Course Description:

IB Computer Science SL covers process- and object-oriented coding fundamentals as well as how to work with clients, manage projects, work as part of a team, and represent concepts correctly through things like flowcharts and diagrams, and document your product appropriately. Students will learn to think procedurally, logically, ahead, concurrently, and abstractly. Java is the primary programming language used, though students will have opportunities to explore other languages as well.

In the second term, students will complete an Internal Assessment while working with a real client. They'll also learn about hardware, binary, computer and network architecture, security, and ethics. Any extra time after the IB Exams will be dedicated to fun team-based coding projects of student's choice (and instructor's approval).

Units:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1 | Procedural Coding 2 | Object-Oriented Coding	3 | Necessary Extra's 4 | Project Management	5 | Hardware and Binary 6 | Networks 7 | Security and Ethics	8 | Exam Prep 9 | Team Development

Coding Projects:

- Dance the Foxtrot | Scratch | Control structures, procedural thinking
- Snowman Mural |Blockly | Modularity, control structures, algorithmic thinking
- Madlib | MS Excel or Google Sheets | String processing
- Petunia's Calendar | Java | Java syntax, process-oriented code design
- Pokemon Card Trader | Java | File I/O, text scanning, delineating and tokenizing, object-oriented code design
- Quincer's Game Manager | Java | Text scanning, file I/O, delineating and tokenizing, object-oriented code design
- Super Sorter | Java | Sorting and searching algorithms, inheritance
- Blackjack | Java | GUI, project management, planning, polymorphism, abstraction, and inheritance, agile process
- Team coding | Your choice | Agile vs. waterfall development processes, team management

Applications

The course resources will be organized and available through either Canvas or Google Classroom.

Ideally, students have access to a Windows, MacOS, or Linux computer with the latest version of IntelliJ Community Edition, the Java Runtime Environment (JRE), and the Java Software Development Kit (SDK). Frequently used references websites include GeeksForGeeks, SoloLearn, CSAweseome/Runestone Academy, the Computer Science Crash Course channel on YouTube, Oracle's Java help tutorials, and hopefully not too much Stack Overflow.

Grades

In-course	
Assignments	15%
Coding Projects	40%
Quizzes	5%
Tests	40%

External (IB)	
Internal Assessment	30%
Paper 1 (1.5 hrs)	70 marks – 43%
Paper 2 (1 hr)	45 marks - 27%

Viking Expectations

Choose Respect	Be Responsible	Have Integrity	Actively Engage
• Be on time, attentive, kind, and appropriate. • Clean up after yourself, including storing and charging your laptop correctly.	• Complete classwork and homework regularly; do not let it pile up! • Ask for help as needed! • Try to practice good wellness; take short breaks when needed. Have a quiet designated study space and time if at all possible.	• Read and understand OHS's Academic Honesty Policy (See attached). If you need any clarification on what constitutes plagiarism, cheating, collusion, facilitation, or inappropriate use of technology, please ask! • Help ensure all group members make substantial contributions to lab work. Show leadership, delegate tasks, and manage your time effectively.	• Check your email, Google Classroom or Canvas posts, and grades in Aeries regularly and stay on top of things. • Use the week-at-a-glance documents to plan ahead manage your time. • Get help as needed in Intervention time.

Classroom Routine/Behavioral Expectations	
Starting Class	Check the agenda posted on Google Classroom or Canvas right away. If you're instructed to start a video or activity, please go ahead and do that.
During Class	Fasten your seatbelts and hang on! Ask questions! Slow me down if I'm over-caffeinated that day and you need more time for something. Enjoy. Confusion is a healthy sign you're pushing your thinking. Sometimes it takes a few days for the ideas to click, and in the meantime, go hard at it.
End of class	Plan around how much time you'll need outside of class to meet checkpoints and deadlines. Schedule help with me during Intervention if needed. Reread instructions and double check that assignments are complete, legible (if pdf/photo scans), and are in the correct format before turning them in.