Course Syllabus

Course Title:	Honors Advanced Topics
Instructor:	Mr. Brandon Petcaugh
Class Meeting Time:	Daily (7 times per cycle)
Text:	None

Description:

Honors Advanced Topics is designed to prepare students for the rigor of an undergraduate computer science major. Students are still welcome to take the course who have no interest in pursuing a degree in the subject matter, but that is the stated intent of the course design. Students will be conducting independent research on a variety of topics, which will culminate in the early parts of the Spring semester. While students are researching their chosen topics in the evenings, they will be led through various concepts during class time. These will differ from year-to-year, but may include: working as a group to build websites for non-profit organizations, learning helpful programming languages that were not covered in other courses, diving into current hot-button topics in the world of computer science, or participating in different competitions.

Objectives:

Upon completion of this course, students will be able to…

1. Design and implement computer-based solutions to problems
2. Select appropriate algorithms and data structures to solve problems
3. Code fluently in a procedural programming paradigm
4. Design and implement proper version control on larger code bases
5. Conduct undergraduate level research on a computer science related topic
6. Extract information from data to discover and explain connections or trends
7. Develop efficient techniques for learning new and challenging material

Demonstration of Learning:

The course will consist of a variety of assessment methods, including: projects, group work, and exams. The majority of the course has a project/lab associated with each unit. Those projects will make up the bulk of the student grade. There will also be a thread of advanced programming work throughout the year, which will be completed in whichever programming language the student chooses.

General Course Outline:

1. Beginning Research
2. Web Design Structure/Libraries/Workflow (PHP/Javascript)
3. Continuing Research
4. C/C++ and Operating Systems
5. Finalizing Research
6. Possible Competitions throughout the school year

Additional Course Policies and Procedures:

A. Technology

This course will utilize a variety of IDE's and other software, all of which will be available on Windows, Mac, and Linux. Class time will be used to make sure students are downloading and using the proper software. Personal computers need to be updated, and charged, before class begins each day. Also, some sort of internet access needs to be available outside of school, at home or otherwise. Cell phones should be kept out of site, and out of mind, for the duration of the class.

B. Late Assignments and Missed Exams

In a college-level course, late assignments will not be accepted. Starting from the posted date/time of the project, students will have an additional 24 hours to submit the assignment. This 'grace period' is to allow for most circumstances, including accidentally submitting an incorrect assignment, or being absent on that particular class day. There is no credit for work submitted after that grace period.

[**Further Details**: If the student is absent from school on the date that an assignment is due, the assignment is still expected to be submitted digitally at the time of day designated on Schoology (whether through Schoology, or by attaching the assignment to an email). Exceptions to this rule would include: extreme medical situations, an extreme circumstance, approved field trips, and/or in the case where the student produces a doctor's note after a school absence. If this occurs, the due date will be determined on a case-by-case basis. If a student misses class for a planned field trip, whether academic or sports related, they must hand in the assignment *before* they attend the trip (extensions will not be given for planned absences). Technology issues (computer/software/printer/internet related) that produce a late assignment will <u>not</u> be taken into consideration. If a student misses an exam, they must make up the exam on the day that they return to class. It is up to the student to contact the instructor and find a free time to take it. Failure to do so will result in a reduced grade. Extended absences, and/or extreme circumstances, will be handled on a case-by-case basis.]

C. Group Work

On the occasion that students are asked to complete group work, each member of the group still needs to submit a full copy of the work completed. For the duration of the assignment, each student should have full access to the group's work, to avoid issues where a particular student is absent,

or accidentally misplaces content. (As a side note, it is always a good idea to have your class work backed up with multiple devices or services.)

D. Academic Integrity

Cheating will not be tolerated under any circumstances, and a grade of zero will be given to all students involved. More details can be found in the 'Student Handbook.' Because programmers often take small snippets of code from the internet, this particular case will be addressed in class more thoroughly (with detailed descriptions provided in Schoology).

E. Calculation of Course Grade

Grade	Point Range	GPA Pts AP	Description
A	94-100	4.5	Superior
A-	92-93	4.25	Excellent
B+	89-91	4	Very Good
B	86-88	3.5	Good
B-	84-85	3.25	Good
C+	80-83	3	Above Average
C	77-79	2.5	Average
C-	75-76	2.25	Average
D+	73-74	2	Below Average
D	70-72	1.5	Poor
F	69 and below	0	Failing