EN.605.634 section 81 Syllabus

Crowdsourcing and Human Computation

Course Information

Course Information:

Crowdsourcing and Human Computation
EN.605.634.81 (3.0 Credits)
Fall 2024 [AE Fall 2024]

Description
Crowdsourcing and human computation reverses the typical approach to computing. Rather than using computers to conduct computation that is too difficult for a human, many humans are used to conduct computation that is too difficult for a computer. This course explores computer science topics that lie at the intersection of data science and social psychology. Topics include crowdsourcing, social media, social network analysis, games, gamification, ubiquitous computing, and computersupported cooperative work. Laboratory exercises will involve hands-on data collection and analysis to include Mechanical Turk and require programming in R or Python depending on student preference/proficiency.

Department: PE Computer Science
College: Engineering and Applied Science Programs for Professionals

Instructor Information:

Instructor

Ian McCulloh
imccull4@jhu.edu

Communication Policy:

I prefer that students contact me via email. Please be sure to include course number in the subject line. I will make every effort to respond to your inquiry within **48 hours** or earlier. If an issue is urgent, please indicate "urgent" within the subject line of the email and text my mobile phone at 240-506-3417. I will respond as soon as is practical.

Office Hours:

Weekly Synchronous Chat will be held every Tuesday at 7:30 pm via the course Zoom site. No new lecture information will be presented. This session is not mandatory. This time is for talking about trends in industry, answering/clarifying any questions or content presented in the course, collaborating on projects. Use the following zoom

link https://wse.zoom.us/j/97537217506

Course Structure:

The course materials are divided into modules which can be accessed by clicking **Modules** on the course menu. A module will have several sections including the overview, content, readings, discussions, and assignments. You are encouraged to preview all sections of the module before starting. Most modules run for a period of seven (7) days, exceptions are noted in the **Course Outline**. You should regularly check the **Calendar** and **Announcements** for assignment due dates.

Course Topics:

- Social Networks
- Social Media
- Network Conformity and Fake News
- Machine Learning
- Crowdsourcing
- Amazon Mechanical Turk
- Inter-Annotator Agreement
- Chatbots
- Games and Gamification

Course Goals:

To identify and describe emerging concepts that fall at the intersection of humans and machines. Explain methods to improve machine computation with human augmentation and empower students with skills in social network analysis, crowdsourcing, machine learning and interactive chatbots.

Course Learning Outcomes (CLOs):

- Conduct social computing, crowd sourcing, and human computation.
- Analyze social networks.
- Apply crowdsourcing to construct training data for supervised learning.
- Evaluate inter-rater reliability and other quality metrics to assess data veracity.
- Examine how social media moderates human behavior and social interaction.

Construct an interactive chatbot.

Required Text and Other Materials

Textbooks:

No textbook is required for this course. In lieu of a textbook, students will establish an Amazon account and incur costs associated with Amazon Mechanical Turk and interactive chatbots. No prior experience with Amazon tools are needed.

Access to textbooks via the JHU Libraries:

EP students may access electronic versions of textbooks through the Sheridan Libraries. Instructions on how to search for available textbooks are accessible through this link: Browse Electronic Textbook Instructions

Required Software:

Students will be required to establish Amazon accounts to utilize crowdsourcing and chatbot assets.

Technical Requirements:

You should refer to General Technical Requirements for guidance on system requirements. Access support resources from the **Help** menu if you encounter any technical issues.

Evaluation and Grading

Student Coursework Requirements:

One Page Reflections (20%) - This will be a short, double spaced, one-page paper summarizing an important concept that resonated with you in the module. Do not exceed one page.

Discussions (10%) - Discussions will be relevant to weekly content

Assignments (50%) - Assignments will require by-hand calculation, software coding, or hands-on use of an Amazon tool to complete well defined tasks to gain experience with module content.

Final Paper and Presentation (20%) - Students will write a 4-8 page ACM/IEEE paper for submission to a peer reviewed conference and will present their paper to the class during the last module.

All papers and assignments will be completed individually.

Grading Policy:

EP uses a +/- grading system (see “Grading System”, *Graduate Programs* catalog, p. 10).

Score Range	Letter Grade
100-97	= A+
96-93	= A
92-90	= A−
89-87	= B+
86-83	= B
82-80	= B−
79-77	= C+
76-73	= C
72-70	= C−
69-67	= D+
66-63	= D
<63	= F

Policies

Additional Resources:

Personal Wellbeing
JHU has several resources to support students. Many students struggle with stress or a variety of mental health concerns. Student Health and Well-Being Mental Health Services has many resources available to students: MHS website: https://wellbeing.jhu.edu/MentalHealthServices/)

The Whiting School of Engineering has a dedicated office with Student Support and Advocacy. Engineering Student Support & Advocacy (ESSA) helps students navigate non-Academic issues including mental or physical health, interpersonal issues, conflict with advisors, financial concerns, time management, leaves of absence, being victimized, and family emergencies. Please find information about this office here: https://engineering.jhu.edu/studentaffairs/navigatingnonacademicissues/

MHS also partners with TimelyCare, which offers on-demand mental health support through TalkNow, as well as up to 12 free counseling appointments with the provider of your choice. Psychiatric care is also available through TimelyCare for routine medication management (no stimulants or other controlled substances). https://app.timelycare.com/auth/login.

In addition, The Johns Hopkins University Behavioral Health Crisis Support Team (BHCST) pairs experienced, compassionate crisis clinicians with specially trained public safety officers on every shift on and around the Homewood campus, seven days a week. The BHCST will provide immediate assistance to those who need it and, just as importantly, link individuals in crisis to ongoing support services in the days and weeks that follow. Call Public Safety, 410-516-5600, and ask for a BHCST clinician.

Tutoring Website

Johns Hopkins Engineering for Professionals offers a tutoring connection network that allows students to connect with other Johns Hopkins Engineering students or alumni for tutoring services. This service allows students to search a list of courses to “Find a Tutor” or complete a profile to “Become a Tutor.” More information about this service can be found on the tutoring website (https://tutor.ep.jhu.edu/).

Student Academic Success Office

If you are struggling academically, experience extenuating circumstances, or need additional academic support during the semester, the EP Student Academic Success Office (SASO) is here to help. Please email ep-studentsuccess@jhu.edu to be connected with a Student Academic Success Coordinator.

Privacy Policies:

To learn more about how to protect your data and privacy, visit Instructure's privacy policy (Canvas) and JHU's privacy policy.

Canvas Accessibility:

Online courses are taught in the Canvas learning management system. To learn more about how Canvas is designed to be accessible, visit Canvas's accessibility standards

Academic Policies:

Deadlines for Adding, Dropping and Withdrawing from Courses

Students may add a course up to one week after the start of the term for that particular course. Students may drop courses according to the drop deadlines outlined in the EP academic calendar (https://ep.jhu.edu/student-services/academic-calendar/). Between the 6th week of the class and prior to the final withdrawal deadline, a student may withdraw from a course with a W on their academic record. A record of the course will remain on the academic record with a W appearing in the grade column to indicate that the student registered and withdrew from the course.

Academic Misconduct Policy

All students are required to read, know, and comply with the Johns Hopkins University Krieger School of Arts and Sciences (KSAS) / Whiting School of Engineering (WSE) Procedures for Handling Allegations of Misconduct by Full-Time and Part-Time Graduate Students.

This policy prohibits academic misconduct, including but not limited to the following: cheating or facilitating cheating; plagiarism; reuse of assignments; unauthorized collaboration; alteration of graded assignments; and unfair competition. Course materials (old assignments, texts, or examinations, etc.) should not be shared unless authorized by the course instructor. Any questions related to this policy should be directed to EP’s academic integrity officer at ep-academic-integrity@jhu.edu.

Students with Disabilities - Accommodations and Accessibility

Johns Hopkins University values diversity and inclusion. We are committed to providing welcoming, equitable, and accessible educational experiences for all students. Students with disabilities (including those with psychological conditions, medical conditions and temporary disabilities) can request accommodations for this course by providing an Accommodation Letter issued by Student Disability Services (SDS). Please request accommodations for this course as early as possible to provide time for effective communication and arrangements.

For further information or to start the process of requesting accommodations, please contact Student Disability Services at Engineering for Professionals, ep-disability-svcs@jhu.edu.

Student Conduct Code

The fundamental purpose of the JHU regulation of student conduct is to promote and to protect the health, safety, welfare, property, and rights of all members of the University community as well as to promote the orderly operation of the University and to safeguard its property and facilities. As members of the University community, students accept certain responsibilities which support the educational mission and create an environment in which all students are afforded the same opportunity to succeed academically.

For a full description of the code please visit the following website: https://studentaffairs.jhu.edu/policies-guidelines/student-code/

Classroom Climate

JHU is committed to creating a classroom environment that values the diversity of experiences and perspectives that all students bring. Everyone has the right to be treated with dignity and respect. Fostering an inclusive climate is important. Research and experience show that students who interact with peers who are different from themselves learn new things and experience tangible educational outcomes. At no time in this learning process should someone be singled out or treated unequally on the basis of any seen or unseen part of their identity.

If you have concerns in this course about harassment, discrimination, or any unequal treatment, or if you seek accommodations or resources, please reach out to the course instructor directly. Reporting will never impact your course grade. You may also share concerns with your program chair, the Assistant Dean for Diversity and Inclusion, or the Office of Institutional Equity. In handling reports, people will protect your privacy as much as possible, but faculty and staff are required to officially report information for some cases (e.g. sexual harassment).

Course Auditing

When a student enrolls in an EP course with “audit” status, the student must reach an understanding with the instructor as to what is required to earn the “audit.” If the student does not meet those expectations, the instructor must notify the EP Registration Team [EP-Registration@exchange.johnshopkins.edu] in order for the student to be retroactively dropped or withdrawn from the course (depending on when the "audit" was requested and in accordance with EP registration deadlines). All lecture content will remain accessible to auditing students, but access to all other course material is left to the discretion of the instructor.