CS 212: C++ Programming

Syllabus

Lecture Hours/Credits: 3/4

Catalog Description

Prerequisites: CS 112 or permission from the instructor

This course introduces programming in C++ from an object-oriented perspective to students with some prior exposure to programming. Students will specify, design, write, debug, and execute assigned programming projects. Topics include simple data types, control structures, array and string and file data structures, and pointers to dynamic memory structures. Sorting and search algorithms will be examined to further develop understanding and skills in C++ programming with a variety of data structures. The course emphasizes good software engineering principles and developing fundamental programming skills in the context of a language that supports the object-oriented paradigm.

Textbook and Course Materials

It is the responsibility of the student to confirm with the bookstore and/or their instructor the textbook, handbook, and any other materials required for their specific course and section.

Click here to see current textbook prices at cccnj.bncollege.com.

Evaluation Assessment

Online Proctoring

All courses offered at RCSJ, whether they are web-enhanced, hybrid, or fully online, may include assessments that make use of Online Proctoring. To find out more about Online Proctoring, and to learn about the minimum technical requirements, visit rcsj.edu/elearning/online-proctoring.

Grading Distribution

Grading to be determined by individual instructors. Individual instructors may include the following assessment(s):

- Projects
- Portfolios
- Exams
- Presentations
- Papers

Grading

The grading scale for each course and section will be determined by the instructor and distributed the first day of class.
Rowan College of South Jersey Core Competencies
(Based on the NJCCC General Education Foundation - August 15, 2007; Revised 2011; Adopted 2014)

This comprehensive list reflects the core competencies that are essential for all RCSJ graduates; however, each program varies regarding competencies required for a specific degree. Critical thinking is embedded in all courses, while teamwork and personal skills are embedded in many courses.

1. **Written and Oral Communication**: Students will communicate effectively in both speech and writing.
2. **Quantitative Knowledge and Skills**: Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
3. **Scientific Knowledge and Reasoning**: Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
4. **Technological Competency**: Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.
5. **Society and Human Behavior**: Students will use social science theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens.
6. **Humanistic Perspective**: Students will analyze works in the fields of art, history, music, or theater; literature; philosophy and/or religious studies; and/or will gain competence in the use of a foreign language.
7. **Historical Perspective**: Students will understand historical events and movements in World, Western, non-Western or American societies and assess their subsequent significance.
8. **Global and Cultural Awareness**: Students will understand the importance of a global perspective and culturally diverse peoples.
9. **Ethical Reasoning and Action**: Students will understand ethical issues and situations.
10. **Information Literacy**: Students will address an information need by locating, evaluating, and effectively using information.

**CS 212 Core Competencies**
This course focuses on three of RCSJ's Core Competencies:

- Please add core competencies
## Student Learning Outcomes: C++ Programming

<table>
<thead>
<tr>
<th>Successful completion of CS 212 will help students:</th>
<th>RCSJ Core Competencies</th>
<th>Evaluation / Assessment (Additional means of evaluation may be included by individual instructors)</th>
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</thead>
</table>
| Develop algorithms and demonstrate a valid problem-solving process |  | • Projects  
• Portfolios  
• Exams  
• Presentations  
• Papers |
| Implement accurate and effective sequence, selection and repetition structures |  | • Projects  
• Portfolios  
• Exams  
• Presentations  
• Papers |
| Create viable functions |  | • Projects  
• Portfolios  
• Exams  
• Presentations  
• Papers |
| Create and manipulate arrays & strings |  | • Projects  
• Portfolios  
• Exams  
• Presentations  
• Papers |
| Create and manipulate sequential access files |  | • Projects  
• Portfolios  
• Exams  
• Presentations  
• Papers |
| Demonstrate an understanding of elementary Object-Oriented Programming |  | • Projects  
• Portfolios  
• Exams  
• Presentations  
• Papers |
| Use separate compilation and good programming style to develop an Object-Oriented solution to an assigned problem |  | • Projects  
• Portfolios  
• Exams  
• Presentations |
<table>
<thead>
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<th>RCSJ Core Competencies</th>
<th>Evaluation / Assessment (Additional means of evaluation may be included by individual instructors)</th>
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<tbody>
<tr>
<td>Demonstrate how C++ pointers and dynamic memory structures are used to solve appropriate problems</td>
<td></td>
<td>• Papers • Projects • Portfolios • Exams • Presentations • Papers</td>
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</tbody>
</table>

**Topical Outline**

- Introduction to Computers, Problem Solving, and Programming
- Overview of C++
- Top-Down Design with Functions and Classes
- Selection Structures: if and switch Statements
- Repetition and Loop Statements
- Modular Programming;
- Simple Data Types
- Streams and Files
- Data Structures: Arrays and Structs
- User-Defined Classes
- Data Abstraction and Object-Oriented Design
- Introduction to Recursion
- Pointers and Dynamic Data Structures (time permitting)

**Affirmative Action Statement**

The Board of Trustees is committed to providing a work and academic environment that maintains and promotes affirmative action and equal opportunity for all employees and students without discrimination on the basis of certain enumerated and protected categories. These categories are race, creed (religion), color, national origin, nationality, ancestry, age, sex (including pregnancy and sexual harassment), marital status, domestic partnership or civil union status, affectional or sexual orientation, gender identity or expression, atypical hereditary cellular or blood trait, genetic information, liability for military service, or mental or physical disability, including AIDS and HIV related illnesses.

For questions concerning discrimination, contact Almarie J. Jones, Special Assistant to the President, Diversity and Equity/Title IX and Compliance, 856-415-2154 or ajones@rcsj.edu or (Cumberland) Nathaniel Alridge, Jr., JD, Director, Diversity and Equity/Title IX and Judicial Affairs, 856-691-8600, ext. 1414 or nalridge@rcsj.edu. For disability issues or any barriers in the learning or physical environment related to a document condition/disability please contact: Gloucester campus – Dennis M. Cook, Director, Department of Special Services, ADAAA/504 Officer at 856-415-2265 or dcook@rcsj.edu; or Cumberland Campus – Meredith Vicente, Senior Director, Physical & Learning Disabilities, Center for Academic & Student Success (CASS) at 856-691-6900 ext. 1282 or mvicent1@rcsj.edu
Department of Special Services
The Department of Special Services, located in the Enrollment and Student Services building, within the Testing Center, welcomes students of all abilities. The staff members in Special Services are committed to providing support services and ensuring equal access to eligible students with documented conditions/disabilities as outlined by the Americans with Disabilities Act (ADA) and the Americans with Disabilities Act with Amendments Act (ADAAA). For more information, please visit our website-[Department of Special Services](#) or call 856-691-8600 x1445 or x1487.
There are multiple safe places for students to report allegations of sexual assault, both on and off campus. Reports of sexual assault can be made to any of the following offices listed in the chart below.

All students are encouraged to report alleged crimes on campus. Employees must report crimes that pose an immediate threat to the campus to the Security Office, the local Police Department or the Sheriff’s Office.

<table>
<thead>
<tr>
<th>Service</th>
<th>Resource</th>
<th>Phone Number/Location/Website</th>
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<tbody>
<tr>
<td>Non-Confidential Reporting Law Enforcement</td>
<td>Vineland Police Dept.</td>
<td>856-691-4111</td>
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<td>Millville Police Department</td>
<td>856-825-7010</td>
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<td>Cumberland Co. Sheriff’s Office</td>
<td>856-451-4449</td>
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<td>Cumberland County Emergency Services</td>
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<td>Cumberland Campus Security</td>
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<td>856-200-4706 (Direct)</td>
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<td>9-1-1</td>
<td>Andres Lopez, Director Safety and Security 856-691-8600, ext. 1777</td>
</tr>
<tr>
<td>Non-Confidential On-Campus Reporting Support Services</td>
<td>Almarie J. Jones Special Assistant to the President Diversity and Equity, Title IX and Compliance</td>
<td>856-415-2154 College Center, room 116 <a href="mailto:ajones@rcsj.edu">ajones@rcsj.edu</a></td>
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<td>Nathaniel Alridge, Jr., JD, Director Diversity and Equity, Title IX and Judicial Affairs</td>
<td>856-200-4712 <a href="mailto:nalridge@rcsj.edu">nalridge@rcsj.edu</a></td>
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<td>Kellie W. Slade Executive Director Student Services, Student Life</td>
<td>856-200-4615 <a href="mailto:kslade@rcsj.edu">kslade@rcsj.edu</a></td>
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<tr>
<td>Confidential On-Campus Counseling and Support Services</td>
<td>Heather Bense, LCSW, ACS Director</td>
<td>856-200-4759 <a href="mailto:hbense@rcsj.edu">hbense@rcsj.edu</a></td>
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<td>Academic Building, 1st floor Student Counseling and Wellness Center</td>
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<td>John Wojtowicz, LSW, VACW Mental Health Counselor</td>
<td>856-200-4760 <a href="mailto:jwojtowicz@rcsj.edu">jwojtowicz@rcsj.edu</a></td>
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<tr>
<td>Confidential Off-Campus Full-Service Support</td>
<td>Center for Family Services – Services Empowering Rights of Victims (SERV)</td>
<td>24/7 Hotlines Cumberland Co. – 1-800-225-0196</td>
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<td></td>
<td>Center for Family Services – Services Empowering Rights of Victims (SERV)</td>
<td>Camden &amp; Glo. Co. 1-866-295-7378 centerffs.org/serv</td>
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<tr>
<td>Sexual Assault Nurse Examiner on Site</td>
<td>Inspira Medical Center Vineland</td>
<td>1505 W. Sherman Ave., Vineland, NJ 856-641-8000</td>
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(Revised/Effective) Spring 2019