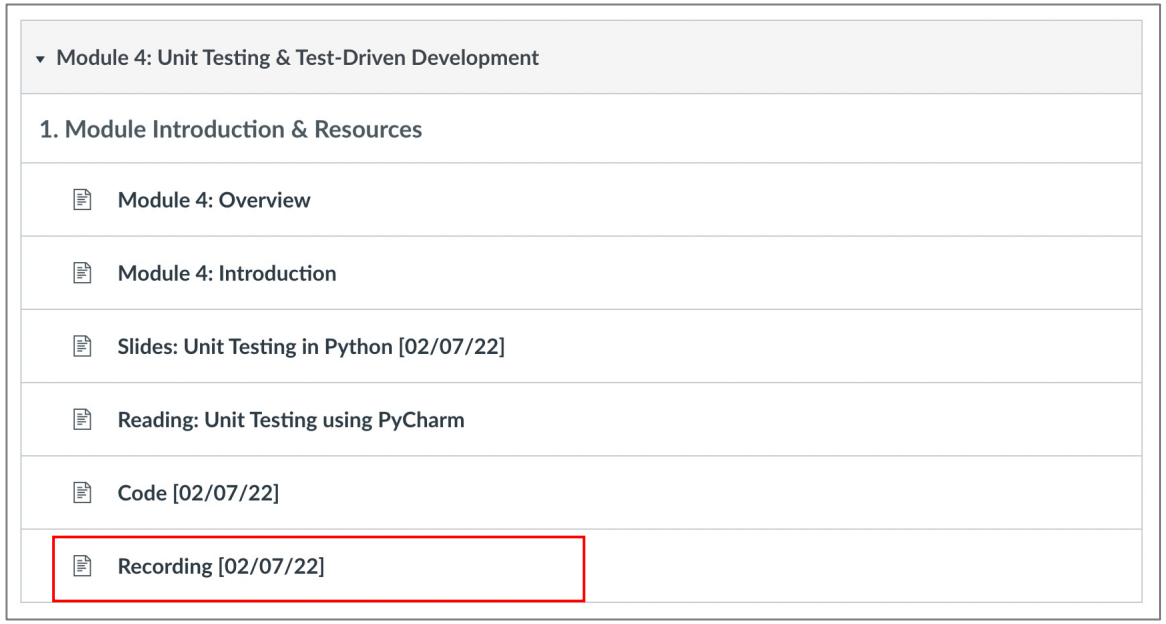
- And you’ll find the lecture recordings



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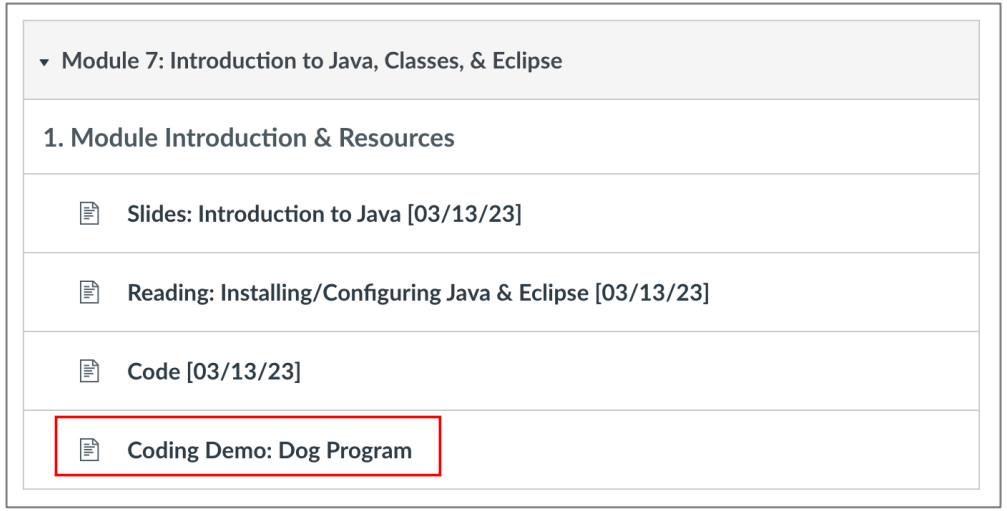
- You may even find additional videos (e.g. coding demos)



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- All lectures will be recorded and made available in "Class Recordings" on Canvas

Recitation Format

- **There will be 1 recitation every week**
  - It will take place on:
    - **Fri. 10:15am-11:45am ET: Towne 319**
    - **Fri. 1:45pm-3:15pm ET: Moore 212**
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- Note: No recitation this week (01/19/24)!

Quizzes

- There will be an *online graded quiz* every week
  - It will be posted on canvas by Wed. and will be due by Fri. (typically before scheduled recitation)
  - Note: No quiz this week!

Homework Assignments

- Homework will be assigned *just about* every week
  - There will be a total of 9 – 10 homework assignments, depending on how much material we get through
  - Deadlines will be strictly enforced
  - If you do have an emergency, please contact me or have one of your classmates contact me

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  - There will be a total of 9 – 10 homework assignments, depending on how much material we get through
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- For the final assignment, you'll have the option to work as a group (no more than 2 students) and define your own project! (More details to be provided)

Exams

- There will be a Python Midterm (at the *approximate* midpoint of the semester)
  - This will cover ONLY material on Python
- There will be a Java Final Exam (at the *end* of the semester)
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- The format of the exams will be "take-home" open book coding exercises
  - They are like the assignments, but easier
- Once an exam is posted, you will have *about 5 days* (and maybe even more time) to complete it

Grades

- Grade Breakdown
  - Homework will be worth 60% of the grade
  - Midterm: 15%
  - Final exam: 15%
  - Quizzes: 5%
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- What does this mean?
  - We visualize all final grades and observe the natural separation of the numeric grades into groups
  - Then we assign a letter grade to each group based on the numeric range
    - For example, depending on how well the class does overall, an A+ could be a 96 – 100; an A could be a 91 – 95; and an A- could be an 87 – 90.
    - These are just examples!
  - This type of curve is typically beneficial to most students and in no cases will this policy bring a final score down

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- The approximate homework schedule with due dates will be posted on Ed Discussion

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  - 75% points, if you submit within 24 hrs
  - 50% points, if you submit within 48 hrs
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- You must submit ALL homework assignments to pass this course

Excuses – Illness or Emergencies

- DO NOT burn a late day if you are feeling unwell or if there is a family emergency
  - Instead, ask me for an extension

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- DO NOT burn a late day if you are feeling unwell or if there is a family emergency
  - Instead, ask me for an extension
- Mental health will be treated the same as physical health

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- If you and the TA cannot come to an understanding then I will have the final say
- Please remember that a few points here and there will not make a difference
  - You're here to learn!

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  - Talk about your programs with others

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- That said, there will be specific assignments that are group (up to 2 students) projects
  - We will let you know what those are
  - Working in a group will be *optional*

Looking Things Up on the Internet

- You can use the official Python or Java documentation
  - Anything on python.org, for example: https://docs.python.org/3/tutorial/
  - Anything in the Java Tutorials: https://docs.oracle.com/javase/tutorial/
  - Other similar online documentation …

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  - Anything on python.org, for example: https://docs.python.org/3/tutorial/
  - Anything in the Java Tutorials: https://docs.oracle.com/javase/tutorial/
  - Other similar online documentation …
- Do not use an internet search for keywords in a HW assignment
  - For example, if an assignment requires you to make a poker game, do not Google “Shuffling cards in Java”
  - This is the same as cheating and you’ll be in violation of the course policy!

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- If you do use GitHub (or similar cloud-based code management system) to set up a remote code repository, YOU ARE REQUIRED TO KEEP THAT REPOSITORY PRIVATE
  - So, do not share code in a publicly accessible repository

Generative AI & AI Assistants

- You may use AI-powered coding assistants like GitHub Copilot for various tasks, including:
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  - Coding syntax corrections
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- When utilizing AI assistants, it is essential to practice responsible and ethical use!
- If you seek assistance from AI-powered tools like ChatGPT or Google Bard, you should always:
  - **Use proper referencing to ensure transparency and acknowledge the assistance received, and validate the accuracy before you integrate to your own code**
  - Failing to reference AI-powered tools used for assistance will be considered a violation of the course's academic integrity policy
  - **If more than 30% of your code is generated by AI-powered tools, it will be considered a breach of academic integrity**

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    - Python & IDLE (Integrated Development & Learning Environment for Python development): https://www.python.org/downloads (Download latest version)
    - Jupyter Notebook: https://www.anaconda.com/products/individual (Download latest version)

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- Optional Books: There are some suggested books for students who would like to supplement the course material with additional reading(s). *They are entirely optional.*

Questions?