

PSY P357, Fall 2020

Thinking Like Machines – Syllabus

CLASS TIME AND PLACE

[Section #31352](#)

Synchronously, Tuesday and Thursday, 3:15pm – 4:30pm 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 12:00 PM – 2:00 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

Tuesday's and Thursday's classes will be held synchronously via Zoom from 3:15 pm until 4:30 pm, ET (Indiana time). 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, Sept 21st.

HOMEWORK

Most weeks of the semester will have a new homework assignment posted on Thursday after class. The assignment will focus on the concepts, skills, and technologies we have studied that week. All assignments will be due before class begins the following Thursday.

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

Before Thanksgiving break each student will work with me to define a final programming project that will incorporate what they have learned in the course. The class sessions after Thanksgiving break will be used to meet with individual students and assist with completion of the final project.

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](#).

PIAZZA

This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. Find our class signup link [here](#).

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. 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 or workshops. 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](mailto:iubdss@indiana.edu) 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.

COPYRIGHT

Copyright Rick Hullinger and Indiana University, 2020. All federal and state copyrights in these course materials are reserved by their respective creators. You are authorized to take notes in class and/or record my lectures for your own personal use. You may not make any commercial use of my course materials or profit from them in any way without my prior written permission. In addition to legal sanctions for violations of copyright law, students found to have violated these prohibitions may be subject to University disciplinary action under the [Code of Student Conduct](#) and/or violations of the [University's Technology Acceptable Use Policies](#).

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.

PSY P357, Fall 2020
Thinking Like Machines – Schedule

Week		Date	Description	Assignment Due
1	Tu	Aug 25	Introductions & Overview	
	Th	Aug 27	Digital Literacy, Part I	
2	Tu	Sep 01	Digital Literacy, Part II	
	Th	Sep 03	Digital Empowerment	Getting to Know You
3	Tu	Sep 08	Decomposition	
	Th	Sep 10	Pattern Recognition	Using Online Knowledge
4	Tu	Sep 15	Data Collection, Representation, and Storage	
	Th	Sep 17	Algorithms	Decomposing a Complex Problem
5	Tu	Sep 22	Flowcharts and Pseudocode	
	Th	Sep 24	Boundary Conditions & The Unexpected	Data Representation
6	Tu	Sep 29	Complexity & Scaling	
	Th	Oct 01	Exam 1	Pseudocode
7	Tu	Oct 06	Programming Languages	
	Th	Oct 08	Variables and Operators	Install Python
8	Tu	Oct 13	Input & Output Control, Part I	
	Th	Oct 15	Errors and Debugging, Part I	Python Project I
9	Tu	Oct 20	Input & Output Control, Part II	
	Th	Oct 22	Errors and Debugging, Part II	Python Project 2
10	Tu	Oct 27	Conditional Statements	
	Th	Oct 29	Containers & Iterators	Python Project 3
11	Tu	Nov 03	Functions, Part I	
	Th	Nov 05	Functions, Part II	Python Project 4
12	Tu	Nov 10	Classes and Objects	
	Th	Nov 12	Exam 2	Python Project 5
13	Tu	Nov 17	Finding and Using Libraries	
	Th	Nov 19	Catching Up & Final Project Q & A	Final Project Proposals
14	Tu	Nov 24	No Class, Thanksgiving Break	
	Th	Nov 26	No Class, Thanksgiving Break	
15	Tu	Dec 01	Classtime used for final project help	
	Th	Dec 03	Classtime used for final project help	
16	Tu	Dec 08	Classtime used for final project help	
	Th	Dec 10	Classtime used for final project help	
17	Tu	Dec 15		Final Project Due 5 PM