

## Master Course Syllabus

Course Discipline and Number: CIS 213

Year: 2024-2025

Course Title: Computer Programming for Information Technology

Credit Hours: 3

### I. Course Description:

This course introduces students to computer programming as a discipline to solve problems and process information. Topics include computer memory, variables, data types, algorithms, decisions, repetition, files, arrays, and modules using a common programming language such as Python, Java, or C++. Emphasis is on writing structured programs to solve business-oriented problems. Prerequisites: C or better grade in CIS 108 or CSCI160; prior completion of, or concurrent enrollment in, MATH117 or MATH120 and ENGL100 or ESL 120, 121, and 122 if required by placement. 3 Cr. (2 Lec., 2 Lab.) Spring semesters.

### II. Additional Course Information:

1. CIS 213 is required for degree completion in the Computer Information Systems A.A.S.
2. This course is a follow-up to the programming techniques introduced in CIS 108 and will be taught with an intermediate approach, beginning with a review of concepts.
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. The course is offered in Spring semester only

### III. Student Learning Outcomes

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

1. Design, implement, debug, and test algorithms using a common programming language.
2. Design algorithms using fundamental programming structures: sequence, selection, and repetition.
3. Perform functional decomposition using functions, parameters, and arguments.

### IV. Tompkins Cortland Institutional Learning Outcomes; Program Learning Outcomes; SUNY General Education Competencies and Knowledge and Skills Areas

#### 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 discipline code 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 Information Systems, A.A.S.**

**PLO:** Apply concepts of programming, data storage and networking to creative solutions for common problems

- SLO 1:** Design, implement, debug, and test algorithms using a common programming language.
- SLO 2:** Design algorithms using fundamental programming structures: sequence, selection, and repetition.
- SLO 3:** Perform functional decomposition using functions, parameters, and arguments.

### **SUNY General Education Competencies - N/A**

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

☐ CRITICAL THINKING & REASONING- Students will:

- a. clearly articulate an issue or problem;
- b. identify, analyze, and evaluate ideas, data, and arguments as they occur in their own or others' work; acknowledge limitations such as perspective and bias; and
- c. develop well-reasoned (logical) arguments to form judgments and/or draw conclusions.

☐ INFORMATION LITERACY - Students will:

- a. locate information effectively using tools appropriate to their need and discipline; evaluate information with an awareness of authority, validity, and bias; and demonstrate an understanding of the ethical dimensions of information use, creation, and dissemination.

☐ SUNY GENERAL EDUCATION KNOWLEDGE AND SKILLS AREA(s):

For courses that are approved to meet one (or more) of the ten SUNY General Education Knowledge and Skills Areas, indicate which area the course fulfills, and which outcome(s) are aligned with the SUNY outcomes for that area:

Course SLO(s):

☐ This course does not address any of the above Tompkins Cortland ILOs, PLOs, or SUNY General Education Competencies or Knowledge and Skills Areas.

### **V. Essential Topics/Themes**

1. The role of computer programming in modern problem solving and Information Technology
2. Installing, configuring, and designing solutions with a common programming or scripting language
3. Using a full-featured source code editor to write, debug, and test solutions

4. Using a command line interface to interact with the host machine, perform file management, and run programs
5. Using an electronic debugger to trace code execution and isolate logic problems

## VI. Methods of Assessment/Evaluation

Method	% Course Grade
1. Problem sets and discussion problems	5-15% 40%
2. Lab assignments	25-35%
3. Exams: midterm and final	25-35% 60%
4. Final project	15-25%

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

High school instructors may consult with staff in the CollegeNow office for additional information and guidance.

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1. zyBooks interactive text/platform: <a href="https://www.zybooks.com/catalog/programming-in-c/">https://www.zybooks.com/catalog/programming-in-c/</a> <a href="https://www.zybooks.com/catalog/programming-in-java/">https://www.zybooks.com/catalog/programming-in-java/</a>	<input checked="" type="checkbox"/>
2. Shell Scripting Tutorial: <a href="https://www.shellscript.sh/">https://www.shellscript.sh/</a>	<input checked="" type="checkbox"/>

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

## VIII. Bibliography of Supplemental Materials

1. <i>How to Think Like a Computer Scientist</i> Python Edition <a href="http://www.openbookproject.net/thinkcs/python/english3e">http://www.openbookproject.net/thinkcs/python/english3e</a>
2. <i>How To Think Like a Computer Scientist</i> C++ Edition <a href="https://runestone.academy">https://runestone.academy</a>
3. <i>Foundations of Python Programming</i> <a href="https://runestone.academy">https://runestone.academy</a>
4. C++ Tutorial: <a href="https://cplusplus.com/doc/tutorial/">https://cplusplus.com/doc/tutorial/</a>

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

## IX. Other Learning Resources

**Audiovisual:** Multitudes of programming videos/classes on YouTube. These are excellent resources

**Electronic:** None specified

**Other:** <https://www.learnshell.org/>  
<https://www.shellscript.sh/>  
<https://learn.microsoft.com/en-us/training/modules/script-with-powershell/>

**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 their 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 their own. If the student uses the words or ideas of someone else, they 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.*