Portland State
Computer Science

Credit for Prior Learning (CPL)

While we believe attending classes is the most efficient way to master the material you will be expected to know when you are admitted to the upper division Computer Science program, we recognize that students may have picked up substantially the same knowledge through prior life experiences, self-study, etc. Because of this, we offer Credit for Prior Learning (CPL) for any of our required lower division Computer Science courses (CS162, CS163, CS201, CS202, CS250, and CS251).

Students who have taken and not passed a course from the list provided are not eligible to take CPL. They must re-take and pass the course in order to gain credit.

CS 162: Introduction to Computer Science

- **Credits:** 4
- **Prerequisites:** Prior programming experience equivalent to CS161.
- **Type of CPL:** Exam
- **Course Description:** The goals of this class are to teach the syntax of C++ to students who already know how to program. Students are expected to be proficient at using conditionals, I/O, loops, and functions with arguments. Topics include: conditionals, I/O, files, functions, classes, pointers, dynamic memory, linear linked lists, and multi-dimensional arrays in C++, as well as program correctness, verification, and testing. Three hours lecture and one 3-hour laboratory. The laboratory emphasizes practical programming skills.

CS 163: Data Structures

- **Credits:** 4
- **Prerequisites:** CS 162 with a grade of C or better.
- **Type of CPL:** Exam
- **Course Description:** Data abstraction with formal specification. Elementary algorithm analysis. Basic concepts of data and its representation inside a computer. Linear, linked, and orthogonal lists; tree structures. Data structures are implemented as data abstractions using pointer based implementations. Sorting and search strategies. Data management. Three hours lecture and one 3-hour laboratory. The laboratory emphasizes practical programming skills.

CS 201: Computer Systems Programming

- **Credits:** 4
- **Prerequisites:** CS 162

- **Type of CPL:** Exam
- **Course Description:** Introduction to computer systems from a software perspective. Topics include: Basic machine organization, System programming using C and assembly language, Introduction to system programming tools (gcc, makefile, gdb), Data representation (bits & bytes, characters, integers, floating point numbers, Implementation of control flow, procedure calls, and complex data types at machine level. Linking and loading, Exceptions and interrupts, Process control and signals, System calls, File I/O, Timing and improving program performance, Introduction to memory hierarchy, dynamic memory allocation techniques

CS 202: Programming Systems

- **Credits:** 4
- **Prerequisites:** CS 163
- **Type of CPL:** Exam
- **Course Description:** Students will become familiar with the language and operating system environment used in most upper division courses in the Computer Science major curriculum. Use of the file system, operating- system calls, and shell-level programming; low-level debugging of high-level programs. Programming exercises will include applications from data structures (e.g. B-trees) and memory management techniques.

CS 250: Discrete Structures I

- **Credits:** 4
- **Expected Preparation:** MTH 251
- **Type of CPL:** Exam
- **Course Description:** Introduces discrete structures and techniques for computing. Sets. Graphs and trees. Functions: properties, recursive definitions, solving recurrences. Relations: properties, equivalence, partial order. Proof techniques, inductive proof. Counting techniques and discrete probability.

CS 251: Discrete Structures II

- **Credits:** 4
- **Prerequisites:** CS 250
- **Type of CPL:** Exam
- **Course Description:** Continuation of CS 250. Logic: propositional calculus, first-order predicate calculus. Formal reasoning: natural deduction, resolution. Applications to program correctness and automatic reasoning. Introduction to algebraic structures in computing.

Remember, CPL is intended for students that have *already* mastered the material. It is not intended as a self-paced, off-campus alternative to taking the class. Teaching materials and resources, office hours, access to D2L, etc. will not be available.

CPL is only offered during terms the corresponding course is offered.

In order to take a class via CPL, you must begin the process the term *no later than the first week of the term you* intend to attempt the class.

CS162, CS163 and CS202

Complete the CPL form: http://www.pdx.edu/credit-for-prior-learning/sites/www.pdx.edu.credit-for-prior-learning/files/Credit_for_Prior_Learning.pdf, pay the CPL and testing fee at the Cashier's Office and return the completed for with the PAID stamp from the Cashier's Office to the Undergraduate Advisor in FAB 120. You will be given a self-study guide to the Proficiency Demonstration.

During the term you attempt CPL, you will be required to successfully complete the midterm Proficiency Demo, the final Proficiency Demo, a project, and pass the Final Exam. The Proficiency Demos and final Exam activities will be taken alongside the students taking the course that term.

An Example

Assume a student wishes to attempt CS163 via CPL in the Fall:

1. Complete the CPL form and pay the CPL fee at the Cashier's Office. The student gives the undergraduate advisor the stamped CPL form.
2. The student visits the instructor who provides a Proficiency Demo self-study guide and schedules a time for them to take the CS163 final exam.
3. The student will be given a CS163 project to complete. This will be due during Fall Finals Week.
4. The student will be expected to take and pass the midterm Proficiency Demo, The Final Proficiency Demo, and the Final Exam with the rest of the CS163 class in the Fall.

CS201, CS250 and CS251

Make sure you check to see which term(s) the class you wish to attempt by CPL is offered. Bring the stamped CPL Form to the Undergraduate Advisor no later than the first week of the term you wish to attempt CPL. For instance, if you wish to attempt CS250 by CPL in Winter, you'll need to bring the stamped CPL form to the Undergraduate Advisor in FAB 120 no later than Friday of the first week of Winter term.