PSY P357, Spring 2021
Thinking Like Machines – Syllabus

CLASS TIME AND PLACE
Section #29657
Synchronously, Monday and Wednesday 11:30 am – 12:45 pm via Zoom

INSTRUCTOR INFORMATION
Instructor: Rick Hullinger
Office: ~~PY A300B~~ Online only this semester
Office Hours via Zoom:
Tuesday 11:00 AM – 1:00 PM
Wednesday 1:00 PM – 3:00 PM
Or by appointment
Office Telephone: 812-856-6854
Email Address: rahullin@iu.edu

COURSE GOALS
This course is designed to help you think the way a computer does: to break a big problem down into smaller parts and then use logic and a systematic approach to achieve solutions. It will provide skills that will help you in your future classes and help you think more clearly about our increasingly technologically saturated world. You'll be empowered to explore and learn about a range of technologies that will benefit you in in school, research, and your future career. These same skills will also make it easier to understand how computers work and by the end of the course you will be comfortable writing your own small computer programs. It is intended for first- and second-year undergraduate students with no prior programming experience. This is not a course focused on teaching you how to program in a specific language. Instead, it will teach you how think about programming so that you can pick up whatever programming language you need much more quickly in the future.

In this course, successful students will be able to:

- Use both local and online resources to solve problems, learn new skills, and answer questions
- Differentiate between various computational environments (local, remote, cloud) and select an appropriate environment for specific tasks
- Demonstrate the tenants of algorithmic thinking: decomposition, pattern recognition, abstraction, and algorithm creation with both human-centered and computational tasks.
- Write clear pseudocode for solving a variety of problems
- Use the fundamental structures of programming languages to write, document, and debug simple python programs
- Confidently approach new technologies, software, and programming languages with the skills and knowledge necessary to learn them quickly.

TEXTBOOK & COURSE MATERIALS
We will not be using a textbook for this course. All of the readings and notes that you need will be presented in class and/or provided for you on Canvas.

LECTURE PARTICIPATION

All classes will be held synchronously via Zoom from 11:30 am until 12:45 pm, ET (Indiana time). A link to our Zoom classroom can be found on the course's Canvas site. Each session will be a mix of lecture, discussion, and demonstrations. Attendance and participation in these sessions will be tracked and will make up your class participation score.

Each student will have their three lowest lecture participation scores dropped. Because each student gets three dropped scores, I do not make a distinction between excused and unexcused absences. If you miss a class due to illness, oversleeping, travel, or emergency, participation for that session will be recorded as a zero.

Students who need accommodations for observance of religious holidays must contact me as indicated in the academic bulletin. All requests for accommodations must be made before Monday, Feb. 15th.

HOMEWORK

Most weeks of the semester will have a new homework assignment posted on Wednesday after class. The assignment will focus on the concepts, skills, and technologies we have studied that week. All assignments will be due at least one week after they were assigned (typically at 11:59 PM the following Wednesday). Each student will have their two lowest homework assignments dropped. Late homework will not be accepted.

EXAMS

There will be two cumulative, "in-class" exams this semester (see the course schedule for details). These exams will cover the same material as the homework assignments, but you will not be required to use any software (or produce working code) for the exams.

FINAL PROJECT

Each student will complete a final project which may be either:

- Two pre-defined python coding projects that will make use of the skills you've learned over the semester or
- A single, student-defined coding project exploring some new aspect of computing and programming.

I will provide more details on the final project nearer the end of the semester and will give considerable guidance throughout the process.

If you have a scheduling conflict that will interfere with turning in a homework assignment, or taking an exam at the scheduled time, you must let me know as soon as possible. With the exception of extreme and unforeseen circumstances, contacting me the day (or even worse, after) an assignment or exam is due will be considered an unexcused absence and will result in a zero on the late work.

Your final grade is computed using the following formula:

Lecture Participation:	15%
Homework Assignments:	35%
Exam 1:	15%
Exam 2:	15%
Final Project:	20%
	100%

Grading Scale:

A+: 97.0%-100%;	A: 93.0%-96.99%;	A-: 90.0%-92.99%
B+: 87.0%-89.99%;	B: 83.0%-86.99%;	B-: 80.0%-82.99%
C+: 77.0%-79.99%;	C: 73.0%-76.99%;	C-: 70.0%-72.99%
D+: 67.0%-69.99%;	D: 63.0%-66.99%;	D-: 60.0%-62.99%

F: Below 60%

STUDENT RESPONSIBILITY

It is your responsibility to double-check your assignment and exam grades – both that the assignments themselves were correctly graded and that the scores posted on Canvas match your actual grades. You have two weeks from the time an assignment or exam is returned to the class to address any grading issues. After that, the grades posted on Canvas will be considered final.

EXTRA CREDIT?

Nope.

EMAIL

I expect you to be checking your IU email account (not just Canvas messages) no less than once a day. I will send frequent messages to the class with announcements, clarifications, instructions, and/or updates. You are responsible for the content of these messages exactly as if the material had been presented in class. Saying "I didn't read that e-mail" or "I haven't checked my e-mail for a few days" will not be considered a valid excuse for missing information. All class-wide messages will be sent using the Canvas Announcement tool, so archived messages can always be found on the Canvas sites.

FEEDBACK

Do not wait until the end of the semester course evaluations to let me know that I could be doing something better. Tell me as soon as possible so that I can make the class valuable and relevant as we go along. If you have any feedback, good or bad, about the course or how it's being taught, please feel free to send it to me *anonymously* using this link.

ACADEMIC HONESTY

This course is conducted under the University's Ethics Code. Specifically, it is considered cheating if you obtain any kind of information about answers and solutions to the assignments in this course – exams and homework – from any non-intended source or conversely transfer such information to others.

You are welcome to use outside sources (the internet, friends, etc.) to solve programming problems. Everyone who writes software does this. What you may not do is use logic, code, or solutions to problems without fully understanding how they work. This is a class about thinking and understanding, not copying working solutions. Submitting solutions that you do not understand or cannot explain will be considered academic misconduct.

It is also considered cheating if you lie to me about an absence relating to a homework assignment or an exam or misrepresent your presence in the lectures. The punishment for academic dishonesty will be no less than a zero on the assignment or exam and will likely be **failure of the course**. As per university policy, *all* incidents of academic misconduct must be reported to the Dean of Students office.

CLASS RECORDINGS

I will record each class session and upload the recording to our Canvas site after class. You may watch any of the recordings online or download them for off-line viewing on your computer, smartphone, or media player. These recordings are copyrighted by me and provided by me and the University for your personal use. You may not share them, in whole or in part, without my prior written permission. Please see the copyright statement below for the full terms of use.

STATEMENT FOR STUDENTS WITH DISABILITIES

Every attempt will be made to accommodate qualified students with disabilities (e.g. mental health, learning, chronic health, physical, hearing, vision neurological, etc.) You must have established your eligibility for support services through the appropriate office that services students with disabilities. Note that services are confidential, may take time to put into place and are not retroactive; Captions and alternate media for print materials may take three or more weeks to get produced. Please contact Disability Services for Students at iubdss@indiana.edu or 812-855-7578 as soon as possible if accommodations are needed. The office is located on the third floor, west tower, of the Wells Library, Room W302. Walk-ins are welcome 8 AM to 5 PM, Monday through Friday. You can also locate a variety of campus resources for students and visitors that need assistance at: http://www.iu.edu/~ada/index.shtml

SEXUAL MISCONDUCT AND TITLE IX POLICY

As your instructor, one of my responsibilities is to create a positive learning environment for all students. Title IX and IU's Sexual Misconduct Policy prohibit sexual misconduct in any form, including sexual harassment, sexual assault, stalking, and dating and domestic violence. If you have experienced sexual misconduct, or know someone who has, the University can help.

If you are seeking help and would like to speak to someone confidentially, you can make an appointment with:

The Sexual Assault Crisis Services (SACS) at (812) 855-8900 (counseling services)
Confidential Victim Advocates (CVA) at (812) 856-2469 (advocacy and advice services)
IU Health Center at (812) 855-4011 (health and medical services)

It is also important that you know that Title IX and University policy require me to share any information brought to my attention about potential sexual misconduct, with the campus Deputy Title IX Coordinator or IU's Title IX Coordinator. In that event, those individuals will work to ensure that appropriate measures are taken and resources are made available. Protecting student privacy is of utmost concern, and information will only be shared with those that need to know to ensure the University can respond and assist.

I encourage you to visit stopsexualviolence.iu.edu to learn more.

BIAS-BASED INCIDENT REPORTING

Bias-based incident reports can be made by students, faculty and staff. Any act of discrimination or harassment based on race, ethnicity, religious affiliation, gender, gender identity, sexual orientation or disability can be reported through any of the options:

1) email biasincident@indiana.edu or incident@indiana.edu;
2) call the Dean of Students Office at (812) 855-8188 or
3) use the IU mobile App (m.iu.edu (Links to an external site.)).

Reports can be made anonymously.

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DISCLAIMER

This syllabus is an outline of the course and its policies, which may be changed for reasonable purposes during the semester at the instructor's discretion. You will be notified in class and / or via email if any changes are made to this syllabus, and an updated syllabus will be provided on Canvas.

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Thinking Like Machines – Schedule

Week		Date	Description	Assignment Due
1	Mon	Jan 18	No class, MLK Jr. Day	
	Wed	Jan 20	Introductions & Overview	
2	Mon	Jan 25	Digital Literacy, Part I	
	Wed	Jan 27	Digital Literacy, Part II	Getting to Know You
3	Mon	Feb 01	Digital Empowerment	
	Wed	Feb 03	Decomposition & Pattern Recognition	
4	Mon	Feb 08	Abstraction	Using Online Knowledge
	Wed	Feb 10	Algorithms	Decomposing a Complex Problem
5	Mon	Feb 15	Boundary Conditions & The Unexpected	
	Wed	Feb 17	Flowcharts & Pseudocode	Algorithms
6	Mon	Feb 22	Exam 1 Review	
	Wed	Feb 24	**Exam 1**	
7	Mon	Mar 01	Programming Languages	
	Wed	Mar 03	Variables and Operators	Install Python (Python Project 0)
8	Mon	Mar 08	Strings and Lists	
	Wed	Mar 10	Conditional Statements, Part 0: If statements	Python Project 1 (Variables)
9	Mon	Mar 15	Conditional Statements, Part 1: for and while	
	Wed	Mar 17	The Wing IDE	Python Project 2 (Lists and Ifs)
10	Mon	Mar 22	Errors and Debugging	
	Wed	Mar 24	No Class, Wellness Day	
11	Mon	Mar 29	Common Algorithmic Structures	
	Wed	Mar 31	Input and Output, Part 0	Python Project 3 (Loops)
12	Mon	Apr 05	Input and Output, Part 1	
	Wed	Apr 07	Functions, Part 0	
13	Mon	Apr 12	Functions, Part 1	
	Wed	Apr 14	Exam 2 Review	Python Project 4 (File IO)
14	Mon	Apr 19	**Exam 2**	
	Wed	Apr 21	Python Libraries and Practice	Python Project 5 (Functions)
15	Mon	Apr 26	Wrapping up	
	Wed	Apr 28	Class time use for final project help	
16	Mon	May 03	Class time used for final project help	
	Wed	May 05	Final Projects Due at 11:59 PM	