

# EAE 6610: Artificial Intelligence for Games

Spring 2022

TR / 04:35PM to 05:55PM (MT)

GC 3660

3 Credit Hours

This class does not meet a General Education Requirement.

## COURSE INFORMATION

**Description.** In this course we will examine both traditional and modern artificial intelligence (AI) techniques that are used in the design of computer games. We will look at techniques for game playing as well as the design of AI agents tasked with creating targeted experiences for players. The course will begin with a discussion of AI in general, as well as common algorithms, data structures, and representations. From there, we will cover topics in character movement, pathfinding, decision making, strategy, tactics, learning, and creativity — all within the context of computer game design.

**Overview.** There is a vast array of artificial intelligence techniques available for the design of computer games. This course conceptually groups them into two broad categories: Traditional and Modern. Traditional techniques are ones that most game AI engineers are expected to intuitively know and are themselves classified into two types: Character AI (encompassing animation, physics, movement, and decision making) and Group AI (encompassing group dynamics, behavior, and strategy). Modern techniques are ones receiving increasing attention in the modern games industry. While there is no systematic classification of modern techniques, I have selected classes of techniques that students, practitioners, and academics are actively interested in. These are: Procedural Content Generation and Learning. We will also cover select cases from the industry that are landmark developments in the field.

**Prerequisites.** “C-” or better in EAE 6310 OR Permission of the Instructor.

**Instructor:**

Rogelio E. Cardona-Rivera (he/him, they/them)  
Email: [rogelio@eae.utah.edu](mailto:rogelio@eae.utah.edu)

**Teaching Assistant:**

Shilpa Thomas (she/her)  
Email: [shilpatom@gmail.com](mailto:shilpatom@gmail.com)

**Student Hours:**

Bldg. 72 (the EAE Building), Room #216  
F / 04:35PM — 05:55PM (MT), drop-in via Zoom

**Student Hours:**

TBD

Note: I welcome you to contact me outside of class and student hours. You may message me via Canvas or email. I try to check my email on a regular schedule, at least twice a day. Further, I generally try to be in my offices in either Bldg. 72 (Room #216) or the Merrill Engineering Building (Room #3450). If you see me, you are welcome to drop by any time. At the same time: I may be occupied—in that case, I will ask you to schedule an appointment.

## COURSE MATERIALS

**Textbook.** The class is designed around the following textbook:

- Millington, Ian. Artificial Intelligence for Games (3rd Ed.). CRC Press, 2019.  
I have found this book to be an excellent reference to own.

**Course Slides and Notes.** Details of all work will be posted on the course website. There will be no handouts or slides available; students are ***strongly*** encouraged to come to class.

Other readings will be posted by the instructor on the Canvas website.

Finally, this class was offered via Twitch during Spring 2021, and there is an archive of the course lectures available on YouTube. Note: this is not a substitute for coming to class, but you may find it a handy reference.

**Course Website and Communication Plan.** We will be using the Canvas website. It is the student's responsibility to check their official email address and the website at least once daily. Failure to do so does not excuse missed deadlines.

The discussion forum is the preferred medium for interacting with the teaching staff (as opposed to emailing directly). If the question is personal (for example, a discussion about a grade on an assignment) then you should not hesitate to use the instructor's email. For any other questions, you should use the class mailing forum first (but if you are not getting the help you need, please do not hesitate to ask the teaching staff). This policy (a) gives you access to a much larger pool of potential help (if someone gives you bad advice we will respond and clarify), and (b) helps others who might be having the same problem or will run into the problem in the future. Similarly, this helps us by not having to answer the same question multiple times.

## **COURSE OBJECTIVES**

In this course, I will cover:

1. Traditional artificial intelligence techniques within computer game design and development, which focus on non-player character movement and behavior.
2. Modern artificial intelligence techniques within computer game design and development of interest to students, practitioners, and academics.
3. How to evaluate computer game artificial intelligence techniques in terms of runtime performance and overall effect to the player's experience.
4. Important and developing industry cases for the development of artificial intelligence techniques in computer games.

## **LEARNING OUTCOMES**

At the end of this course, you will be able to:

1. Develop software code for a range of artificial intelligence techniques used in traditional and modern computer games.
2. Describe the performance of artificial intelligence techniques used in traditional and modern computer games.
3. Choose, develop, explain, and defend the use of particular artificial intelligence techniques for solving particular game design problems.
4. Evaluate the relative benefits and drawbacks of different artificial intelligence techniques that can be used to solve computer game design problems.
5. Identify and examine state-of-the-art artificial intelligence techniques from the industry and academia to solve computer game design problems.

## EVALUATION METHODS AND CRITERIA

You will be evaluated across 5 programming assignments and 1 project on a 100 point scale. There will be no examinations.

- Assignments (up to 75 points) — There will be five (5) multi-week homework programming assignments, or mini-projects, related to the lecture material. With each, you can earn up to 15 points. These assignments will require you to implement and/or evaluate some of the algorithms or techniques we are covering during course lectures and will result in increasingly sophisticated AI implementations. More details of the assignments can be found on the course website. *These assignments are one way of assessing Learning Outcomes 1, 2, 4, and 5.*
- Term Project (up to 25 points) — There will be a semester-long group project on an instructor-approved project. The project is an 12-week effort, with which you can earn up to 30 points. Students can work in groups of up to three—your project scope will increase based on the number of team members.

Students must select one of a pre-selected set of potential project ideas, and you must demonstrate the success of your approach in a quantitative way. More details of the group project will be found on the course website. *This group project is one way of assessing Learning Outcomes 3 and 4.*

**Grade Scale.** This course uses the standard grading scale for the University of Utah.

**Teaching and Learning Methods.** This course will primarily be lecture-based, with in-class discussions around material, and out-of-class assignments and projects. Lectures are used because a great deal of the algorithmic techniques for game AI are fairly standardized and I believe the best approach to learning them is to first engage with them in a traditional lecture and then pursue their implementations via assignments.

Lectures will not use computer slides, and will instead rely on me writing on the whiteboard the concepts that are relevant for discussion. In-class discussions allow us as a class to identify problem areas; for example, if the entire class struggles on a particular assignment I will definitely take that into account during grading and subsequent lectures. Assignments, projects, and reflections are meant for you to engage deeply with course material to evidence mastery of the concepts you must learn for applying AI techniques to the design of games.

I recognize students as essential co-creators of their education, and therefore design instructional material to empower them to create, reflect, and imagine. My teaching philosophy is thus engineering-based: I seek to engage you via a hands-on approach to education, focused on creating artifacts that concretizes ideas and exposes new ambiguities that arise from the need to be computationally precise.

## Schedule

The schedule is subject to change pending student interests and background. The official schedule will be kept on the course webpage, and will be updated periodically to reflect changes as the semester progresses. It is the student's responsibility to check the schedule regularly for changes. The instructor will communicate any changes in deadlines to students in a timely manner via email and/or announcements in class.

## Syllabus v.6

Week	Date	Event	Reading
1	Tue, Jan 11	<b>Introduction to Game AI</b> Course Overview Roles of AI in Game design, Game AI Interfaces (Movement, Pathfinding, Decision Making, Strategy), Complexity (Artificial Stupidity, Intelligent Mistakes)	1.2, 2.1–2.2
	Thu, Jan 13	<b>Game AI Inputs, Outputs, and Behaviors</b> The 2D RigidBody Agent, Steering Output, Variable Matching	3.1—3.3.2
	Fri, Jan 14	<b>Assignment #1 Released</b>	
<b>Classical Techniques</b>			
<i>Movement Algorithms</i>			
2	Tue, Jan 18	<b>Position Matching: Kinematic and Dynamic</b> Seek, Flee, Arrive	3.3.3—3.3.4
	Thu, Jan 20	<b>Orientation Matching: Kinematic and Dynamic</b> Align, Wander	3.3.5, 3.3.11
3	Tue, Jan 25	<b>Velocity and Rotation Matching</b>	3.3.6
	Thu, Jan 27	<b>Advanced Movement: Delegation and Combination</b> Interfaces, Blending, Arbitration	3.3.7, 3.4.1—3.4.4
4	Tue, Feb 1	<b>Advanced Position and Orientation Matching</b> Pursue, Evade, Face, LookWhereYouAreGoing	3.3.8—3.3.10
	Thu, Feb 3	<b>Group Movement</b> Separation, Flocking	3.3.13
	Thu, Feb 3	<b>Term Project Proposal Due: 11:59pm MT</b>	
<i>Pathfinding Algorithms</i>			
5	Tue, Feb 8	<b>Structure of Pathfinding Algorithms</b> Directed Weighted Graphs, The Family of Search Algorithms	4.1—4.2
	Thu, Feb 10	<b>A* and Heuristics</b> Performance, Design	4.3
	Thu, Feb 10	<b>Assignment #1 Due: 11:59pm MT</b>	
	Fri, Feb 11	<b>Assignment #2 Released</b>	
6	Tue, Feb 15	<b>Abstraction Schemes</b> Lifting and Grounding (Tile Graph, Navmesh), PathFollow Movement	3.3.12, 4.4
	Thu, Feb 17	<b>From Pathfinding to Movement</b> The Steering Pipeline, Obstacle and Collision Avoidance	3.4.5, 3.3.14—3.3.15
<i>Decision Making Algorithms</i>			
7	Tue, Feb 22	<b>Structure of Decision Making Algorithms</b> Actions, Action Manager	5.10
	Thu, Feb 24	<b>Decision Trees</b> Nodes (Decisions, Actions), Design, Performance	5.2
	Thu, Feb 24	<b>Assignment #2 Due: 11:59pm MT</b>	
	Fri, Feb 25	<b>Assignment #3 Released</b>	
8	Tue, Mar 1	<b>Behavior Trees</b> Architecture, Nodes, Design	5.4
	Thu, Mar 3	<b>Goal Oriented Action Planning</b> States, Goals, Algorithm	5.7

# Syllabus v.6

Week	Date	Event	Reading
9	Tue, Mar 8	<b>Fall Break</b> No Class	
	Thu, Mar 10	<b>Fall Break</b> No Class	
<b>Strategy Algorithms</b>			
10	Tue, Mar 15	<b>Structure of Strategy Algorithms</b> Blackboard, Utility Theory	5.9, 9.1
	Thu, Mar 17	<b>Game Playing</b> Minimax, Alpha-beta Pruning	9.2
	Thu, Mar 17	<b>Assignment #3 Due: 11:59pm MT</b>	
	Fri, Mar 18	<b>Assignment #4 Released</b>	
11	Tue, Mar 22	<b>GDC</b> Possibly No Class	Note: if travel to GDC is not possible, we will use this week to catch up on tern projects in class.
	Thu, Mar 24	<b>GDC</b> Possibly No Class	
12	Tue, Mar 29	<b>Monte-Carlo Tree Search</b> Algorithm, Improving Performance	9.5
	Thu, Mar 31	<b>Coordinated Action</b> Multi-tier AI, Influence Maps	6.4
<b>Modern Techniques</b>			
<b>Procedural Content Generation</b>			
13	Tue, Apr 5	<b>Structure of Procedural Content Generators</b> Content Selection v. Generation, Expressive Range	Compton, Kate. "So you want to build a generator...", Personal Blog, <a href="https://galaxykate0.tumblr.com/post/139774965871/so-you-want-to-build-a-generator">https://galaxykate0.tumblr.com/post/139774965871/so-you-want-to-build-a-generator</a>  Smith, Gillian, and Jim Whitehead. "Analyzing the expressive range of a level generator." In <i>Proceedings of the Workshop on Procedural Content Generation in Games</i> , pp. 1-7. 2010.
	Thu, Apr 7	<b>Pseudorandom Number Generation</b> Halton Sequence, Poisson Disk, Kaleidoscope Effect	8.1.1—8.1.2  Cardona-Rivera, Rogelio E. "Cognitively-grounded procedural content generation." In <i>Proceedings of the Workshops at the Thirty-First AAAI Conference on Artificial Intelligence</i> . 2017.
	Thu, Apr 7	<b>Assignment #4 Due: 11:59pm MT</b>	
	Fri, Apr 8	<b>Assignment #5 Released</b>	
14	Tue, Apr 12	<b>Content Selection</b> L-systems, Grammars, Randomness	8.2, 8.5
	Thu, Apr 14	<b>Content Generation</b> Parametric Systems, Search-based Methods	8.3, 8.4
<b>Learning</b>			
15	Tue, Apr 19	<b>Decision Tree Learning</b> ID3 Algorithm	7.6
	Thu, Apr 21	<b>Artificial Neural Networks</b> Credit Assignment, Feedforward and Backpropagation, Error Term	7.8

Week	Date	Event	Reading
16	Tue, Apr 26	<b>Deep Learning</b> Overview, Architectures	7.9 Fridman, Lex, "MIT Deep Learning Basics: Introduction and Overview with TensorFlow", TensorFlow Blog, <a href="https://blog.tensorflow.org/2019/02/mit-deep-learning-basics-introduction-tensorflow.html">https://blog.tensorflow.org/2019/02/mit-deep-learning-basics-introduction-tensorflow.html</a>
	Tue, Apr 26	<b>Assignment #5 Due: 11:59pm MT</b>	
	Wed, Apr 27	<b>Reading Day</b> No Class	
	TBD	<b>Final Exam</b> Term Project Presentations	

## COURSE POLICIES

In the sections that follow, you will find the policies that govern the structure of this course. The policies are specified at three different levels: Class and Classroom Policies, College Policies, and University Policies. For some policies, I will make reference to specific sections of the University of Utah's Regulations (<https://regulations.utah.edu/academics/>) that I want to emphasize. You should interpret this as an indication that special attention will be paid to that specific portion of the policy. However, you are still required to abide by the entire policy in question.

### COVID-19 Policies

University leadership has urged all faculty, students, and staff to **model the vaccination, testing, and masking behaviors** we want to see in our campus community. These include:

- Vaccination
- Masking indoors
- If unvaccinated, getting weekly asymptomatic coronavirus testing

**Vaccination.** Get a COVID-19 vaccination if you have not already done so. Vaccination is proving highly effective in preventing severe COVID-19 symptoms, hospitalization and death from coronavirus. Vaccination is the single best way to stop this COVID resurgence in its tracks.

Many in the campus community already have gotten vaccinated:

- More than 80% of U. employees
- Over 70% of U. students

Visit <http://mychart.med.utah.edu/>, <https://alert.utah.edu/covid/vaccine/>, or <http://vaccines.gov/>, to schedule your vaccination.

**Masking.** While masks are no longer required outside of Health Sciences facilities, UTA buses and campus shuttles, **CDC guidelines now call for everyone to wear face masks indoors.**

Check the CDC website periodically for masking updates:

<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html>

Treat masks like seasonal clothing (*i.e.* during community surges in COVID transmission, masks are strongly encouraged indoors and in close groups outside).

**Testing.** If you are not yet vaccinated, get weekly asymptomatic coronavirus tests. This is a helpful way to protect yourself and those around you because asymptomatic individuals can unknowingly spread the coronavirus to others. Asymptomatic testing centers are open and convenient:

- Online scheduling
- Saliva test (no nasal swabs)
- Free to all students returning to campus (required for students in University housing)
- Results often within 24 hours

Visit [alert.utah.edu/covid/testing](http://alert.utah.edu/covid/testing)

**Remember, students must self-report if they test positive for COVID-19** via this website:

<https://coronavirus.utah.edu/>

## Class and Classroom Policies

**Attendance and Punctuality.** Attendance at class sessions is not required; however, absences that are unexcused according to the University of Utah’s Excused Absence Policy (Policy 6-100III-O; <https://regulations.utah.edu/academics/6-100.php>) and that result in late assignments or missed announcements may negatively affect students’ grades. Documented medical excuses or other excused absences will not adversely affect grades. Conference travel or other scholarly duties discussed well in advance of a missed session may be excused at the discretion of the instructor.

While regular attendance of lectures is not required, it is **strongly** encouraged. If you decide to attend class, *please* be punctual. Entering the classroom late disrupts everyone engaged in classroom activities.

The one exception to this policy is for the Final Exam: attendance on the day reserved for the Final Exam is **required** for all students. ***Unexcused absences from that day will result in a 20 point reduction of your final grade.***

**Participation Policy.** Active participation in class activities and discussions is expected and **strongly** encouraged but not explicitly evaluated. My assessment of your participation is *highly subjective* and thus will never hurt your grade, but it may help your grade: In cases where I feel that you have actually been a better student than your Level would indicate — as evidenced by your participation in class — I may (at my discretion) choose to give you a better letter grade than you would have otherwise received. Below, you will find my rubric for assessing participation, reproduced from the Eberly Center for Teaching Excellence’s at Carnegie Mellon University ([www.cmu.edu/teaching/assessment](http://www.cmu.edu/teaching/assessment)):

	Exemplary	Proficient	Developing	Unacceptable
Frequency of Participation in Class	Student initiates contributions more than once in each recitation.	Student initiates contribution once in each recitation.	Student initiates contribution at least in half of the recitations.	Student does not initiate contribution & needs instructor to solicit input.

	Exemplary	Proficient	Developing	Unacceptable
<b>Quality of Comments</b>	Comments always insightful & constructive; uses appropriate terminology. Comments balanced between general impressions, opinions & specific, thoughtful criticisms or contributions.	Comments mostly insightful & constructive; mostly uses appropriate terminology. Occasionally comments are too general or not relevant to the discussion.	Comments are sometimes constructive, with occasional signs of insight. Student does not use appropriate terminology; comments not always relevant to the discussion.	Comments are uninformative, lacking in appropriate terminology. Heavy reliance on opinion & personal taste; for example: - "I love it" - "I hate it" - "It's bad"
<b>Listening Skills</b>	Student listens attentively when others present materials, perspectives, as indicated by comments that build on others' remarks. In other words: student hears what others say & contributes to the dialogue.	Student is mostly attentive when others present ideas, materials, as indicated by comments that reflect & build on others' remarks. Occasionally needs encouragement or reminder from instructors of focus of comment.	Student is often inattentive and needs reminder of focus of class. Occasionally makes disruptive comments while others are speaking.	Does not listen to others; regularly talks while others speak or does not pay attention while others speak; detracts from discussion; sleeps.

**Food and Drink Policy.** You are welcome to bring food and drink into the class insofar it is not disruptive to the rest of the class. It is my responsibility to maintain a climate conducive to thinking and learning. You are required to clean up after yourself.

**Electronic Devices in Class Policy.** By default, *laptop use is prohibited*. As indicated in a recent article by Scientific American, students are better off without a laptop in the classroom:

- Nonacademic Internet use was common among students who brought laptops to class and was inversely related to class performance. [Ravizza, Susan M., Mitchell G. Uitvlugt, and Kimberly M. Fenn. "Logged in and zoned out: How laptop internet use relates to classroom learning." *Psychological science* 28.2 (2017): 171-180.]
- Facebook and internet use increased when people were bored with an ongoing task. [Mark, Gloria, et al. "Bored Mondays and focused afternoons: the rhythm of attention and online activity in the workplace." *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, 2014.]
- Students reported that they texted in class as a result of boredom. [Clayson, Dennis E., and Debra A. Haley. "An introduction to multitasking and texting: Prevalence and impact on grades and GPA in marketing classes." *Journal of Marketing Education* 35.1 (2013): 26-40.]
- People perceive fun tasks as taking less time than dull tasks (and so it is possible that time spent enjoying social media or video sites is misperceived as short). [O'Brien, Edward H.,



Phyllis A. Anastasio, and Brad J. Bushman. "Time crawls when you're not having fun: Feeling entitled makes dull tasks drag on." *Personality and Social Psychology Bulletin* 37.10 (2011): 1287-1296.]

- Social networking sites can be addictive for some people. [Ryan T, Chester A, Reece J, Xenos S. The uses and abuses of Facebook: A review of Facebook addiction. *J Behav Addict.* 2014;3(3):133-48.]
- Multitasking laptop users also distract their classmates, as peers with a direct view of those laptops suffer academically. [Sana, Faria, Tina Weston, and Nicholas J. Cepeda. "Laptop multitasking hinders classroom learning for both users and nearby peers." *Computers & Education* 62 (2013): 24-31.]
- Taking notes by hand is more effective than doing so with a laptop. [Mueller, Pam A., and Daniel M. Oppenheimer. "The pen is mightier than the keyboard: Advantages of longhand over laptop note taking." *Psychological science* 25.6 (2014): 1159-1168.]

Any and all other electronic devices are required to be off or silenced and stored away during the duration of the class session. There are only three exceptions to the default rule:

1. I've explicitly given permission to use laptops for some task. If I haven't but you think some task is laptop-suitable, ask. I may want you to think about it instead of blindly typing it in. When the task ends, you have to close your laptop (the screen must no longer be visible and you must cease typing).
2. You have some documentable reason that requires laptop use. If so, please discuss it with me beforehand. Also, in light of the rest of this document, I would appreciate your positioning yourself in class in a way that your laptop's screen will not distract others. Note that this does not mean you have to relegate yourself to the back; perhaps that isn't where you would like to sit! But closer to the ends of rows would help.
3. Emergencies.

**Plagiarism Software Policy.** I may elect to use a plagiarism detection service in this course, in which case you will be required to submit any/all work to such a service as part of your assignment. In the event that such a software detects plagiarism, all affected students will be required to submit to further evaluation at the discretion of the instructor. Students found in violation of the University's Student Code will be subject to consequences to the fullest extent of University Regulation.

**Online Submissions Policy.** You are responsible for submitting all assignments with the required naming convention, correct file extension, and using the software type and version required for the assignment.

**Electronic or Equipment Failure Policy.** It is your responsibility to maintain your computer and related equipment in order to participate in the course. Equipment failures will not be an acceptable excuse for late or absent assignments. Outages due to University of Utah equipment failures that prohibit you from submitting an assignment will be handled on a case-by-case basis in order to ensure that you are given an adequate amount of time to submit the assignment. Such outages will be considered only if officially reported through the University of Utah's Internet Technologies website, <https://it.utah.edu/help/> (at the *System Status* link, under the *Status/History* tabs).

**Late Assignments / Missed Assignments Policy.** Completed assignments should be turned in by the dates and times indicated on the syllabus. Unfortunately, due to the schedule of the

course and our commitment to grade assignments and exams in a timely manner, ***no unexcused late submissions will be accepted***. Work missed with an excused absence must be taken during the week that the student returns to class.

**Accommodation Policy.** Students are expected to take courses that will challenge them intellectually and personally. Students must understand and be able to articulate the ideas and theories that are important to the discourse within and among academic disciplines. Personal disagreement with these ideas and theories or their implications is not sufficient grounds for requesting an accommodation. Accommodations requested on such grounds will not be granted. The University recognizes that students' sincerely-held core beliefs may make it difficult for students to fulfill some requirements of some courses or majors. The University assumes no obligation to ensure that all students are able to complete any major. It is the student's obligation to determine, before the last day to drop courses without penalty, when course requirements conflict with the student's sincerely-held core beliefs. If there is such a conflict, the student should consider dropping the class. A student who finds this solution impracticable may request a content accommodation from the instructor. Though the University provides, through this policy, a process by which a student may make such a request, the policy does not oblige the instructor to grant the request, except in those cases when a denial would be arbitrary and capricious or illegal. This request must be made to the instructor in writing, and the student must deliver a copy of the request to the office of the department Chair or, in the case of a single-department college, to the office of the Dean. The student's request must articulate the burden the requirement would place on the student's beliefs.

The University of Utah's Accommodations Policy can be found here: Policy 6-100III-Q; <https://regulations.utah.edu/academics/6-100.php>. Students are responsible for being aware of the information contained therein.

**Student Names & Personal Pronouns Statement.** Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email [bpeacock@sa.utah.edu](mailto:bpeacock@sa.utah.edu) to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

**Faculty and Student Responsibilities.** Students as well as faculty are entitled to academic freedom and autonomy in their intellectual pursuits and development. Teachers must therefore treat students with courtesy and respect. They must not require students to accept their personal beliefs or opinions and must strive in the classroom to maintain a climate conducive to thinking and learning. They must not misuse their position, authority, or relationship with students. Likewise, it is the faculty's responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

## **College of Engineering Policies**

**College of Engineering Semester Guidelines.** The College of Engineering Semester Guidelines contain important dates regarding adding, dropping and withdrawing from classes as

well as the College Policy regarding repeating courses. To consult the guidelines, go to: <https://www.coe.utah.edu/semester-guidelines>. Students are responsible for being aware of the information contained therein.

## University Policies

**The Americans with Disabilities Act.** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 801-581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

If you anticipate issues related to the format or requirements of this course, please meet with me. I would like us to discuss ways to ensure your full participation in the course.

**Addressing Sexual Misconduct.** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

**Code of Conduct.** Students are required to abide by the Code of Student Rights and Responsibilities (the "Student Code") for the University of Utah. The Student Code for the University of Utah can be found at: <http://regulations.utah.edu/academics/6-400.php>. Students are responsible for being aware of the information contained therein.

All students are expected to maintain professional behavior in the classroom setting, according to the Student Code (Policy 6-400), spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc.

Plagiarism means the intentional unacknowledged use or incorporation of any other person's work in, or as a basis for, one's own work offered for academic consideration or credit or for public presentation. Plagiarism includes, but is not limited to, representing as one's own, without attribution, any other individual's words, phrasing, ideas, sequence of ideas, information or any other mode or content of expression (Policy 6-400, Student Code).

## University Resources

**Important Safety Information.** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and

safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit [safeu.utah.edu](http://safeu.utah.edu).

**ASUU Tutoring Center.** The ASUU Tutoring Center provides individual tutoring (\$7 per hour) and group tutoring sessions (\$4 per hour) for currently enrolled University of Utah students. Students can receive assistance for a wide range of subjects at a reasonable rate, thanks to the Associated Students of the University of Utah who help defray the cost of tutoring. Tutoring is very flexible. Depending on the availability of the tutor you select, appointments may be set for any time including evenings and weekends, and always at a location that is convenient for the tutor and student. For additional information call 801-581-5153 or visit the ASUU Tutoring Center in Rm. 330 SSB. <http://tutoringcenter.utah.edu>.

**Center for Wellness & University Counseling Center.** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness - [www.wellness.utah.edu](http://www.wellness.utah.edu); 801-581-7776; and the University Counseling Center: <http://counselingcenter.utah.edu>, 801-581-6826.

**LGBT Resource Center.** The University of Utah has an LGBT Resource Center on campus. They are located in Room 409 in the Oplin Union Building. Hours: M-F 8-5pm. You can visit their website to find more information about the support they can offer, a list of events through the center and links to additional resources: <http://lgbt.utah.edu/>. Please also let me know if there is any additional support you need in this class.

**Office of Equity and Diversity.** The University of Utah is deeply committed to enhancing the success of diverse faculty, students, and staff, as part of our broader goal to enrich the educational experiences and success of all members of our University community. We recognize that a diverse and inclusive University enriches the educational experiences of all students, and enhances our excellence as a world-class institution for 21st Century learners. The Office for Equity and Diversity is proud to lead the University's efforts to support the success and achievement of faculty, students, and staff who self-identify as African American, Latina/o or Chicana/o, Asian American, Pacific Islander, American Indian, members of the Lesbian, Gay, Bisexual, Transgender and Questioning community, and women in underrepresented fields. <http://diversity.utah.edu>, 801-581-7569.

**Undocumented Student Support.** Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit [dream.utah.edu](http://dream.utah.edu).

**Women's Resource Center.** The Women's Resource Center (WRC) at the University of Utah serves as the central resource for educational and support services for women. Honoring the complexities of women's identities, the WRC facilitates choices and changes through programs, counseling, and training grounded in a commitment to advance social justice and equality. <http://womenscenter.utah.edu>

**The Writing Center.** If writing is difficult for you, if you're new to college and don't yet feel quite able to meet college writing expectations, or if you simply would like to improve your writing, I encourage you to visit the Writing Center: [www.writingcenter.utah.edu](http://www.writingcenter.utah.edu). 801-587-9122.

**Veterans Center.** If you are a student veteran, I want you to know that the U of Utah has a Veterans Support Center on campus. They are located in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: <http://veteranscenter.utah.edu/>. Please also let me know if you need any additional support in this class for any reason.

### **NON-CONTRACT NOTE**

This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas under Announcements.

### **ACKNOWLEDGEMENTS**

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