

Course Information

Course Number: CSCE643
Course Title: Seminar in Intelligent Systems & Robotics
Credit Hours: 3

Section: 601
Time: Tu/Thu 8:00 A.M. to 9:15 A.M.
Location: HRBB 126

Instructor Details

Instructor: Dr. Dylan Shell
Office: PETR 315
Phone: (979) 845-2369
E-Mail: dshell@tamu.edu
Office Hours: Walk-ins: Wednesdays 3:00 P.M. to 4:00 P.M.,
Also: by appointment.

Course Description

Catalog Description: Problems, methods and recent developments in intelligent systems and robotics.

This offering of the course will focus on planning algorithms for robots, including some treatment of algorithms and challenges underlying estimation and planning, with the focus on motion planning, task planning, and their combination. Depending upon interest expressed within the class: synthesis techniques from formal methods for robots, fundamentals of reinforcement learning, and other recent developments (Google SayCan, RT-2, etc.)

The course's primary activity within class will be seminar-style presentation, discussion, and ideally a lively debate of assigned readings (sections from books and papers). Much of the work outside of class, thus, will be reading and working through the required materials.

Through the course students will also (individually) write a research paper. The course has a sequence of milestones to help scaffold the process of identifying a topic, developing and refining the ideas, and then the writing process itself.

Course Prerequisites

The only formal requirement is approval of the instructor. In practice, some (undergraduate-level) experience design and analysis of algorithms. Ideally a student will have had some contact with

Complexity Theory (NP-Hardness, SAT, etc.), or be willing to pick up these aspects. (Please simply send an e-mail to the instructor or visit during the first class, if in doubt.)

Course Learning Outcomes

- Students should be able to list and explain the current techniques for planning for robots and related systems.
- Students should gain an appreciation for the development and process by which the state-of-the-art has been arrived at.
- Students will hone critical thinking and communication skills (including technical discussion, presentation and writing).

Textbook and/or Resource Materials

Core book:

Planning Algorithms by Steven M. LaValle, 2006 (Available online.)

After the initial part of the course, this book to be supplemented with research papers and other materials on specialized topics.

Grading Policy

- The grading scale is:
 - A 90-100
 - B 80-89
 - C 70-79
 - D 60-69
 - F 59 or below
- Grades will be based on:
 - 50% : Participation and engagement during class time
 - 50% : Research paper

Late Work Policy

- The due dates will be communicated in class and posted on the class website.
- Standard university reasons for lateness shall be respected so long as the student communicates with the instructor as soon as possible—this means, specifically, it has been communicated before the deadline has passed and not *ex post facto*, if feasible. (Note that job interviews and attendance of the career fair are, as per Student Rule 7, generally not not an excused absences.)

Teaching technology/infrastructure:

The lectures will be delivered in person, and physical attendance is expected.

University Writing Center

The University Writing Center (UWC) has trained peer consultants available to work with you on any kind of writing or speaking project, including research papers, lab reports, application essays, or creative writing, and at any stage of your process, whether you're deciding on a topic or reviewing your final draft. You can also get help with public speaking, presentations, and group projects. We can work with you in person at our Evans or BLCC locations or via Zoom or email. To schedule an appointment or to view our handouts, videos, or interactive learning modules, visit writingcenter.tamu.edu. If you have questions, need help making an appointment, or encounter difficulty accessing our services, call 979-458-1455 or email uwc@tamu.edu.

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines. Please pay careful attention: an interview is only considered an excused absence in very particular circumstances, which tend to happen very rarely for CS jobs.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor. In cases where the decision is at the instructor's discretion, the likelihood of an accommodation/makeup is directly related to whether the student communicates with the instructor as soon as possible; requests for foreseeable absences that are made only after the absence will not be granted.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

“The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” ([Section 20.1.2.3, Student Rule 20](#)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.

- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](#) (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student’s academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.