AP CSA Course Syllabus
Collegiate School of Medicine and Bioscience
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Course Description

Computer science embraces problem solving, hardware, algorithms and perspectives that help people utilize computers to solve real-world problems in everyday life. The AP Computer Science A course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design. These techniques represent proven approaches for development solutions that can scale up from small, simple problems to large, complex problems.

Outcomes
By the end of this course, students will be able to:
- Design and implement computer-based solutions to problems.
- Use and implement commonly used algorithms and data structures. Develop and select appropriate algorithms and data structures to solve new problems.
- Write solutions fluently an object-oriented paradigm.
- Write, run, test and debug solutions in the Java programming language
- Read and understand programs consisting of several classes and interacting objects
- Read and understand a description of the design and development process
- Understand the ethical and social implications of computer use.

Required Texts & Resources
CSAwesome E-book
- Online text: CSAwesome Runestone Course (Available for free)
  Login: FIRSTNAME.LASTNAME (case-sensitive)
  Password: rubberduck (temporary, until changed)

My AP (CollegeBoard) – AP-aligned questions and resources
- https://myap.collegeboard.org
  Code: 9RXD3Q

CodingRooms
- Coding assignments and labs will be submitted on CodingRooms. You can use your own IDE if you prefer, but assignments and demos will be on CodingRooms.

AP Exam Date & Time

Lab Component:

The course includes a structured-lab component in which students will complete a minimum of 20 hours of hands-on lab experiences. The curriculum has small coding assignments called Programming Challenges in each lesson, which they are encouraged to do using pair programming. In addition, students will complete at least three of the following College Board AP Computer Science A labs, as chosen by the students' interests, to complete a minimum of 20 hours:

- [MagPie Chatbot Lab](#)
- [Picture Lab](#)
- [Consumer Review Lab](#)
- [Celebrity Lab](#)
- [Steganography Lab](#)
- [Data Lab](#)

Course Outline

The CSAwesome course follows the AP CSA unit outline and content as provided in the AP CS A Course and Exam Description. The units that follow interweave the five AP CS A Computational Thinking Practices of Program Design and Algorithm Development, Code Logic, Code Implementation, Code Testing, and Documentation with the four Big Ideas of Modularity, Variables, Control, and Impact of Computing:

	# of 90 min class periods
- Unit 1. Getting Started and Primitive Types	~4-5
- Unit 2. Using Objects	~6-18
- Unit 3. Boolean Expressions and If Statements	~5-7
- Unit 4. Iteration (Loops)	~7-8
- Unit 5. Writing Classes	~6-8
- Unit 6. Arrays	~6-8
- Unit 7. ArrayList	~5-6
- Unit 8. 2D Arrays	~5-6
- Unit 9. Inheritance	~7-8
- Unit 10. Recursion	~3-5
- Unit 11. Preparing for the Exam	~3

Grading Formula

Unit Exams (4-5 per semester) – 40%
Classwork (Labs, Quizzes, Programs, etc.) – 40%
Cumulative Semester Final – 20%

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Less than 60%

Expectations

Be Respectful. This applies to the teacher and to your fellow students. Being respectful means that you follow directions, stay awake and on task, pay attention, use appropriate language, and respect the classroom and supplies. This includes never having food or drink at any desk area in the computer lab area.

Be Prepared. You must come to class on time everyday with your required supplies. Your homework should be completed when you come to class, ready to be collected. Take careful notes and keep track of the class calendar so that you are prepared for upcoming assignments and exams.

Be Responsible. If you feel that you do not understand a new topic, reach out to me for help. Take care of the items you are using in your classroom. Ask for help when you need it, and seek out resources. Take ownership of your learning.

Participate. The best way to learn is to **try**! It is **OK** to be wrong, that is why we are in class. Please be willing to ask questions when you need clarification, and be proactive in class by doing your best to answer questions.

Practice Integrity. Always turn in your own work. Don't tell people the answers; explain the process to them so they can learn how to find the answers themselves.

Procedures

Homework Policy: You will be assigned projects that require work over several class periods. You will be provided sufficient time in-class to complete assignments. Students who need access to technology outside of class time to complete work can make arrangements to visit the Computer Science Lab outside of class time (after-school, study hall).

If Absent: If you miss class, you can find your missed homework assignments on Google Classroom. All work will be posted and available on Microsoft Teams. **It is your responsibility to find out if there is any in-class work you need to make up.** You will be able to turn in missed assignments within one week of your absence at no penalty.

Tutoring: If you are having trouble and need extra help, please let me know, and we can make arrangements. Visit my classroom and/or send me an e-mail.

Late Work: Student work may be entered into th gradebook as a 0% if incomplete. A plan for completion must be developed with me. If you are having issues, please make arrangements with me **ahead** of time.

Reassessment & Make-up Policy: Students who need to make-up an exam will need arrange a make-up assessment time agreed upon by the student and teacher. It is the responsibility of the student to schedule make-up exams or reassessment.

Academic Dishonesty: All of a student's work is expected to be his or her own. Cheating, in any form, will not be tolerated. If a student is caught cheating, parents/guardians will be contacted and consequences will be consistent with school policies on academic dishonesty.

Core Values

Strong Academic Habits
Collegiate School of Medicine and Bioscience is dedicated to teaching academic habits, which will sustain lifelong learning in students. Student learn how to learn -- whether it be taking notes, studying, or writing -- prepares students for success in college and in life. Our teachers nurture confident and critical thinkers who have mastered academic skills and competencies across a variety of academic disciplines.

Respect
Collegiate School of Medicine and Bioscience offers a safe and inclusive school community where individuals are expected to respect themselves, one another, and our environment. Through personal relationships with diverse groups and individuals, we learn to understand others and ourselves and work effectively as part of a team.

Compassion & Ethics
Collegiate School of Medicine and Bioscience believes that the development of compassion and being of ethical mind –- and the desire to make a positive difference in the lives of others – is essential to being a productive member of a community. Through the study of multiple viewpoints and the act of service, students develop empathy for those around them.

Integrity
Collegiate School of Medicine and Bioscience encourages all members of its community to hold themselves to the highest code of conduct, which includes academic honesty. Led by a commitment to the common good, we strive to do what is right -- even when nobody is looking.

Self-Discipline
Hard work and self-discipline are essential components for success. CSMB challenge students to develop a strong work ethic and the internal motivation to persevere through times of challenge.

Intellectual Curiosity
Collegiate School of Medicine and Bioscience encourages students' natural inquisitiveness and wonder about the world. Asking questions and taking risks is as important as searching for the right answer. With the desire and courage to move confidently into the future, students can adapt to an ever-changing future in pursuit of their dreams.