ARCADIA UNIVERSITY
COMPUTER SCIENCE
CS 490 / CS 491 CAPSTONE

MEETING TIME/LOCATION: TBD per team, 4 CREDITS, FALL 2021 – SPRING 2022

INSTRUCTOR INFORMATION
Instructor’s Name: Dr. Vitaly Ford
Telephone Number: (267) 620-4745
Email: fordv@arcadia.edu
Office: Boyer 328
Office hours: Refer to the schedule: http://vford.me/s

COURSE INFORMATION

COURSE OBJECTIVES

This course is meant to be a culmination of the 4-year degree program at Arcadia University. The students are going to be engaged in a year-long research or technical projects. The projects are dependent upon the students’ and faculty interests but they have to be related to something either practical (e.g., web app and/or mobile app for a local company, web app for a department at a university, automating processes and solving problems within an organization through computer science tools), theoretical (research in cybersecurity, machine learning, data mining, AI, robotics, algorithms), or both. Students often work with actual clients outside of Arcadia University. Research-oriented projects typically end with a research paper. At the end of the course sequence (spring semester), the students present their work in front of a committee (faculty of the department).

The learning objectives include:

- Learn how to structure and work within a development team
- Learn how to apply computer science skills and techniques to solve a real-world problem
- Develop communication and technical presentation skills
- Learn how to effectively lead a project from start to finish
- Learn about and master the project development/research stages/cycle

MAJOR TEACHING METHODS
Discussion, reading, writing.

SPECIAL INSTRUCTIONAL PLATFORM/MATERIALS
Google Drive, Git, Trello

LEARNING RESOURCES

- Me (in-class, email, office hours, by appointment).
- Online resources.
CLASS ATTENDANCE AND PARTICIPATION
It is your responsibility to attend classes regularly. Should you have to miss a class meeting, please notify me of your absence prior to the class, and it is your responsibility to find out what has been taught that day and make up the work. In case of emergency, please contact me by E-mail or phone as soon as you can.

EVALUATION
GRADE DISTRIBUTION
Final Project presentation and technical/research paper: 100%

GRADING SCALE

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Note: blue numbers mean exclusive

NOTE: If you have an issue with a grade on ANY individual assignment, you must see me within three days of the grade being released to the class.

CALENDAR FOR A TECHNICAL PROJECT (TENTATIVE)
Brainstorm the problem and its solution  Weeks 1 - 4
Design the solution  Weeks 5 - 9
Develop the solution  Weeks 10 - 17
Deploy, test and add features  Weeks 18 - 25
Refine and write technical report  Weeks 26 - 29
Final paper and presentation  Week 30

CALENDAR FOR A RESEARCH PROJECT (TENTATIVE)
Brainstorm the problem  Weeks 1 - 3
Read and survey  Weeks 4 - 8
Explore possible solutions  Weeks 9 - 15
Design and develop the solution  Weeks 16 - 24
Write a research paper, refine the solution  Weeks 25 - 29
Final paper and presentation  Week 30

FINAL PROJECT
The final project is the report that is structured as a technical or research paper and covers the solution that the students designed and developed.

COURSE POLICIES
You are expected to adhere to the code of academic honesty of Arcadia University.

You may discuss course material and help one another. However, borrowing others’ code or sharing implementation details is absolutely not allowed. A simple way to avoid inadvertent plagiarism is to talk about the assignments, but don’t read each other’s work or write solutions together. For example, if two people share the same code or implementation details, both parties will be considered as conducting plagiarism.
If you are not sure, check with your instructor. Finally, I reserve the right to ask you to explain your assignments/code to me.

**UNIVERSITY PLAGIARISM POLICY**

When you use (for example, quote or even summarize or paraphrase) someone else’s media, words, data, ideas, or other works, you must cite your source. You should be especially careful to avoid plagiarizing Internet sources (for example, e-mail, chat rooms, Web sites, or discussion groups). It does not matter whether you borrow material from print sources, from the Internet, from online data bases, or from interviews. Failure to cite your source is plagiarism. Students who plagiarize may receive an “F” or a “0” for the assignment, or an “F” for the course. View the University Plagiarism Policy: [http://handbook.arcadia.edu/node/129](http://handbook.arcadia.edu/node/129)

**HONESTY**

Copying assignments or allowing your assignments to be copied by others constitutes cheating and as such will not be tolerated. Faking your program so that it produces the sample output without implementing the underlying process is also cheating. The penalty for cheating in this course is the automatic grade of an F for your assignment. If you are caught a second time, you will automatically fail the course.

**DISABILITY ACCOMMODATION**

Any student who feels s/he may need an accommodation based on a disability should contact Disabilities Support Services in the Office of Academic Development in Knight Hall to coordinate reasonable accommodations for students with documented disabilities.

**TITLE IX STATEMENT**

Arcadia University is committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University’s Title IX Coordinator. The only exceptions a faculty member’s reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project.

Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at [https://www.arcadia.edu/university/policies-guidelines/title-ix](https://www.arcadia.edu/university/policies-guidelines/title-ix).

**OFFICE ETIQUETTE**

**Do NOT write code or do your assignments in my office unless I explicitly ask you to.** Some students wish to sit in my office (or at an empty desk around my office) and have me fix each problem as they code. You learn nothing by doing this; you must at least attempt to solve your problems yourself before coming to me.