Computer Science Principles and Computer Programming Course

East Valley Institute and Technology, Mesa, Arizona

Main Campus, Building 1, Room 2045

Class times: 8:05 am-10:35 am and 12:05 pm to 2:35 pm

Instructor: Ms. Elizabeth Barber

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Office hours: 7:30 am-8 am, 10:40 am-11:00 am, 11:45 am-12:05 pm, 2:40 pm-3 pm

Course Description

Students design and implement innovative solutions using an iterative process similar to what artists, writers, computer scientists, and engineers use to bring ideas to life. This course covers the fundamentals of computer science and its impact on people, society, and innovation. Course topics include: algorithms, abstraction, elementary logic, generating and analyzing computational artifacts, digital security and privacy, computer networks, data encoding, creative and ethical computing, and using programming languages to develop computational artifacts. The course focus is on creativity. This course focuses on using technology and programming as a means to solve computational problems and create exciting and personally relevant artifacts. While many of these topics can be quite complex, this course will focus primarily on providing a high-level overview of each topic no prior knowledge of computer science is necessary.

Units:

There are six units in this course.

1. The Internet

2. Digital Information

3. Algorithms and Programming

4. Big Data and Privacy

5. Building Programs

6. Performance Tasks/Final Exam Preparation

Computational Thinking Practices

These are the building blocks that connect this course to concepts used in computing every day.

1. Connecting computing

2. Creating computational artifacts

3. Abstracting

4. Analyzing problems and artifacts

5. Communicating

6. Collaborating

Big Ideas

These are the big concepts addressed in this course. The big ideas breakdown further into enduring understandings and learning objectives.

1. Creativity

2. Abstraction

3. Data and Information

4. Algorithms

5. Programming

6. The Internet

7. Global Impact

NOT a "computer programming only" class

There are two AP Computer Science Courses. The AP Computer Science A course and exam is only programming in Java. This is the AP Computer Science Principles course and it will complement AP Computer Science A as it aims to broaden participation in the study of computer science covering many topics including learning the syntax of a programming language to be fluent in understanding the organization of all computer languages.

Class Organization/Important Notes:

- Hands on, individual work, group work - expect a LOT of collaborative work
- Homework could include: reading books and articles, journal entries, brief research topics (not every day, 15 - 60 minutes)
- Interactive activities with and without the computer
- Analysis, evaluation and discussion of computational artifacts we encounter everyday (not just creation of programs)
- Creation of computational artifacts

Daily preparation for class:

- Use of classroom website for information, help tools, homework, assignments
- Online journal using Google Docs

- Online vocabulary log using Google Docs
- Textbook: Blown to Bits (available free online)

How will you be graded?

You will be assessed using two main categories, practice and performance.

Performance includes such items as: projects, programs created, presentations, and exams.

Practice includes in class activities, small assignments, draft technology tools, journal, vocabulary, quizzes, etc.

Practice = 15%

Performance = 85%

The combination of these two categories will account for 80% of your final course grade. The additional 20% will consist of your final exam. Your final exam will consist of the two

AP performance tasks and a final multiple choice exam.

ALL practice assignments and quizzes must be completed prior to unit exam and performance tasks. NO late work will be accepted past the unit exam and performance tasks.

Completion of Work and Incompletes

In order for grades to be accurate, all performance assignments must be completed before a grade can be issued. If all performance assessments have NOT been completed, an Incomplete (I) will be recorded as 0 points.

Conclusion

This standardized scale will help bring much-needed consistency and clarity to the marks that students are given in each course and on each assignment. Furthermore, you will be able to directly compare their classroom grades to their overall historic GPA marks. If you have any questions or need clarification, please contact your student's teacher.

Curriculum Overview and Goals

Computing affects almost all aspects of modern life and all students deserve access to a computing education that prepares them to pursue the wide array of intellectual and career opportunities that computing has made possible. Here is a brief summary of each of the units in the Code.org CSP curriculum.

Teacher Expectations

Students are expected to be aware of, understand, and follow all relevant school policies and procedures for EVIT and MCC. In the classroom, Ms. Barber expects all students to treat the teacher, classmates, and property respectfully and to contribute to a safe and welcoming learning environment. Procedures will be introduced for the various aspects of the classroom and learning activities.

Working in teams and collaborating with others are essential life and work skills that are critical for students to develop. Students will be expected to participate in discussions, problem solving, brainstorming, etc. and need to be open to the views of others, respect the uniqueness of their classmates, appreciate the opportunity to learn from others, and always communicate in a respectful manner.

In the case of absences or circumstances requiring an accommodation students will be prompted at least twice to complete required work. Students will have two days for each day absent to make up any missed work without any grading penalty. Any work completed three days after an absence will be penalized 10% of the potential points available for the work missed. However, beyond the three school days after an absence (unless previously discussed with and approved by Ms. Barber) a grade of 0% will be assessed for the missed work.

Students are expected to complete quizzes and tests independently. Any cheating will result in a 0% grade for the quiz or test.

Grading

There are several types of assessments that will be completed during the semester. Points will be assigned with rubrics for each assignment or assessment.

Coding: Students will be tasked with project-based learning (PBL) depending on their level such as web design (HTML, CSS, and JavaScript), Python, SQL, and Java.

Papers and Presentations - Students will be graded on English grammar for any written assignments along with presentations based off of APA formatting, please refer to Purdue Online OWL Writing Lab for citations and plagiarism rules.

Rubrics for papers, presentations, and assignments will be supplied to student regarding teamwork and participation throughout the semester with a weighted average.

Class participation and group work - Students are expected to work together collaboratively and this is the basis for any organization going forward that the student will go into be it the career, technical, or academic world. If a student cannot work together or refuses to work in a go it alone mentality they will have their grade drop by level. For example, if they have aced everything, but, cannot work together with their peers regularly, their grade will be dropped the lower grade, for example, A would then be a B in this class.

Computer Facilities

Our classroom is also our lab—we find this to be very conducive to learning. We have our computers around the outside of the room, with the center set up in a traditional classroom fashion. Our lab and the labs around campus are managed and maintained by a full-time tech staff. They save us countless hours and ensure that we are up and running 100 percent of the time. This course is on a tight schedule; any downtime during lab is extremely detrimental to student learning, as a minimum of 12.5 weekly hours of course time is dedicated to hands-on labs.

Required Reading

- Blown to BITS

Policies

No make-up exams (except for documented medical or family emergencies) will be offered nor will there be any changes made to the Final Exam schedule. Ms. Barber will assess students and it is required that students either complete in class with their class to receive assessment grades.

The labs will be posted online under the "Assignments" section. Each lab will include instructions, a due date, and a link for electronic submission. Labs must be submitted using this link. Do not email them to the lecturer or lab assistant.

Assignments turned in one day late will have 10% of the total points deducted from the graded score. Assignments turned in two days late will have 20% of the total points deducted from the graded score. Assignments turned in three days late will have 50% of the total points deducted from the graded score. After three days, submissions will not be accepted and you will receive a 0. Students are free to attend any of the lab times offered. However, in the case of lab overcrowding, students assigned to that lab session have priority.

BYOD and cell phones in classroom

Mobile devices are a right, not a privilege. Equal doesn't always equal fair in this class. This is due to different learning styles, learning needs and accommodations. Students will be expected to use devices in this classroom, if a student violates the rules and expectations in this classroom students may have to be assigned paper form assignments. IF a student cannot work together with their peers, they may have their personal device privilege removed and assigned long-boring readings until they prove they can have access to their personal devices. The instructor is not responsible for lost, broken, stolen devices and any device brought into this classroom is at the discretion of the student and their guardian.

It is suggested for students to bring in their own laptops/netbooks for computer class. At times, the teacher may request students to use cell phones for assessments and learning. Students are required to have phones put away during most instruction. At times, the teacher may permit the mobile phone to be used in the classroom for Kahoot.it

Plagiarism and Copyright Infringement

- Students will not plagiarize works that they find on the Internet. Plagiarism is taking the ideas or writings of others and presenting them as if they were original to the user.
- Students will respect the rights of copyright owners. Copyright infringement occurs when an individual inappropriately reproduces a work that is protected by a copyright. If a work contains language that specifies acceptable use that work, the users shall follow the expressed requirements. If the users are unsure whether or not they can use a work, they shall request

permission from the copyright owner. If there are questions, ask your technology and coding teacher.

Netiquette

Netiquette is a set of rules for behaving properly online. Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Working as a community of learners, we can build a polite and respectful course community.

The following netiquette tips will enhance the learning experience for everyone in the course:

- Do not dominate any discussion.
- Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Popular emoticons such as ☺ or / can be helpful to convey your tone but do not overdo or overuse them.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Never make fun of someone's ability to read or write.
- Share tips with other students.
- Keep an "open-mind" and be willing to express even your minority opinion. Minority opinions have to be respected.
- Think and edit before you push the "Send" button.
- Do not hesitate to ask for feedback.
- Using humor is acceptable

Academic Integrity

EVIT seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles.