

**HONOLULU COMMUNITY COLLEGE
INFORMATION AND COMPUTER SCIENCE
STUDENT LEARNING OUTCOMES**

ICS 101: Tools for the Information Age

Upon successful completion of ICS 101, a student will be able to

- Describe the use of computer technology and its impact on society.
- Use proper terminology to describe computer hardware components and their function in processing software instructions and input data.
- Explain why data created on the computer must be saved on a storage device.
- Demonstrate the use of the operating system to manage software files and folders.
- Choose the proper application software to solve a specific problem and/or produce a desired output.
- Produce a document in a variety of formats using word processing software.
- Solve and display the results of a mathematical or financial analysis using spreadsheet software.
- Create a relational data base table with filters, queries and reports that extract and display records.
- Create a variety of electronic slides using templates, background styles, graphics, photographs, and animation effects.
- Demonstrate the integration of different application output.
- Use a browser to navigate and search the Internet for research topics.
- Use an electronic mail program to send and receive messages and attachments.

ICS 111: Introduction to Computer Science I

Upon successful completion of ICS 111, a student will be able to

- Explain the steps involved in the programming process.
- Solve simple problems and express solutions as algorithms.
- Use the fundamental techniques of selection, looping, assignment, input, and output to describe computer processes.
- Describe the fundamental nature of an object.
- Design simple classes.
- Determine necessary instance variables.
- Define constructors appropriately.
- Write algorithms and code in a top-down manner.
- Work with arrays in searching and sorting applications.
- Determine necessary parameters when writing a method.
- Determine the appropriate return value of a method.
- Differentiate an application and an applet in Java.
- Apply the methods of the String class.
- Describe public, private, and protected access modifiers.
- Apply the concepts of GUI based programs.
- Write simple recursive algorithms and methods.

ICS 141: Discrete Mathematics for Computer Science I

Upon successful completion of ICS 141, a student will be able to

- Solve problems in propositional logic.
- Work with truth tables.
- Use Venn diagrams.
- Solve problems in elementary set theory.
- Prove mathematical theorems, including proofs using mathematical induction.
- Solve counting problems using basic counting techniques.
- Solve counting problems using the concepts of permutations, combinations, and binomial coefficients.
- Solve simple recurrence relations.
- Work with reflexive, symmetric, transitive, equivalent, and anti-symmetric relations.
- Determine whether or not a relation is a partial order.
- Find the closure of a relation.

ICS 211: Introduction to Computer Science II (Data Structures)

Upon successful completion of ICS 211, a student will be able to

- Apply data structures and Abstract Data Types (ADT) such as trees, lists, stacks and queues.
- Write programs that manipulate multi-dimensional arrays.
- Define a package and implement that definition.
- Define an interface to describe an ADT.
- Explain the process of defining a class that implements the comparable interface.
- Define an exception class.
- Determine whether to make a checked exception or a runtime exception.
- Explain the quicksort and merge sort algorithms.
- Define complex recursive methods.
- Implement complex recursive methods.
- Analyze complex algorithms to determine their order of magnitude.
- Prove the correctness of a simple algorithm.