

SER594 Human Computer Interaction

<http://javiergs.com/teaching/ser594>
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1. Description

A project-centric course focusing on using artificial intelligence to enhance the design and development of adaptive software systems. Besides AI, the class discusses the principles of cognitive and affective states recognition, interaction design and relevant software design techniques.

2. Course Objectives and Expected Learning Outcomes

With the recent exponential growth in natural user interfaces combined with artificial intelligence, **Intelligent Interaction Design** has become a central part of most current and future software design from Siri and Alexa to smart homes, IoT, and autonomous vehicles.

This course is intended to give you a foundational understanding of interaction design from an AI perspective, and discuss how people use *highly intelligent, highly interactive* software systems today, including computers, smart phones and many computer-supported systems. These are valuable skills to have, especially if you plan to work in industry with advanced software design skills for new technology. It will also provide you with strong theoretical approach to AI if you are considering graduate level work. The class applies useful information to improve your own interaction with technology and will provide you with a scientific background of how the near future will look like.

This course has theory and practice components, taught in an interactive, hands-on, flip-class approach (details will be discussed in class). You will be expected to use the course material and tutorials as a guide to the lectures and discuss it in class. There will also be some design exercises, research topics and discussions throughout the semester that will be completed during the lab time and presented in class.

Students will be asked to form and work in teams in as well as individually.

3. Course Topics:

Topics will follow three tracks:

1. **Human** side of HCI
2. **Computer** side of HCI
3. **Interaction** side of HCI, where we will see how humans and computers interact

The course will introduce you to machine learning, as well as systems and software engineering of self-adaptive systems. The following are **some** of the contents that will be covered in the course:

- Introduction to Artificial Intelligence
- Interaction: What is Interaction Design
- User Centered Design
- Navigation Modeling Design Approach
- Affordance and Other Design Principles
- User Research and Persona
- Designing your Intelligent Product

4. Absence & Make-Up Policies

- **No late assignments are accepted and there are no makeup assignments.** Exceptions apply according with University policies, such as Medical or family issues, Religious practices, and/or University-sanctioned activities.
- Notify the instructor **BEFORE** an assignment is due if an urgent situation arises and the assignment will not be submitted on time. Published assignment due dates (Arizona Mountain Standard time) are firm.
- Accommodations will be made for religious observances provided that students notify the instructor at the beginning of the semester concerning those dates. Students who expect to miss class due to officially university-sanctioned activities should inform the instructor early in the semester. Please follow the appropriate University policies to request an accommodation for religious practices (<http://www.asu.edu/aad/manuals/acd/acd304-04.html>) or to accommodate a missed assignment due to University-sanctioned activities (<http://www.asu.edu/aad/manuals/acd/acd304-02.html>).

5. Evaluation

- 25% Lab and Quizzes (classroom time)
- 25% Team Project
- 25% Homework
- 25% Final exam (comprehensive exam)

Course contents are taught in 1-week “modules”. Topics will require some reading (papers or book chapters). Students should be prepared to actively participate in class discussions throughout the course. Certain class periods will be dedicated to a team presenting a topic. Other classes will be dedicated to teams presenting their class project progress. Students should *always* come to the class prepared for quizzes on the topics covered in *all* the previous classes. Quizzes will be either written exams given to the entire class or oral questions asked from students selected at random. There will also be individual assignments as part of the course workload

Students may appeal a scored assessment within one week of the grade’s posting online. Appeals are in written form only (including email) and must point to specific evidence of why the grade should be revised.

Arbitrary “*please regrade because I want a higher score*” queries will be discarded without a response. **The instructor reserves the right to assign a lower score on appeal.**

6. Grading

The following is the grading scale that will be used in the course (I reserve the right to modify the scale or grading system).

- A+ \geq 97%
- A \geq 93%
- A- \geq 89%
- B+ \geq 85%
- B \geq 81%
- B- \geq 77%
- C+ \geq 73%
- C \geq 69%
- D \geq 65%
- E < 65%

7. Resources

Required Readings will be discussed in class

8. Classroom Behavior

Cell phones and pagers must be turned off during class to avoid causing distractions. The use of recording devices is not permitted during class. Any violent or threatening conduct by an ASU student in this class will be reported to the ASU Police Department and the Office of the Dean of Students.

Students are expected to participate in the educational process and not be a disruptive element with regard to the learning of others. Safety, self-discipline and respect for others are necessary

elements in the educational processes employed in this course. All students should be familiar with the Student Code of Conduct, which can be found at <http://www.asu.edu/studentlife/judicial/>

9. Academic Integrity

All students in this class are subject to ASU's Academic Integrity Policy (available at <http://provost.asu.edu/academicintegrity>) and should acquaint themselves with its content and requirements, including a strict prohibition against plagiarism. All violations will be reported to the Dean's office, which maintain records of all offenses.

Cheating is expressly forbidden in this class. Cheating is defined as "presenting someone else's work as your own". A special case of cheating, but no less problematic, is plagiarism.

Plagiarism is the copying or paraphrasing of another's work such as a paper or code (including online postings) without proper attribution to that source. Further, do not submit papers with over 10% of the work in "direct quotes" as a means to avoid plagiarism. Your ideas and your work should be original; citations are used to inform your work.

10. Sexual Discrimination

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish discuss any concerns confidentially and privately.

IMPORTANT

- Any information in this syllabus (other than grading and absence policies) may be subject to change with reasonable advance notice.
- All contents of these lectures, including written materials distributed to the class, are under **copyright protection**. Notes based on these materials may not be sold or commercialized without the express permission of the instructor. [ACD 304-06].