# Clackamas Community College

Online Course/Outline Submission System

## Consent Agenda Requests

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### Section #1 General Course Information

**Department:** Business & Computer Science: Computer Science

**Submitter**

First Name: Jen
Last Name: Miller
Phone: 3138
Email: jen.miller

**Course Prefix and Number:** CS - 202

**# Credits:** 4

**Contact hours**

Lecture (# of hours): 44
Lec/lab (# of hours):
Lab (# of hours):
Total course hours: 44

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

**Course Title:** Program Structures

**Course Description:**

Students will become familiar with advanced C++ and Java syntax for object-oriented programming. Use of the file system, operating system calls, and shell-level programming; low-level debugging of high-level programs. Programming exercises will include applications of data structures and memory management techniques.

**Type of Course:** Lower Division Collegiate

**Reason for the new course:**

This new course is required for completion of the AS in Computer Science degree. CCC Students pursuing an AS in Computer Science currently have to take this course at PCC or PSU.

**Is this class challengeable?**

**Yes**

**Can this course be repeated for credit in a degree?**

**No**

**Is general education certification being sought at this time?**

**No**

**Does this course map to any general education outcome(s)?**

**No**

**Is this course part of an AAS or related certificate of completion?**

**Yes**

**Name of degree(s) and/or certificate(s):** AS in Computer Science with PSU

**Are there prerequisites to this course?**

**Yes**

**Pre-reqs:** CS-162

**Have you consulted with the appropriate chair if the pre-req is in another program?**

**No**

**Are there corequisites to this course?**

**No**

**Are there any requirements or recommendations for students taken this course?**

**No**

**Are there similar courses existing in other programs or disciplines at CCC?**

**No**

**Will this class use library resources?**

**Yes**

**Have you talked with a librarian regarding that impact?**

**No**

**Is there any other potential impact on another department?**

**No**

**Does this course belong on the Related Instruction list?**

**No**

**GRADING METHOD:**

A-F or Pass/No Pass

**Audit: Yes**

**When do you plan to offer this course?**

**✓ Winter**

**Is this course equivalent to another?**

If yes, they must have the same description and outcomes.

**No**

**Will this course appear in the college catalog?**

**Yes**

**Will this course appear in the schedule?**

**Yes**

**Student Learning Outcomes:**

Upon successful completion of this course, students should be able to:

1. design and implement programs that leverage advanced concepts and syntax in C++, including function overloading, operator overloading, copy constructors, and inheritance hierarchies,
2. differentiate between procedural abstraction and object oriented solutions,
3. design and implement programs that leverage advanced data structures in Java,
4. explain the relationship between C++ and Java and the similarity of Java references to C++ pointers,
5. produce high quality, robust, maintainable, efficient object-oriented solutions in both C++ and Java.

***This course does not include assessable General Education outcomes.***

**Major Topic Outline:**

1. Object Oriented Programming Concepts.
2. Inheritance, polymorphism, Measuring the quality of design.
3. Single versus Multiple Inheritance, Virtual Inheritance.
4. Dynamic Binding, RTTI, User Defined Conversions.
5. Operator Overloading, Copy Constructors, Rvalues vs Lvalues, Constant member functions and constand objects.
6. Exception handling.
7. Friends, Nesting, static Members.
8. Templates.
9. Comparing Languages used in the Upper Division Classes.
10. Java in comparison to C++.
11. OOP Solutions and Design Alternatives.

**Does the content of this class relate to job skills in any of the following areas:**

| | |
|---|---|
| 1. Increased energy efficiency | **No** |
| 2. Produce renewable energy | **No** |
| 3. Prevent environmental degradation | **No** |
| 4. Clean up natural environment | **No** |
| 5. Supports green services | **No** |

Percent of course: 0%

**Section #2 Course Transferability**

Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state currently requires us to certify that at least one OUS school will accept a new LDC course in transfer. Faculty should communicate with colleagues at one or more OUS schools to ascertain how the course will transfer by answering these questions.

1. Is there an equivalent lower division course at the University?
2. Will a department accept the course for its major or minor requirements?
3. Will the course be accepted as part of the University's distribution requirements?

If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course, though it will likely not be eligible for Gen Ed status.

**Which OUS schools will the course transfer to? (Check all that apply)**

✓ **PSU (Portland State University)**

**Identify comparable course(s) at OUS school(s)**

CS-202

**How does it transfer? (Check all that apply)**

✓ **required or support for major**

:

**First term to be offered:**

**Specify term**: Winter 2016