AP Computer Science A Course Expectations

Teacher Name and Contact Information:

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Course Description:

This two-trimester course, which follows the Advanced Placement curriculum, is designed for a student who wants to expand his or her computer programming knowledge. The course emphasizes object-oriented programming methodology with a concentration on problem solving and algorithm development, and is meant to be the equivalent of a first-semester college-level course in computer science. This class prepares students to take the AP Computer Science A exam on **Thursday, May 6, 2021.**

The TEALS AP CS A curriculum is derived from University of Washington's CSE 142/143 course for computer science majors. Students should plan on devoting at least half an hour per day outside of class to succeed in this course. *This is one of the hardest and most rewarding classes students can take in high school. :)*

Prerequisite:

Successful completion of Accelerated College Prep Algebra 1

Textbook/Resource Material:

Reges and Stepp. Building Java Programs. (2016). Pearson ← Provided by the school
Additional resources will be provided via Google Classroom so be sure to check this daily.

Software:

We will be using various digital tools in this class. All are free and either cloud-based (for use on your chromebook), previously installed by our IT department (on the school-issued laptops) or installable on your own home device.

Essential Course Objectives:

By the end of this course, you will:
1.   Communicate about computing ideas.
2.   Recognize and define computational problems using algorithms and programming.
3.   Create computational artifacts using algorithms and programming.
4.   Develop and use abstractions.
5.   Collaborate with diverse teams.
6.   Test and refine computational solutions.
7.   Communicate about computing systems.
8.   Test and refine computing systems.
9.   Develop and use abstractions in computing systems.
10.   Create and modify computing systems.
11.   Create computational artifacts using data and analysis.
12.   Recognize and define data in computational problems.
13.   Communicate about data in computing.
14.   Develop and use data abstractions.
15.   Understand the impact and effect computing technology has on our everyday lives.
16.   Experience learning within a collaborative, inclusive computing culture and explain the steps needed to ensure that all people have access to computing.
17.   Understand the importance of proper use of data and information in a computing society.

Unit Name	Unit Topics
Primitive Data Types	This unit focuses on writing the main method and calling pre-existing methods to produce output. Students will start to learn about three built-in data types and learn how to create variables, store values, and interact with those variables using basic operations.
Using Objects	This unit introduces a new type of data: reference data. This unit builds on students' ability to write expressions by introducing them to Math class methods to write expressions for generating random numbers and other more complex operations. In addition, strings and the existing methods within the String class are an important topic within this unit.
Boolean Expressions and if Statements	Algorithms are composed of three building blocks: sequencing, selection, and iteration. This unit focuses on selection, which is represented in a program by using conditional statements. In addition to learning the syntax and proper use of conditional statements, students will build on the introduction of Boolean variables by writing Boolean expressions with relational and logical operators.
Iteration	This unit focuses on iteration using while and for loops. This unit introduces several standard algorithms that use iteration.
Writing Classes	This unit will pull together information from all previous units to create new, user-defined reference data types in the form of classes. This unit focuses on identifying appropriate behaviors and attributes of real-world entities and organizing these into classes. The legal and ethical concerns that come with programs and the responsibilities of programmers are also addressed in this unit.
Arrays	This unit focuses on data structures, which are used to represent collections of related data using a single variable rather than multiple variables.
ArrayList	The ArrayList object has a dynamic size, and the class contains methods for insertion and deletion of elements, making reordering and shifting items easier. In this unit, students will also learn about privacy concerns related to storing large amounts of personal data and about what can happen if such information is compromised.
2D Array	In the previous Unit, students learned how 1D arrays store large amounts of related data. These same concepts will be implemented with two-dimensional (2D) arrays in this unit.
Inheritance	In this unit, students will learn how to recognize common attributes and behaviors that can be used in a superclass and will then create a hierarchy by writing subclasses to extend a superclass.
Recursion	In this unit, students will revisit how control is passed when methods are called, which is necessary knowledge when working with recursion.

The AP Computer Science A Exam assesses student understanding of the computational thinking practices and learning objectives outlined in the course framework. **The exam is 3 hours long and includes 40 multiple-choice questions and 4 free-response questions.** As part of the exam, students will be given the Java Quick Reference which lists accessible methods from the Java library that may be included in the exam. The details of the exam, including exam weighting and timing, can be found below:

Section	Question Type	Number of Questions	Exam Weighting	Timing
I	Multiple-choice questions	40	50%	90 minutes
II	Free-response questions	4		90 minutes
	Question 1: Methods and Control Structures (9 points)		12.5%	
	Question 2: Class (9 points)		12.5%	
	Question 3: Array/ArrayList (9 points)		12.5%	
	Question 4: 2D Array (9 points)		12.5%	

Daily supplies:
- Charged device and charger
- Scientific calculator (recommended)
- Spiral Notebook or 3-Ring Binder
- Textbook

Formative (homework) Expectations: Count as **10%** of the overall grade
- Assignments should be completed on time and submitted appropriately.
- Assignments are the practice that make learning occur - they may or may not be graded.
- Mastery happens over time, so stick with it!

Assessment Practices:

    Summative (Unit Tests and Exams): Count as **60%** of the overall grade

    Benchmark (Quizzes and Programming Projects): Count as **30%** of the overall grade
- Corrections can be made on assessments. Corrections on Summative Unit Tests will earn back partial credit for each problem that was incorrect.

Grading Policy: (aligned to district scale)

Grade	Range		Grade	Range		Grade	Range
A	92-100		B-	80-81		D+	68-69
A-	90-91		C+	78-79		D	62-67
B+	88-89		C	72-77		D-	60-61
B	82-87		C-	70-71		F	59-0

Academic Supports:

    Four volunteer professionals, provided by the TEALS program, will be working with us this year. They are experts in computer science and happy to provide additional support. You will be given specific ways to contact them with questions and at least one of them will be with us in class every day. You are expected to treat them with respect and make them feel welcome.

Academic Integrity:

    The West De Pere School District promotes and expects ethical behavior from all students, valuing honesty and integrity. Dishonest and unethical behavior, such as lying, cheating, or plagiarism, will not be tolerated. All incidents will be documented and the student(s) will receive zero credit on that assignment or assessment. Students will be required to demonstrate mastery of the standards as determined by the teacher and administrator through an alternative retake/redo.

Extra Credit:

    You may have the opportunity to provide additional evidence that demonstrates new or deeper understanding of the established academic standards. However, such opportunities may not be used to improve a grade in the absence of having met the established academic standards.

Google Meet Expectations:
- Always use your school-issued chromebook or laptop for Meets.
- Be on time and be somewhere that is free of distractions.
- Keep your microphone muted unless you are speaking to the teacher.
- Wear school appropriate clothing and make sure your background is appropriate for a school setting.
- Leave your camera on during instruction so your teacher can see you and ensure your participation.
- Only use the chat to ask or respond to teacher questions. It will be monitored at all times.
- Be kind to others. If it wouldn't be appropriate in class, it is not appropriate in Meet either.
- If you miss a Meet, check in with your teacher ASAP.

Google Classroom:
- All work, videos, notes, and announcements will be posted in Google Classroom.
- Parents/guardians can sign up to receive Google Classroom summaries if they wish. These summaries show the work assigned and any class announcements. To check whether your student has any missing work, please go to Powerschool
- The link to the Google Meets for each class period can be found at the top of the Google Classroom page in the box with the course title.

Student Expectations:
- Students will understand the district and classroom grading policy.
- Attend Google Meets as planned in the weekly lesson plan.
- Complete assignments and homework by date set by teacher.
- Attend small group meetings on Fridays if requested by the teacher.
- Check and respond to emails daily.
- Students that need support with their chromebook (cracked screen, program issues, power issues) or need equipment (chromebook, charger, mouse) please contact Mrs. Knapp (aknapp@wdpsd.com).
- Students are to follow the expectations established by the district both onsite and in the virtual environment.
- Students will establish healthy routines regarding sleep, social media use, employment, exercise, and mental wellness to be prepared for school each day.

Teacher Expectations:
- I will come prepared for class each day
- I will provide assistance during work time
- I will help before or after school by appointment
- I will treat you with respect
- I will update Powerschool in a timely manner
- I will provide quick feedback on assessments

How can parents/guardians be engaged in their student's learning:

Support the expectations of your student as listed above

Check PowerSchool every week and discuss grades with your student

Encourage your student to be responsible by advocating for themselves with their teacher

After student/teacher communication, follow up with the teacher as needed

Attend parent teacher conferences as needed