Tompkins Cortland Community College

Master Course Syllabus

Course Discipline and Number: CSCI 165 **Year: 2025-2026**

Course Title: Computer Science II **Credit Hours: 3**

I. Course Description: This is an introductory computer science course covering problem-solving, algorithm development, and object oriented design in a modern programming language ~~in~~ such as Java, Python, or C++. Specific topics include objects, methods, data structures, classes, abstraction, encapsulation, inheritance, polymorphism, and exception handling. Applications are from a variety of areas. Prerequisites: CSCI 160 or CIS 108; MATH 120 OR 122 or three years of high school math, including Algebra II; prior completion of, or concurrent enrollment in, ENGL 100 or ESL 120, 121, and 122 if required by placement. 3 Cr. (2 Lec., 2 Lab.) Spring semester.

II. Additional Course Information:

1. CSCI 165 is required for degree completion in Computer Science A.S.
2. CSCI 165 may be substituted for CIS 225 for degree completion in Computer Information Systems A.A.S.
3. Students must have access to a computer with Windows, Mac OSX, or Linux installed. ChromeBooks and iPads are not appropriate for this course.
4. All software and tools used in the course are free and platform-independent. Students need to be able to install and configure software on their machines.
5. Class is offered spring semester only, with online and in-person sections.

III. Student Learning Outcomes

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

1. Demonstrate algorithm design, implementation, debugging, and testing
2. Use appropriate object-oriented programming design and architecture
3. Use of abstraction, encapsulation, composition, inheritance, and polymorphism appropriately

IV. Tompkins Cortland Institutional Learning Outcomes; Program Learning Outcomes; SUNY General Education Outcomes

Tompkins Cortland ILOs **N/A**

Complete this section for “service” courses only (e.g. courses that are required of all students; courses that are not program specific but satisfy liberal arts requirements; or commonly used in multiple academic programs to meet non-program-specific requirements). Check only Institutional Learning Outcomes (ILOs) that are meaningfully developed and assessed in this course. For each ILO chosen, include the SLO to which it aligns.

Students will:

☐ Communicate effectively, in oral and written forms, taking into consideration audience and purpose.

☐ Apply principles and methods of scientific inquiry and quantitative reasoning appropriate to their discipline.

☐ Use information, critical thinking, and the creative process to solve problems and reach conclusions.

☐ Use technology appropriate to their discipline.

☐ Describe the ways in which social, economic, or environmental sustainability depends on their own and the collective contributions of a diversity of ideas and people.

Program Learning Outcomes

Complete this section for program-specific courses (e.g. those that share the same 4 letter designation as the academic program or satisfy requirements in related programs). List the academic program(s) here and note which Student Learning Outcomes align to specific Programmatic Learning Outcomes. Please see the MCS Instructions for more details.

Specify the Academic Program
Computer Science A.S.

1. **PLO:** Apply various programming languages, design patterns, and storage techniques to creative solutions for common problems.
    - **SLOs**

        1. Demonstrate algorithm design, implementation, debugging, and testing
        3. Use of abstraction, encapsulation, composition, inheritance, and polymorphism appropriately

2. PLO: Demonstrate and apply problem solving and mathematical abilities appropriate for computer-based solutions.
    - **SLO**

        3. Use of abstraction, encapsulation, composition, inheritance, and polymorphism appropriately

SUNY General Education Outcomes **N/A**

If this course **assesses** a SUNY GEN ED Outcome, check all that apply and indicate which course outcome(s) address each checked item:

☐ CRITICAL THINKING - Students will:

a. identify, analyze, and evaluate arguments as they occur in their own or others' work; and
b. develop well-reasoned arguments.

☐ INFORMATION MANAGEMENT - Students will:

a. perform the basic operations of personal computer use;
b. understand and use basic research techniques; and
c. locate, evaluate and synthesize information from a variety of sources.

☐ GENERAL EDUCATION CATEGORY - Area(s):
For courses that are approved to meet one (or more) of the ten SUNY General Education categories, indicate which category the course fulfills, and which outcome(s) are aligned with the SUNY outcomes for that category:

☐ This course does not address any of the above Tompkins Cortland ILOs, PLOs, or SUNY General Education Outcomes.

V. Essential Topics/Themes

1. Implementing Object-Oriented Design: abstraction, encapsulation, inheritance and polymorphism
2. Designing programs to process two-dimensional arrays
3. Writing Unit Tests for validity
4. Exception handling using try, catch, throw and throws
5. Using electronic debuggers
6. Developing professional documentation style
7. Understanding and applying programming language specifications

VI. Methods of Assessment/Evaluation

Method	**% Course Grade**
1. Discussion/Homework Problem Sets	15-25%
2. Lab Exercises	45-55%
3. Exams: Midterm and Final	25-35%

VII. Texts – ☒ Required ☐ Recommended ☐ Used for more than one course (list courses)

OER Resources
1. Online programming language documentation: https://docs.oracle.com/en/java/javase/15/docs/api/index.html
2. Official Java Tutorial: https://docs.oracle.com/javase/tutorial/

Editions listed are current as of date of syllabus. More recent editions may be used.

VIII. Bibliography of Supplemental Materials

1. https://beginnersbook.com/java-tutorial-for-beginners-with-examples/
2. http://www.java2s.com/Tutorial/Java/CatalogJava.htm
3. Savitch, Walter. *Java: An Introduction to Problem Solving and Programming.* 8th Edition ISBN-13: 9780133766264

Editions listed are current as of date of syllabus. More recent editions may be used.

IX. Other Learning Resources

Audiovisual: Python/Java Tutor (code visualizer) http://pythontutor.com/
Electronic: The VS Code Editor, debugger and unit test runner

Other: Various YouTube videos

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for academic adjustments. All course materials are available in alternate formats upon request.*

Academic Integrity: *Every student at Tompkins Cortland Community College is expected to act in an academically honest fashion in all aspects of his or her academic work: in writing papers and reports, in taking examinations, in performing laboratory experiments and reporting the results, in clinical and cooperative learning experiences, and in attending to paperwork such as registration forms.*
Any written work submitted by a student must be his or her own. If the student uses the words or ideas of someone else, he or she must cite the source by such means as a footnote. Our guiding principle is that any honest evaluation of a student's performance must be based on that student's work. Any action taken by a student that would result in misrepresentation of someone else's work or actions as the student's own — such as cheating on a test, submitting for credit a paper written by another person, or forging an advisor's signature — is intellectually dishonest and deserving of censure.
Several degree programs offer student learning opportunities (such as internships, field work, and clinical experiences) outside the standard classroom setting. As part of the learning process, students must understand and engage in conduct that adheres to principles guiding employment within the professional workplace. These behaviors include, but are not limited to, academic integrity, accountability, reliability, respect, use of appropriate language and dress, civility, professional ethics, honesty, and trustworthiness. Disciplinary action may be initiated for inappropriate conduct occurring while participating in any course-related project or event.