Computer Science II

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Introduction
Welcome to Computer Science! This course will reinforce the fundamentals of Computer Science and introduce and explore frontiers in the science. This document will describe course expectations and projected units of study.

Course documents, including announcements and assignments, will be posted to the course website. Code will be shared via GitHub: https://github.com/Boustrophedonic/CS_2_Share. You are encouraged to set up your own Git account and to push your work to it throughout the semester. This will provide a safe backup, an easy way to share code with others, and a public record of your progress.

There is no official textbook for this course. Any relevant materials will be provided to you.

Expectations & Participation
I expect you to attend class regularly. Excessive unexcused absences will necessarily result in poor grades. I expect you to be prepared for class. If you have one, please bring your laptop and pens/pencils to each class. There are some SW provided laptops, but *they are for the CS program only.* It will be very helpful to be able to handwrite on occasion. Any OS is acceptable.

I expect you to be a vocal and active member of the class. Your engagement will directly correlate with your mastery of the course material.

Finally, I expect you to be respectful of the instructor, other classmates, the school, and belongings of all three. Attempts to deface or purloin belongings, or to denigrate any individual, will be met with immediate disciplinary action.

Assignments & Grading
You are responsible for completing and submitting all assignments. You are expected to design and implement your own solutions to any and all problems. You may discuss concepts and get help with syntax errors from myself or other students. However, mastery of the material is accomplished by completing assignments on your own.

Grading for each unit of study will be calculated on a *total points* system. Grades will be based on homework, projects, tests and quizzes, and classwork and class participation. Assignments will be weighted approximately as:

- Homework: 10 points
- Projects: 100 points
- Classwork: 3 points per day

You can expect four projects through the course of the semester. These are intended to be thought-provoking and intellectually challenging assignments, and are not simple question-and-answer responses. I **strongly** encourage you to begin an assignment well before the due date; your actual submission may be short, but it will take some work to get to a solution.

Assignment point values will vary based on length and complexity. All assignments will be graded. All homeworks are due at the beginning of class on the due date. If homework is not submitted by the beginning of class, it will be considered late.

Projects are due by midnight of the due date, submitted via course dropbox. If a project is not submitted by 12:00 AM, it will be considered late.

The lateness penalty is five percent of the original maximum attainable score per day.

Recommended Software
This course will be conducted using the Java programming language. This free, cross-platform language is the most commonly used language in the world. Though it may seem temperamental at times, Java is a "safe" language; it forces you to have tight control over your program at all times. It's the Jack of all Trades of programming languages.

I will be using, and I strongly recommend that you use, the Eclipse IDE for this course. This is free, and can be downloaded here: https://www.eclipse.org/downloads/ Simply click the Download button to get the Installer file, then run the installer. Choose **Eclipse IDE for Java EE Developers** when presented with the install options. Though we'll only be working with elements of Java SE, the EE version of Eclipse has some additional useful features.

Extra Credit
You are encouraged to use your imagination and add unique elements to your assigned work. Extra credit points will be granted for unusually sophisticated solutions, bonus features, or unique behaviors to your projects. The amount awarded will be subjective based on the complexity and nature of your improvements. No extra credit will be awarded for trivial additions, only for those that demonstrate mastery beyond the required content.

Per Schechter policy, there will be no optional bonus assignments.

Cheating
Cheating and plagiarism will not be tolerated in any form. Students caught cheating will be disciplined in strict accordance with the guidelines set in the Student Handbook. Such instances are quite serious and inexcusable. If you are experiencing difficulty with the material, you are encouraged to seek help from the instructor.

Instructor
It is my belief that the instructor's role extends well beyond lecture. You should feel free to contact me at any time with problems, questions, or comments. I am not infallible, and would welcome any meaningful discussion. I am *always* available to help; it is my duty to see that you understand and appreciate the material. *The best way to get in contact is typically via email*.

Unit Outline
The below is a general idea of the topics covered in this course. The following is subject to change as necessary.

I. Quick Review of Programming Fundamentals

II. Inheritance
III. Threading
IV. Advanced Algorithms
V. Artificial Intelligence
    a. Vocabulary/Properties of AI Problems
    b. Uninformed Searching – BFS and DFS
    c. Informed Searching – A*, Hill Climbing
    d. Adversarial Searching – Minimax with α-β Pruning