2014-2015 Advanced Computer Science Topics/Projects Syllabus

1. Overview

Welcome to Advanced Computer Science Topics/Projects (colloquially known as AP++)! As students who have already completed and excelled in AP Computer Science, you will now have the opportunity to explore the breadth and depth of topics and technologies in the world of computer science. This course will be primarily student-driven and will provide you with a chance to challenge yourself in whatever ways you choose. Your course staff will provide guidance and resources, but you may quickly find yourself becoming more of an expert in the concepts you are working with than we are!

1. Classroom Expectations
   1. Student Behavior

As advanced-level students, you will be allowed and expected to manage your own experience in this class. In particular, you will be responsible for:

* Researching and selecting your own projects.
* Setting reasonable scope expectations and deadlines.
* Ensuring you are making adequate progress toward your deadlines.
* Participating in all aspects of class.
* Contributing to class-wide resources.

The course staff will act in a primarily advisory role in this course, helping you to take on reasonable projects and find the resources to complete them. However, we are not experts in every technology, language, and toolset in existence, so do not expect that we will have all the answers. Instead, we will offer guidance as to how solutions to your problems can be found and what resources might be good starting points.

1. Coursework/Grading
   1. Project preparation and tracking (40% of grade = 10% x 4)

For each project you undertake in this course, you will be expected to:

1. Deliver a complete, well-researched, and reasonable proposal detailing what you hope to accomplish and what you will need to be successful.
2. List all work items in a course repository, and keep the list up-to-date throughout the project.
3. Regularly check code into a course repository, and request code reviews from a classmate each time you check in.
4. Produce a “retrospective” (written and/or presented) at the end of each project describing what you accomplished, what you learned, and how you will improve next time.

Each instance of these items will be graded as Satisfactory or Unsatisfactory, and each above category will contribute 10% to your overall course grade.

* 1. Project deliverables (40% of grade)

For each project, you will be expected to deliver a complete implementation by the deadline accepted in the project proposal. Each deliverable must be a complete, functional solution, though additional features can be added in a future project. Each deliverable will be scored qualitatively by the course staff on a scale of 0-20, based on criteria including but not limited to:

* Extent to which the deliverable meets the spec
* Extent to which the code is well-written and well-documented
* Completeness of functionality
* Difficulty of project

Project deliverables will collectively contribute 40% to your overall course grade.

* 1. Participation components (20% of grade = 10% x 2)

In addition to the project work, you will be expected to participate in two regular class activities twice each week.

* + 1. Standup meetings

Twice each week, we will have a class-wide “standup” meeting in which all students will describe the current state of their project and what their next steps will be. These meetings will take no more than 15 minutes and will be conducted while physically standing (to encourage brevity). At each standup, you will be expected to explain what you have accomplished recently, show appropriate progress since the last standup, and describe anything that is impeding your progress. You should offer assistance to others if you have ideas or experience that could help them with issues they are encountering.

* + 1. Technology research and discussion

Twice each week, one student from the course will find and post to the course forum an interesting article on technology, computer science, or another related topic. This responsibility will rotate through the class, and each student will provide the article at least 2-3 times per semester. The original poster, in addition to linking to the article, will offer a question or observation to start a discussion among the class. After each article is posted, all students should respond and contribute to the discussion in a meaningful way. While only a single response to each article per student is required, you are highly encouraged to continue contributing to the conversation.

Each instance of the above items will be graded as Satisfactory or Unsatisfactory, and each above category will contribute 10% to your overall course grade.

* 1. Lectures (ungraded)

Occasionally, a member of the course staff or a guest speaker will deliver a lecture or mini-lecture on a topic of relevance to the class. You will be able to offer your input into which topics are covered. When a lecture or mini-lecture is being given, you are expected to be attentive and respectful of the speaker, as you would in any other class.