# AI LITERACY: ESSENTIALS OF AI

Dr. Peter Stone    |    Unique: 50024|    CS309 TTH 9:30-11

## WHAT WILL I LEARN IN AI LITERACY: ESSENTIALS OF AI THIS SEMESTER?

What is AI, and why should you care?

Artificial Intelligence technologies are affecting our lives, changing the way we do nearly everything – from how we work and learn to how we interact with our friends and move about our cities – because they are increasingly everywhere and increasingly powerful. While specific AI technologies may be applied in a variety of ways in a variety of disciplines, the AI field of study is inherently focused on understanding the nature of intelligence as a natural phenomenon. The Essentials of AI for Life and Society will cover fundamental concepts for AI literacy, as well as the ethical and societal implications of AI technologies.

In this course, you will:
- Learn what Artificial Intelligence really is, as opposed to how it is sometimes portrayed in Science Fiction and in the popular press.
- Learn about artificial intelligence as an interdisciplinary field of study with a nexus in the natural sciences and that connects to engineering, humanities, and social science. For example, AI's focus on intelligence as a natural phenomenon connects it closely to the field of neuroscience.
- Gain an understanding of AI technologies, including the types of AI and their applications, the risks and benefits of various AI technologies, the societal impacts of AI technologies, and how to tell AI science from science fiction
- Develop skills that are integral to advancing artificial intelligence as a field of study, including critical thinking, communication, quantitative reasoning, and teamwork.

This course carries the Ethics flag. Ethics courses are designed to equip you with skills that are necessary for making ethical decisions in your adult and professional life. You should therefore expect a substantial portion of your grade to come from activities and assignments involving ethical issues and the process of applying ethical reasoning to real-life situations.

The only requirement? Your curiosity and willingness to explore - no prior technical knowledge necessary.

## HOW CAN I CONTACT MY INSTRUCTORS?

Come to group student hours to talk about AI or just chat. If you want to talk privately or at a different time, please email or look on Canvas for an appointment.

**Dr. Peter Stone** (he/him/his) pstone@cs.utexas.edu
Student hour: By appointment

**Zifan Xu** (he/him/his) zfxu@utexas.edu
Student hour: Tuesday 10-11 am at TA station desk 1 (GDC Basement)

**Michael Munje** (he/him/his) michaelmunje@utexas.edu
Student hour: Thursday 1-2 pm at GDC 3.504B

See Canvas for Course Assistant contact information

## HOW CAN I ACCESS THE COURSE MATERIALS?

Canvas is the sole entry point to access everything you need for this course.

## HOW IS THIS COURSE ORGANIZED?

This course is organized in weekly cycles. Each week, you will complete a Module in Canvas that has the following sections:

1. PRE-CLASS WORK: You will complete the pre-class work each week by Tuesday at 11:59pm to learn and prepare for Thursday class. The pre-class work consists of readings, topical videos, check for understanding questions, activities, and reflections.

    a. You will access readings by clicking on reading assignments in Canvas Modules. The readings will open in Perusall, where you will complete the reading while entering your thoughts and questions. You will be able to read and respond to the comments and questions of a group of your classmates. Your instructors will use your comments and questions to choose focus areas for class on Thursday.

2. THURSDAY CLASS – SYNCHRONOUS ATTENDANCE: Log into Canvas for class on Thursdays by 9:30 AM and use the "video stream" link in the left-hand sidebar to access the course livestream. During class, you will listen to a presentation and participate in the class discussion. There will be limited space for students to attend class in-person. If attending class in person, please bring a device that can access the Canvas livestream, as you will need to be logged in to lead and report out about themes brought up in group chats. Each student is expected to attend one class in person during the semester.

3. HOMEWORK ASSIGNMENTS: In some weeks, there will be a homework assignment due. The specific details for these assignments will be provided in Canvas. They will not require computer programming.  The final homework assignment will be a short-term project in which you explore ethical applications of AI in context.

## HOW WILL MY GRADE BE DETERMINED?

- **Reading (15%):** Each week there will be a reading assignment in the pre-class work section of Modules in Canvas. The reading assignment is due by Tuesday at 11:59pm. Your grade will be

based on a participation rubric that will be shared with you on Canvas. Your lowest reading grade will be dropped.

- **Learning Checks (5%):** Each week you are expected to watch several short videos and complete pre-class Learning Checks by Tuesday at 11:59pm. Three Learning Check grades will be dropped.

- **Pre-Class Reflections (15%):** Each week you will reflect in writing on the ethical component of the pre-class work. You will also be able to optionally comment on any of the other pre-class material. These must be turned in for a grade by Tuesday at 11:59pm. One pre-class reflection grade will be dropped.

- **Class participation (20%):** Each week you are expected to participate in class activities, either in the studio or remotely. Activities will include a combination of polling questions, small group breakouts, and discussion through a chat function. Your lowest class participation grade will be dropped.

- **Class leadership (5%):** One time during the semester, you will sign up and attend class in the studio. In person attendees will also lead and report on themes from a group chat. Sign-up instructions will be provided in Canvas.

- **Homework (20%):** Five major assignments integrated throughout the semester will help you demonstrate your understanding of the fundamental concepts that underly AI applications. Your lowest assignment grade will be dropped.

- **Ethics Project (20%):** A culminating course project will allow you to examine the potential use of AI technologies in your field or another area of personal interest, including the ethical and societal implications. The details of this assignment will be provided on Canvas.

## MAKE UP POLICY:

The ability to drop one grade in each category (excluding class leadership and the project) is built into the grading system (see above). If you think you may be late to or absent for more than 2 classes, we recommend registering pass/fail. If this flexibility is not enough for your circumstances, please contact your teaching assistant to set up a time to discuss and find a solution.

- ✓ Work missed due to observance of a religious holy day may be made up if you communicate with us at least 14 days prior to the absence.

- ✓ If you experience a personal or family emergency (death in the family, protracted sickness, serious mental health issues) that prevents you from completing work or forces you to miss multiple days of class, you should let us know and also contact Student Emergency Services in the Office of the Dean of Students https://deanofstudents.utexas.edu/emergency/. They will work with you to communicate with your professors and let them know of your situation.

## HOW ARE LETTER GRADES ASSIGNED?

A tentative grading scale is shown below. Any changes to this grading scale will work in your favor. In other words, the numerical grade requirements for each letter grade may be decreased, but will not be increased.

**A** = 93-100    **A-** = 90-92    **B+** = 88-89    **B** = 83-87    **B-** = 80-82    **C+** = 78-79

**C** = 73-77    **C-** = 70-72    **D+** = 68-69    **D** = 63-67    **D-** = 60-62    **F** = 0-59

If you are taking this class for credit/no credit, 60% and above will receive credit.

## WHAT IS THE SCHEDULE OF TOPICS? (subject to change)

| Week | TOPIC | WHAT'S DUE? |
|---|---|---|
| Week 1<br>08/26-08/30 | Introduction to Artificial Intelligence and Ethics in AI | • Course unlock module<br>• Week 1 pre-class work (8/27, 11:59pm)<br>• Class participation (8/29) |
| Week 2<br>09/02 – 09/06 | AI and Society | • Week 2 pre-class work (9/03, 11:59pm)<br>• Class participation (9/05) |
| Week 3<br>09/09 – 09/13 | Planning and Search | • Week 3 pre-class work (9/10, 11:59pm)<br>• Class participation (9/12)<br>• Homework 1: Introduction to Algorithms (9/13, 11:59pm) |
| Week 4<br>09/16 – 09/20 | Intelligent Robotics | • Week 4 pre-class work (9/17, 11:59pm)<br>• Class participation (9/19) |
| Week 5<br>09/23 – 09/27 | Probabilistic Modeling | • Week 5 pre-class work (9/24, 11:59pm)<br>• Class participation (9/26)<br>• Homework 2: Planning and Search (9/27, 11:59pm) |
| Week 6<br>09/30 – 10/04 | Computer Vision | • Week 6 pre-class work (10/01, 11:59pm)<br>• Class participation (10/03) |
| Week 7<br>10/07 – 10/11 | Machine Learning Fundamentals | • Week 7 pre-class work (10/08, 11:59pm)<br>• Class participation (10/11)<br>• Homework 3: Probabilistic Modeling (10/11, 11:59pm) |
| Week 8<br>10/14 – 10/18 | Machine Learning Paradigms | • Week 8 pre-class work (10/15, 11:59pm)<br>• Class participation (10/17) |
| Week 9<br>10/21 – 10/25 | Natural Language Processing (Large Language Models) | • Week 9 pre-class work (10/22, 11:59pm)<br>• Class participation (10/24)<br>• Homework 4: Machine Learning (10/25, 11:59pm) |
| Week 10<br>10/28 – 11/01 | Bias and Fairness in AI Models | • Week 10 pre-class work (10/29, 11:59pm)<br>• Class participation (10/31) |
| Week 11<br>11/04 – 11/08 | AI and Mis/disinformation | • Week 11 pre-class work (11/05, 11:59pm)<br>• Class participation (11/07)<br>• Homework 5: Generative AI (11/08, 11:59pm) |
| Week 12<br>11/11 – 11/15 | Impacts on Workplace and Economics | • Week 12 pre-class work (11/12, 11:59pm)<br>• Class participation (11/14) |
| Week 13<br>11/18 – 11/22 | AI Alignment and Existential Threats | • Week 13 pre-class work (11/19, 11:59pm)<br>• Class participation (11/21) |
| 11/25 – 11/29 | FALL BREAK | |
| Week 14<br>12//02 – 12/06 | Computational Foundations and Future Directions | • Week 14 pre-class work (12/03, 11:59pm)<br>• Class participation (12/05)<br>• Ethics Project (12/07, 11:59pm) |

## WHAT OTHER THINGS DO I NEED TO KNOW?

**Academic integrity:** Ethical conduct and respectful behavior are expected at all times. Learn more about ACADEMIC INTEGRITY. Cheating, plagiarism, unauthorized collusion are all examples of academic integrity violations. Keep in mind that any such violations will be reported to the Dean of Students and consequences can be severe.

- ✓ **Use of Large Language Models:** In this course, use of generative AI is permitted in specific contexts and with acknowledgment. Unless otherwise stated in the assignment instructions, you are expected to draft responses on your own. You may use an LLM to polish if you would like. It is a violation of university policy to misrepresent work that you submit or exchange with your instructor by characterizing it as your own, such as submitting responses to assignments that do not acknowledge the use of generative AI tools. Therefore, if you use an LLM, you shall paste your original response at the bottom of the polished response and describe what AI technology you used and how you used it at the top of the assignment.

- ✓ **Sharing of Course Materials is Prohibited:** No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class unless you have our explicit, written permission. Unauthorized sharing of materials is a violation of the University's Student Honor Code and an act of academic dishonesty and will be reported to Student Conduct and Academic Integrity in the Office of the Dean of Students. These reports can result in sanctions, including failure in the course.

- ✓ **Class Recordings:** Class recordings are reserved only for students in this class for educational purposes. The recordings should not be shared outside the class in any form. Violation of this restriction by a student could lead to Student Misconduct proceedings.

**Learning Success**: Your success in this class is important to us. We will all need to be adaptable because we all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible. Together we will develop strategies to meet both your needs and the requirements of the course.

College can be stressful and sometimes we need a little help. Luckily, we have a wealth of resources and dedicated people ready to assist you:

- ✓ **Services for Students with Disabilities**: The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Disability and Access. Please refer to D&As website for contact and more information: https://disability.utexas.edu/. If you are already registered with D&A, please deliver your accommodation letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.

✓ **Counseling and Mental Health Center**: The Counseling and Mental Health Center serves UT's diverse campus community by providing high quality, innovative and culturally informed mental health programs and services that enhance and support students' wellbeing, academic and life goals. To learn more about your counseling and mental health options, call CMHC at (512) 471-3515. If you are experiencing a mental health crisis, call the CMHC Crisis Line 24/7 at (512) 471-2255.

✓ **The Sanger Learning Center**: Did you know that more than one-third of UT undergraduate students use the Sanger Learning Center each year to improve their academic performance? All students are welcome to take advantage of Sanger Center's classes and workshops, private learning specialist appointments, peer academic coaching, and tutoring for more than 70 courses in 15 different subject areas. For more information, please visit http://www.utexas.edu/ugs/slc or call 512-471-3614 (JES A332).

✓ **Other resources**: The College of Natural Sciences has assembled contact information for a wide variety of SUPPORT RESOURCES in the areas of:
   - personal wellness
   - safety and emergency support
   - academic help
   - diversity, identity, inclusivity
   - grievances and academic integrity issues

In addition, see this Canvas site for University Resources for Students

**Personal Pronouns:** Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. We will gladly honor your request to address you by a name that is different from what appears on the official roster, and by the gender pronouns you use (she/he/they/ze, etc). Please advise us of any changes early in the semester so that we may make appropriate updates to our records. You can also add your pronouns to Canvas.

**Important Safety Information:**

✓ **Behavior Concerns**: If you have questions or concerns about the safety or behavior of fellow students, TAs or Professors, call BCAL at 512-232-5050 or submit concerns and questions online. Your call can be anonymous. If something doesn't feel right – it probably isn't. Trust your instincts and share your concerns.

✓ **Title IX Reporting**: Title IX is a federal law that protects against sex and gender-based discrimination, sexual harassment, sexual assault, unprofessional or inappropriate conduct of a sexual nature, dating/domestic violence and stalking at federally funded educational institutions. UT Austin is committed to fostering a learning and working environment free from discrimination in all its forms.
   - When unprofessional or inappropriate conduct of a sexual nature occurs in our community, the university can (1) Intervene to prevent harmful behavior from continuing or escalating, (2) Provide support and remedies to students and employees

who have experienced harm or have become involved in a Title IX investigation, and (3) Investigate and discipline violations of the university's relevant policies.

- **Your instructors are mandatory reporters**: Beginning January 1, 2020, Texas Education Code, Section 51.252 (formerly known as Senate Bill 212) requires all employees of Texas universities, including faculty, to report to the [Title IX Office](#) any information regarding incidents of sexual harassment, sexual assault, dating violence, or stalking that is disclosed to them. Texas law requires that all employees who witness or receive information about incidents of this type (including, but not limited to, written forms, applications, one-on-one conversations, class assignments, class discussions, or third-party reports) must report it to the Title IX Coordinator. Before talking with me, or with any faculty or staff member about a Title IX related incident, please remember that I will be required to report this information.

- **Speaking with a case manager**: If you would like to speak with a case manager, who can provide support, resources, or academic accommodations, in the Title IX Office, please email:  [supportandresources@austin.utexas.edu](mailto:supportandresources@austin.utexas.edu). Case managers can also provide support, resources, and accommodations for pregnant, nursing, and parenting students.

  For more information about reporting options and resources, please visit: [https://titleix.utexas.edu](https://titleix.utexas.edu), contact the Title IX Office via email at: [titleix@austin.utexas.edu](mailto:titleix@austin.utexas.edu), or call 512-471-0419.

- **Your TAs are mandatory reporters**: Although graduate teaching and research assistants are not subject to Texas Education Code, Section 51.252, they are [mandatory reporters](#) under federal Title IX regulations and are required to report [a wide range of behaviors we refer to as sexual misconduct](#), including the types of misconduct covered under Texas Education Code, Section 51.252. Title IX of the Education Amendments of 1972 is a federal civil rights law that prohibits discrimination on the basis of sex – including pregnancy and parental status – in educational programs and activities. The Title IX Office has developed supportive ways and compiled campus resources to support all impacted by a Title IX matter.