

Coding II

Level 3: Student explored previously; second pathway specific course

Pathway(s): Coding

Description

Coding II challenges students to develop advanced skills in problem analysis, construction of algorithms, and computer implementation of algorithms as they work on programming projects of increased complexity. In so doing, they develop key skills of discernment and judgment as they must choose from among many languages, development environments, and strategies for the program life cycle. Course content is reinforced through numerous short- and long-term programming projects, accomplished both individually and in small groups. These projects are meant to hone the discipline and logical thinking skills necessary to craft error-free syntax for the writing and testing of programs. Upon completion of this course, proficient students will demonstrate an understanding of object-oriented programming language using high-level languages such as FOCUS, Python, or SAS.

Student Learning Outcomes

- 1) Demonstrate an understanding of the program development process and algorithm development.
- 2) Implement programs using analysis and design, testing, coding standards and documentation.
- 3) Write programs with correct syntax.
- 4) Write programs with input/output using a variety of data types.
- 5) Demonstrate the use of different data types.
- 6) Show how operators work with different data types.
- 7) Identify how data is represented in the system.
- 8) Use logical expressions in a program.
- 9) Show how scope/lifetime rules affect code.
- 10) Write programs with multiple decisions and loops.
- 11) Explain program flow.
- 12) Use both system-defined and programmer-defined functions/methods with value and reference parameters in a program.
- 13) Group different data types together in a structure, class or equivalent.
- 14) Write a program with arrays.
- 15) Demonstrate and use recursion in a program.
- 16) Use pointers/references in a program, if applicable.