Student Learning Goal 1: Majors will develop a computational solution to a problem over the entire software lifecycle.

Students will:

- Objective A: Specify and design acceptable computational solutions;
- Objective B: Implement and test acceptable computational solutions;
- Objective C: Describe the execution of fundamental data structures;
- Objective D: Describe which data structure would be appropriate to use and explain why, given a problem;
- Objective E: Describe different programming language paradigms;
- Objective F: Identify and propose solutions to problems involving the human-computer interface.

Student Learning Goal 2: Majors will know the operational details of computer languages and systems.

Students will:

- Objective A: Describe the standard von Neumann architecture;
- Objective B: Describe techniques for coordination and communication among processes;
- Objective C: Describe and use file structures, storage, and indexes;
- Objective D: Perform Boolean logic;
- Objective E: Describe binary representations of data;
- Objective F: Describe the components and functions of an operating system;
- Objective G: Describe the implementation of arrays and fundamental data structures at the system level.

Student Learning Goal 3: Majors will know the theoretical foundations of computing.

Students will:

Objective A: Trace and analyze iterative and recursive algorithms;

Objective B: Identify and describe the limits of computational power;

Objective C: Formally encode information to enable drawing inferences and generalizations.