

1512:CICS 290A Introduction to Research in the Discipline

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Class times:

- CICS 290A-01 (76460) Lecture; Tu 10:00AM - 11:15AM
- CICS 290A-01LL (76461) Discussion; Fr 11:15AM - 12:05PM

Course Information

Course Description:

We welcome you and your peers on this journey of research and learning. The 'Introduction to Research in the Discipline' 2-credit course is part of the [CICS Early Research Scholars Program \(ERSP\)](#). It provides a team-based research apprentice experience for Computer Science and Informatics majors in the second year of their major. No other prerequisites are required.

Course Objectives and Learning Outcomes:

We hope that this course will be a starting point for you to develop and deepen your awareness and critical consciousness about research, provide you with some skills, and inspire and foster your commitment to work towards computing for the common good. This course is designed to offer you opportunities to expand your thinking and understanding about research. It will introduce you to the basics of research in the discipline. You will learn what a research problem looks like, how to read and find research papers, how to articulate a problem and how to propose a research project to solve that problem. It is group-based, so the majority of the work you will do in this course will be collaborative. This course will prepare you for independent research projects in computing and beyond. It will include the following knowledge, skills, and dispositions:

- Practical Research Skills:
 - Read a research paper
 - Perform a literature search
 - Keep detailed research records
 - Design and propose a research project
 - Collect and analyze data
- Research Comprehension and Communication Skills:
 - Explain the research process
 - Ask questions to clarify understanding

- Critically analyze data
- Practice regular and open communication with your advisor(s)
- Practice effective teamwork skills; resolve team conflicts
- Communicate your research, both in writing and orally
- Understanding of Research Ethics:
 - Identify forms of unethical practice or research misconduct
 - Take action to address unethical practices or research misconduct
- Researcher Identity:
 - Think of yourself as a computer scientist and researcher
 - Feel like you belong in research
 - Feel comfortable in the research culture
- Confidence and Independence as a Researcher:
 - Determine next steps in the research project
 - Independently learn needed disciplinary knowledge and skills
 - Maintain confidence when coping with research challenges
 - Stay motivated to complete your project
- Equity and Inclusion Awareness Skills:
 - Identify the biases present in computing
 - Understand how others might experience research differently based on their identity
 - Advocate for others who may be marginalized or excluded from the research environment
- Professional and Career Development Skills:
 - Explore research career pathways
 - Determine next steps toward a research career

Course Structure:

This course meets twice a week on Tuesday and Friday. You attend classes that are organized around active-learning activities to meet learning goals. Each class, you complete a homework assignment either individually or as a group. The instructional team (usually the TA) provides you and your group with written and in-person feedback on the performance on the homework assignments and in-class activities, as well as a grade for the assignments. Each week you also attend a research lab meeting. You should also schedule some time per week for group work.

All assignments and resources will be available to you on Canvas. For all course and within-group communication we'll be using Microsoft Teams. Your UMass email will be used to send all announcements from Canvas and Teams. Your account will be created for you on Canvas and Teams. You are strongly recommended to download the Microsoft Teams app on your mobile phone.

Course Topics and Activities:

- Introduction to Research in the Discipline course.
- Observation of a research group.
- Weekly meetings with research lab advisors.

- Preparation of research proposal and proposal presentation.
- Initial work on a research project.

Course Materials:

There is no required textbook for this course and you do not need a clicker. All course material will be available on Canvas. On a weekly basis, the following information will be given to you:

- *Pre-class homework* lists the homework assignment that is due. Some of the assignments need some pre-work well in advance, so please read over all the assignments well before the course starts
- *Grading and feedback* lists some suggestions and feedback on how you are doing in the homework and in class. You should receive your grades and feedback on a weekly basis (at least).
- *Learning outcomes* lists the learning outcomes for the class activities. These are often supported by the homework assignments, either before or after the class period.
- *In-class activities* give the details for the class activities. This is an interactive class. There is little to no lecture.
- *Resources and handouts* list the resources that go along with that day’s class and that week’s assignments.

Weekly Schedule

Please see Canvas for the latest schedule and any changes in the due dates for the deliverables.

Week	Topic
Week 1	Course Orientation
Week 2	Introduction to Teamwork and Research in the discipline
Week 3	Reading and Presenting Research Papers
Week 4	Independent Learning
Week 5	Literature Searching
Week 6	Literature Searching
Week 7	Writing a Research Proposal
Week 8	Experiments in Computer Science
Week 9	Data Analysis
Week 10	Working on Proposal Draft
Week 11	Research Ethics and Responsible conduct of research
Week 12	Proposal Feedback

Week 13	Proposal Peer Review
Week 14	Oral Communication; Working on Proposal Presentation

Course Expectations:

This is a 2 credit (per semester) course which is part of the [CICS ERSP](#). We follow the UMass credit norm that each credit hour generates two hours of assigned work for every hour of in-class contact.

With this course even more than others, what you get out of it will be a function of what you put into it. As a participant in ERSP and a student in this course, you must commit to the following:

1. To participate in the program actively and fully for the full duration of the program. Each semester you are expected to register for the course associated with the program as instructed and to complete all work associated with that course.
2. To attend all classes and group meetings regularly and punctually.
3. To behave professionally toward your research group members and the faculty and students who comprise the research group you are placed with.
4. To complete the assigned work for the course in a timely fashion, and to "pull your weight" with all assigned group projects.
5. To keep an open line of communication between yourself, the members of your group, and the course professor and TA. In particular, you must let us know if any issues arise, as soon as they arise.
6. To balance your time so as to maintain success in your other courses, as well as in ERSP.

You have a number of opportunities in this course to demonstrate your learning and earn credits towards your final course grade. To receive a passing grade in this class you must:

1. Attend class and participate actively in these class sessions.
2. Attend your group research meeting, on time, every week.
3. Complete all of the assigned pre-class activities before class time.
4. Make steady progress toward your research project. That is, "pull your weight" on your team and live up to your group's expectations.

If you do all of the above, you will pass the course, and get a lot out of it! We recommend you meet all the above expectations, as you risk not passing the course and being removed from the program.

Grading

Course Grading:

A list of all assignments and grading criteria is available on Canvas. The grading categories are weighted as follows and you must achieve at least 50% to pass. Please note that 50% of your grade in this course is based on group work. This reflects what life is like in research, where not everything is under your personal control.

Grade Component	Grade Percentage	Explanation
Class participation and attendance	10%	You must attend each class on time, and participate actively in the class activities. You will receive a score of 2 (present, on time, actively participating), 1 (present, on time, but not actively participating OR present and actively participating but late), or 0 (absent or late and not actively participating) for each class period. Your lowest one class participation score will be dropped. This means you can miss one class for any reason with no penalty, as long as you are on time and participating in all the others.
Research group meeting attendance	5%	Each week (starting in week 2 or 3) you will be expected to attend a group meeting with your research group. One person in each group will be designated as the attendance taker. You will receive credit for attendance if you are on time and stay the full time. You must keep the attendance sheet up to date. You may miss up to one research meeting without penalty.
Research Logs and Reflections	10%	Throughout the program you will be expected to keep a regular log of and to reflect on your research activities.. You must keep this log updated. You will receive a score of 2 (log up to date and completed thoughtfully), 1 (log partially up to date, or incomplete, or minimal), or 0 (log not updated) for the week.
Assignments	20%	There will be a homework or classwork assignment that must be completed before class for most class periods. These will be graded on a three-point scale: 2 (thoughtfully completed and on time), 1 (lacking, or completed after the deadline), 0 (not done). Your lowest assignment core will be dropped.
Research group contribution by peer evaluation	10%	Each group member will be asked to judge the contribution of each of the other members of their group at different times in the semester. From this information and observations by the instructional team, a determination will be made about each person's individual contribution to the team. In a healthy team, everyone will get full marks here.
State of the Research Report	5% (Group grade)	Throughout the program your group will be expected to keep a regular log of the state of the group research. Your group must keep this log updated. You will receive a score of 2 (log up to date and complete), 1 (log partially up to date, or incomplete), or 0 (log not updated) for the week.
Project Proposal	30% (Group grade)	The project proposal is one of the major deliverables for the semester. The final submission will be graded at the end of the semester (you will receive feedback on drafts).

Final Presentation	10% (Group grade)	The final presentation is the other major deliverable. It will be given during the final exam period. There are no exams in this course. Everyone is expected to attend all the presentations.
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Although there is no opportunity for extra credit in this course, don't hesitate to take advantage of the resources listed in the **Plan for Success** section below. Note that regrades will not be considered because in most cases you have the opportunity to improve your grade through additional work and iteration.

The final numerical cutoff for final course letter grade assignment will be made after all grading is completed. Here are the approximate grade thresholds that usually apply: The following grades may be given: A, A-, B+, B, B-, C+, C, C-, D+, D, F, SAT; e.g. approximate grade thresholds that usually apply: A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (60-66), F (0-59).

Course Incompletes:

If you are unable to complete course requirements within the allotted time because of severe medical or personal problems, you may request a grade of Incomplete. Note that incomplete grades are warranted only if you are passing the course at the time of the request and if the course requirements can be completed by the end of the following semester.

Policies and Accommodations

Diversity & Inclusion:

We envision this course as a supportive and inclusive learning community for all. In this course, each voice in the classroom has something of value to contribute. Take care to respect the different experiences, beliefs and values expressed by students, TAs, and research mentors involved in this course. We support UMass's commitment to diversity, and welcome individuals regardless of age, background, citizenship, disability, sex, education, ethnicity, family status, gender, gender identity, geographical origin, language, military experience, political views, race, religion, sexual orientation, socioeconomic status, and work experience.

While we will make a concerted effort to be welcoming and inclusive to the wide diversity of students in this course, if there is a way we can make you feel more included please let one of us know, either in person, or via email. Our learning about diverse perspectives and identities is an ongoing process, and we welcome your perspectives and input.

Please understand that others' backgrounds, perspectives and experiences may be different from your own, and help us to build an environment where everyone is respected and feels comfortable. If you experience any sort of harassment or discrimination, please contact us as soon as possible. If you prefer to speak with someone outside of the course, please contact

the UMass Amherst Equal Opportunity (EO) Office (413-545-3464 or email equalopportunity@admin.umass.edu to request an intake meeting with EO staff.

Names & Pronouns:

You have the right to be addressed by the name and pronouns that you use.. You can indicate your preferred/chosen first name and pronouns on SPIRE, which appear on class rosters. I am committed to ensuring that I address you with your chosen name and pronouns. Please let me know what name and pronouns I should use for you, if they are not on the roster.

Remember: A student's chosen name and pronouns are to be respected at all times in the classroom.

Attendance, Late Submissions, and Missed Classes:

This is a discussion and activity-based class. Participation, in addition to attendance, is an expectation for all students enrolled in the course. We understand that emergencies or circumstances may arise where you may need to miss a class or research group meeting, or submit an assignment late. Seek approval by contacting us at least 24 hours in advance by filling in the *Attendance Excusal* form on Canvas (unless it's a last-minute emergency and you cannot). We'll excuse attendance for one missed class. Medical conditions, religious or funerary events, university-related events (conference visit, athletic event, field trip, or performance), or extenuating non-academic reasons (military obligation, family illness, jury duty, automobile collision) that need extension will be accommodated with written documentation. Being too busy is not a valid excuse for missing any class or group meeting.

It is possible that you may need an extension for a submission. Please use the *Attendance Excusal* form on Canvas to ask for an extension of the due date before the assignment is due. Medical conditions, religious or funerary events, university-related events (conference visit, athletic event, field trip, or performance), or extenuating non-academic reasons (military obligation, family illness, jury duty, automobile collision) that need extension will be accommodated with written documentation.

Academic Honesty Statement:

You will get out of the CICS ERSP what you put into it. For that reason, it does not make any sense to cheat. This means that all work in this class must be your own or the work of your group, where appropriate. In most cases this work will consist of a short writeup, but in some cases the writing will be longer. ALL writing must be your own original work, or the joint work of your group where appropriate, and may not be copied from any source without proper attribution. Please refer to the [UMass Academic Honesty Policy and Procedures](#) for guidelines on what constitutes academic dishonesty and the sanctions that may be imposed on any student who has committed an act of academic dishonesty. If you have any questions or concerns about what constitutes cheating in this class, please ask us as soon as the question arises.

Note that CICS explicitly forbids any redistribution (including publicly available posting on an internet site) of any course materials (including student solutions to course assignments,

projects, exams, etc.) without the express written consent of the instructor of the course from which the materials come. Violations of this policy will be deemed instances of “facilitating dishonesty” (since a student making use of such materials would be guilty of plagiarism) and therefore may result in charges under the Academic Honesty Policy.

Collaboration Policy

All work in this course will be clearly labeled as “individual” or “group” work. When the work is individual, we expect that you will complete the work thoughtfully on your own. You may work alongside others and discuss the work, but all writing should be yours and yours only. When the work is group-based, you will submit a single submission for your entire group, and you will all receive the same grade.

Accommodation Statement:

Any student who requires an accommodation due to a disability is directed to contact the UMass Disability Services: <http://www.umass.edu/disability/> to obtain the appropriate accommodation forms. If you have a documented disability that requires an accommodation, please notify us within the first two weeks of the semester. Our goal is to provide every student with a high-quality learning experience. Please contact us if you have any questions or concerns about disabilities, or any issue that may impact the quality of your learning.

Guidelines for Group Interaction

This class has group activities that enable students to discover deeper meaning in the content and improve thinking skills.

In your group: Be respectful. Be sensitive. Be aware. Promote Others.

ERSP is about building a community where everyone feels supported, included, empowered and safe. To promote this environment, it is imperative that everyone adhere to the communication guidelines below:

- Treat your classmates with respect.
- Be thoughtful and open in discussion.
- Be aware and sensitive to different perspectives.
- Build one another up and encourage one another to succeed.
- Actively ensure that everyone is contributing to the discussion.

The following behavior is promoted:

- Recognizing that not everyone's experience is equal: racism, sexism, ableism,
- homophobia or any combination systemically disadvantages some more than others.
- Acknowledging the bias in your own perspective.
- Amplifying the voices of classmates, particularly those who are from groups that are often overlooked.
- Really listening with an intent to understand (instead of thinking about your own next

- statement).
- Phrasing discussion around ideas, not people.

The following behavior should be avoided where students, faculty, and teaching assistants are present:

- Using insulting, condescending, or abusive words.
- Offensive jokes of any kind, even if you don't think it's offensive to anyone present.
- Hitting on/flirting with groupmates or other classmates in the context of work for this course.
- Using all capital letters in written communication, which comes across as SHOUTING.
- Contacting learners or posting advertisements and solicitations.
- Posting copyrighted material.

Technology Policy

Electronic devices are welcome (encouraged) in class, to support learning. Please be mindful that they do not serve as a distraction to you or those around you by chatting, social media, working on work for other classes, playing games, watching videos, etc.

Title IX

If you have been the victim of sexual violence, gender discrimination, or sexual harassment, the university can provide you with a variety of [support resources](#) and accommodations. UMass is committed to providing these resources with minimal impact and costs to survivors on a case-by-case basis. Resources are available to survivors with or without them filing a complaint. No upfront costs are charged to any currently enrolled students for University Health Services or the Center for Counseling and Psychological Health, and no fees exist for services in the Dean of Students Office, the Center for Women and Community, Student Legal Services, or by live-in residential staff.

Your success

Your success in this class is important to us. We all learn differently and bring different strengths and needs to the class. If there are aspects of the course that prevent you from learning, or make you feel excluded, please let us know as soon as possible. Together, we'll develop strategies to meet both your needs and the requirements of the course. We are happy to work with you. You may also post general questions on the Teams channels. There are also a range of resources on campus, including:

- UMass Libraries: <https://www.library.umass.edu/>
- Writing Center - <http://www.umass.edu/writingcenter>
- CICS Writing Center - <https://www.cics.umass.edu/writing>
- Learning Resource Center - <http://www.umass.edu/lrc>
- Assistive Technology Center - <https://www.umass.edu/it/assistive>
- Disability Services - <https://www.umass.edu/disability/>
- Student Success - <https://www.umass.edu/studentsuccess/>

- Center for Counseling and Psychological Health (CCPH) <http://www.umass.edu/counseling>
- English as a Second Language (ESL) Program - <http://www.umass.edu/esl>
- CMASS Success Coach Program - <https://www.umass.edu/cmass/get-involved/success/academic-support>
- Single Stop Resources - <https://www.umass.edu/studentlife/single-stop>