# CS 1XA3: Intended Learning Outcomes

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Computer Science 1XA3 is an experiential learning based course designed to teach students common tools/skills utilized in the practice of software engineering while learning about underlying theoretical computer science concepts. Students are expected to already have a beginners knowledge of the python programming language (previuos or concurrent enrollment in CS 1MD3 is recommended)

CS 1XA3 has the following Intended Learning Outcomes, i.e.

- students should have the practical skills to
  - Use Un*x command line interfaces to navigate, create and manipulate filesystems
  - Analyze permissions and modes of Un*x filesystems
  - Apply changes to permissions and modes of Un*x filesystems
  - Use ssh/scp to access remote servers
  - Use the Un*x commands grep/find to locate files/text in large filesystems
  - Use the Un*x commands top*/ps/kill to manage system processes
  - Investigate network connections using the Un*x command netstat
  - Manage a code base using git version control
  - Design and implement a simple webpage using HTML, CSS and Javascript
  - Design and implement a simple web server application using the python Django framework
  - Design and implement a simple SQL database
- and students should have enough working knowledge of computer science concepts to
  - Recognize corresponding tree data structures in file systems
  - Recognize corresponding directed graph data structures in git revision commit history
  - Define regular expressions for string enumeration/matching
  - Recognize basic UI principals used in webpage design
  - Define conceptual models (using UML Diagrams) corresponding to module relationships in python code
  - Define basic relational algebra equations corresponding to SQL queries