

**CSC 450-01, Senior Research**  
**Fall 2025**  
*Eastern Connecticut State University*

**Instructor:** Dr. Garrett Dancik (he/him/his)  
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Science Building, Rm 257

**Office Hours:** M: 4 – 5:00 PM  
TR: 1:00 – 2:00 PM  
R: 2 – 4:00 PM, or by appointment

Office hours can be virtual (appointment required) or in person. It is not necessary to sign up for in-person office hours, but those who do will be given priority. Sign up at <https://outlook.office.com/bookwithme/user/0aca1ae25934137a8606a78e6582ea5@easternct.edu?anonymous&ep=pcard>.

**Course information:**

Title: Senior Research  
Day/Time: TR 9:30 – 10:45 AM (Science Rm 135)  
Section: 01  
Credit: 3 hours

**Course Materials:**

1. Course notes and class website: <https://gdancik.github.io>
2. Additional course material: <https://easternct.blackboard.com/>
3. Perusall (<https://perusall.com/>) will be used for several assignments. Use the Blackboard link to access Perusall.
4. Piazza (<https://piazza.com>) will be used for online discussion. A mobile app is available from the App store (iPhone/iPad) or Google Play (Android devices). You may use the Blackboard link to access Piazza.

**Course Description**

As the culminating capstone of the liberal arts curriculum, this course offers students the opportunity to reflect on and apply knowledge and skills acquired in the first two tiers and in the computer science curriculum. The focus is to engage in independent inquiry, to apply critical thinking to solving specific problems in computer science, and to reflect on this effort as an outcome of the liberal arts education. Students will study the process of and methodologies in computer science research. Presentation of research results and writing of research papers are required. This course also fulfills the final stage of the writing-intensive requirement for the major.

## Writing Intensive Course

This course meets the Writing Intensive Requirement for the Computer Science and Data Science majors.

## Course Objectives

1. Demonstrate the ability to engage in independent inquiry in the field of computer science
2. Apply current and critical thinking in a focused area of study
3. Learn to write, communicate, and present research ideas and results in computer science.
4. Understand ethical issues and professional responsibilities in Computer Science.

## Additional Course Content

Additionally, this course covers the following Knowledge Areas as recommended by the ACM 2023 Curricular Guidelines<sup>1</sup>:

|   |
|---|
| 1. The nature of being a professional including care, attention, discipline, fiduciary responsibility, and mentoring  |
| 2. Keeping up to date as a computing professional in terms of familiarity, tools, skills, legal and professional frameworks as well as the ability and responsibility to self-assess and progress in the computing field  |
| 3. Professional certification, codes of ethics, conduct, and practice, such as the ACM, IEEE, AAAI, and other international societies   |
| 4. Ethical theories and decision-making (philosophical and social frameworks)   |
| 5. Why ethics is important in computing, and how ethics is similar to, and different from, laws and social norms  |
| 6. Introduction to ethical frameworks (e.g., consequentialism such as utilitarianism, non- consequentialism such as duty, rights, or justice, agent-centered such as virtue or feminism, contractarianism, ethics of care) and their use for analyzing an ethical dilemma |

## Learning Outcomes

At the completion of this course, students will be able to do the following, as recommended by the ACM 2023 Curricular Guidelines<sup>1</sup>:

|   |
|---|
| 1. Identify ethical issues that arise in software design, development practices, and software deployment. |
| 2. Justify a decision made on ethical grounds.  |
| 3. Express the use of example and analogy in ethical argument.  |

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<sup>1</sup> <https://csed.acm.org/final-report/>

**Attendance:** Attendance is required. *Any unexcused absence during Lab Meetings, Article Discussions, Presentations, or Group Assignments will result in an automatic deduction of 1 percentage point from your final grade (without limit).* If you are going to miss a class, or end up missing a class, for a justifiable reason, you need to contact me prior to the next class so that you can make up any missed work. Additional unexcused absences will result in 1% deduction from your final grade (up to 5%). Note that exercises may also be assigned and collected during class.

**Online discussion:** We will use Piazza (<https://piazza.com>) as an online discussion and question and answer forum in this course. Shortly after the beginning of the semester, you will receive an e-mail with registration instructions sent to your Eastern e-mail address. Piazza allows for students to post and answer questions, anonymously if desired. The class benefits by seeing questions asked by other students (who often have the same questions as you) and by contributing answers. As the instructor, I will answer questions and can endorse correct student answers as well. For these reasons, all non-personal (e.g., not grade-related) questions should be posted to Piazza rather than e-mailed to me. In addition, you will use Piazza to ask your fellow students questions about their projects.

### Course Assignments and Grading

| Assignment   | % of grade |
|--|------------|
| Autobiography  | 5%         |
| Article Discussions  | 5%         |
| Article Critique   | 5%         |
| Literature Review  | 10%        |
| Lab Meetings   | 10%        |
| Research Proposal  | 10%        |
| Research Outline   | 5%         |
| Research Paper – Rough Draft   | 10%        |
| Research Presentation  | 10%        |
| Research Paper – Final Draft   | 15%        |
| Additional Assignments   | 5%         |
| Participation (Online Discussion)  | 10%        |
| Completion of Computer Science<br>Major Field Test (required for CS<br>majors) | N/A        |

### Grading Scale

|                  |                  |                        |
|------------------|------------------|------------------------|
| 93-100: <b>A</b> | 90-92: <b>A-</b> |                        |
| 87-89: <b>B+</b> | 83-86: <b>B</b>  | 80-82: <b>B-</b>       |
| 77-79: <b>C+</b> | 73-76: <b>C</b>  | 70-72: <b>C-</b>       |
| 65-69: <b>D+</b> | 60-64: <b>D</b>  | 59 and below: <b>F</b> |

### **Academic Honesty**

You are encouraged to discuss assignments and your research topics with one another. However, copying work from another student (unless otherwise specified), along with *plagiarism* is *cheating* and this will not be tolerated. A student found cheating or plagiarizing will automatically receive a grade of “F” on the assignment and will be reported to the department head with further potential consequences. Note that unless otherwise specified, use of AI is allowed provided that it is documented, following the IEEE author guidelines for AI-generated text (see <https://open.ieee.org/author-guidelines-for-artificial-intelligence-ai-generated-text/>), and that the prompts used are included. In addition, students are responsible for familiarizing themselves with the University’s numerous policies and procedures contained in the University Catalog and Student Handbook. The Code of Conduct policies and the Policy on Academic Misconduct are of special significance, since cheating, plagiarism, and personal misconduct are strictly prohibited and carry severe penalties. Students should read and understand Eastern's Academic Misconduct Policy, which can be found at <https://easternct.makekb.com/entry/307/>. All violations will be handled under the procedures established in this policy.

### **Classroom civility**

In general, follow the Golden Rule and treat others with respect and the way you want to be treated. Students are expected to behave in a manner that promotes learning. Students who disrupt class will be referred to the Office of Student Conduct for disciplinary review. If the classroom climate is not amenable to learning the class will adjourn.

### **Electronic Device Policy**

Research indicates that using cell phones and other electronic devices are distracting to both the user AND to others around you. Please silence your phone and place it out of sight during class unless there is a specific task that calls for it. Similarly, I ask that you refrain from using computers to read email or otherwise engage in activities not related to this class.

### **Special Accommodations**

Eastern Connecticut State University is committed to following the requirements of the Americans with Disabilities Act (ADA) of 1990, the ADA Amendment Act of 2008, and Section 504 of the Rehabilitation Act of 1973, as amended in 1998. If you are a student with a disability (or think you might have a disability) and require accommodations or assistance evacuating a building in the case of an emergency, please contact the Office of AccessAbility Services (OAS) at 860-465-0189 to discuss your request further. Please note that accommodations are not retroactive and must be communicated through a Letter of Accommodation, which is drafted by the OAS. Please visit the Office of Accessibility Website at <https://www.easternct.edu/accessability/index.html> for more information on how to register with our office.

### **Diversity Statement**

Eastern Connecticut State University values the diversity of its students, faculty, and staff. Differences in race, ethnicity, national origin, class, religion, learning styles,

gender, gender identity and expression, sexual orientation, age, ideology, and other aspects of human variation and characterization, including but not limited to those protected by law and CSCU policies, enrich the educational experiences and social and intellectual development of students and create a rich cultural environment. Eastern is committed to ensuring that regardless of their differences, all members of the Eastern community are challenged to achieve their full potential and are supported in their pursuit of that goal in a campus environment that is free from discrimination and harassment.

### **Assistance at the Writing Center**

The Eastern Writing Center, located in the ASC and staffed by trained peer tutors, is available to help all students with their writing. The Writing Center supports the liberal-arts mission of Eastern by helping students with their writing from any class, at any stage, from brainstorming and drafting to revision to proofreading and editing. We help students do their own work, and do it more comfortably and confidently. Any student can and should use the Writing Center. The process of talking with readers about writing and getting feedback on student writing is something all writers do and can benefit from. Students can either drop into the Center or make an appointment by going to the “Useful Links” column on the Current Students webpage and selecting “GradesFirst” (<http://www.easternct.edu/index/current-students/>). Students are asked to bring copies of any assignment sheets to the Writing Center, so tutors know what is expected of the assignment. Assistance with Academic Advising and Subject Tutoring at the Academic Service Center Students are encouraged to use the support services offered by the Academic Services Center (ASC) located on the ground floor of the Library. Advising Services and tutoring in math, writing, and other subjects are available. The ASC also offers assistance with study techniques, time management, and “Eastern in 4” graduation planning.

### **Student Sexual Misconduct Policy**

Title IX of the Education Amendment of 1972, as well as the Board of Regents Policy on Sexual Misconduct Reporting, Support Services and Processes, prohibit acts of sexual misconduct – sexual harassment, sexual assault, sex-based discrimination, dating violence, domestic violence, stalking, and inappropriate relationships between employees and students. If you or someone you know has been or experiences harassment or assault, resources are available within the Title IX Office and with the Sexual Assault & Interpersonal Violence Response Team (SAIV-RT). Alleged violations should be reported to the Title IX Coordinator in the Office of Equity and Diversity at 860-465-5012. Reports to law enforcement can be made to Eastern Connecticut State University Police Department at 860-465-5310. To receive support and advocacy, please contact the Co-Chair of the Sexual Assault & Interpersonal Violence Response Team (SAIV-RT) at 860-465-4314. You may also visit the SAIV-RT website at <https://www.easternct.edu/sexual-assault-and-interpersonal-violence/index.html> for more information including a list of confidential resources.

### **Statement from Counseling and Psychological Services (CAPS)**

Mental Health and Wellness: Eastern Connecticut State University faculty and staff

recognize that mental health concerns can impact academic performance and interfere with daily life activities. Please notify your faculty member or academic advisor for academic assistance, as needed. Counseling and Psychological Services (CAPS) can also provide support if you're feeling stressed, overwhelmed, anxious, depressed, lost or are struggling with other personal issues.

Please call or visit the [Counseling and Psychological Services \(CAPS\) website](#) for more information. These professional services are free, confidential, and support non- traditional, graduate, and undergraduate students. Call 860-465-0181 to schedule an appointment. Same day urgent hours are M-F, 1-3.

Students in crisis and/or experiencing suicidal thoughts, free 24/7 crisis support in the US, call:

- Suicide & Crisis Lifeline at 9-8-8
- Suicide Prevention Lifeline at 1-800-273-8255
- Text HOME to the Crisis Text Line at 741 741
- Trevor Project 1-866-488-7386 for LGBTQ youth
- 211 (mental health emergency)

## Course Schedule

**\*This is a tentative schedule and is subject to change**

| Week # | Week of  | Topic   |   | Major Assignments                                       |
|--------|----------|---|---|---|
| 1      | 8/25/25  | Introduction to Research<br>Research in Computer Science                        |   |   |
| 2      | 9/1/25   | How to Read Research Articles   |   | <b>Autobiography<br/>(Due: 9/2/2025)</b>                |
| 3      | 9/8/25   | Experimental Design Considerations  |   | <b>Article Discussion<br/>(Due: 9/09/2025)</b>          |
| 4      | 9/15/25  | Writing a Literature Review and Research Proposal                               |   | <b>Article Discussion<br/>(Due: 9/16/2025)</b>          |
| 5      | 9/22/25  | Lab Meetings and Project Discussion   |   | <b>Article Critique<br/>(Due: 9/25/2025)</b>            |
| 6      | 9/29/25  | Lab Meetings and Project Discussion   |   |   |
| 7      | 10/6/25  | Lab Meetings and Project Discussion   |   | <b>Literature Review<br/>(Due: 8:00 AM, 10/06/2025)</b> |
| 8      | 10/13/25 | Student Project Meetings  |   | <b>Research Proposal<br/>(Due: 8:00 AM, 10/13/2025)</b> |
| 9      | 10/20/25 | Student Project Meetings  |   |   |
| 10     | 10/27/25 | Writing a Research Paper<br>Creating an Outline<br>Version Control using Github |   |   |
| 11     | 11/3/25  | Lab Meetings and Project Discussion   |   | <b>Research Outline<br/>(Due: 11/04/2025)</b>           |
| 12     | 11/10/25 | Lab Meetings and Project Discussion<br>How to Give Academic Presentations       |   |   |
| 13     | 11/17/25 | ETS Exam  |   | <b>Rough Draft<br/>(Due: 8:00 AM, 11/17/2025)</b>       |
| 14     | 11/25/25 | Writing a Resume and Cover Letter   | <b><i>Thanksgiving – no class Wednesday or Friday</i></b> |   |
| 15     | 12/1/25  | Professional Responsibilities & Ethics<br>Wrap Up and Review                    |   |   |
|        | 12/9/24  | Final Presentations (8:00 – 10:00 AM)   |   | <b>Final Paper<br/>(Due: 12/09/2025, 8:00 AM)</b>       |