# CSIT 124: INTRODUCTION TO PROGRAMMING

**History**
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2. Oct 27, 2021 by O'Connor Susan (soconnor)

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## 1. Course Information

**Subject**
CSIT - Computer Science/ Information Technology

**Course Number**
124

**School**
Science, Technology, Engineering, Mathematics

**Course Title**
Introduction to Programming

## 2. Hours

**Semester Hours**
3

**Lecture**
3

**Lab**
0

**Practicum**
0

## 3. Catalog Description

**For display in the online catalog**
This course addresses general programming concepts appropriate for all students (both non-STEM and STEM), who will use programming as a tool within their career field. Students are presented basic programming concepts and then exercise them with contextualized real-world problems. The application of programming theory will be done using computational programs such as Python and MatLab. Some prior programming experience is helpful, but not required, for students taking this course.

## 4. Requisites

## 5. Course Type

**Course Fee Code**
3

**Course Type for Perkins Reporting**
vocational (approved for Perkins funding)

## 6. Justification

**Describe the need for this course**
As an introductory programming course for all majors, this course fills a common gap in general technology education and supports the emergence of programming as fundamental skills and knowledge of modern society. Many times, General Educational Technology courses fall into two basic categories: general computer literacy and programming for computer science majors. This course addresses general programming literacy for those students that will use programming as a tool, but will not make programming their

full-time job. It is anticipated that the interdisciplinary approach for sourcing contextualized assignments for a wide spectrum of majors will attract a broader set of students, thus increasing diversity in the use and future of computing.

## 7. General Education

**Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?**
Yes

**General Education Category**
Technology

**General Education Status**
Proposed

## 8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

**Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:**

|   | Add item |
|---|---|
| 1 | Cultivating a technologically progressive and entrepreneurial spirit (Mission Statement) |
| 2 | Deliver Innovative Curricula Programs and Assess Current Programs - Develop both transfer and vocational programs (Academic Master Plan) |
| 3 | Optimize and expand enrollment of all learners (Strategic Goal 2)<br>- Provide relevant programs to foster workforce development (objective 2.3) |

### 9. Related Courses at Other Institutions

## Comparable Courses at NJ Community Colleges
**Institution**
Atlantic Cape CC

**Course Title**
Problem Solving Using Scripting

**Course Number**
CISM148

**Number of Credits**
4

**Comments**
Similar course

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**Institution**
Brookdale CC

**Comments**
No equivalent course

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**Institution**
Camden County College

**Comments**
No equivalent course

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**Institution**
Mercer County CC

**Comments**

No equivalent course

**Institution**

Rowan College at Burlington County

**Course Title**

Introduction to Python

**Course Number**

CIS 139

**Comments**

Only python

## Transferability of Course

**Georgian Court University**

| Course Code, Title, and Credits | Transfer Catagory | If non-transferable; select status |
|---|---|---|
| | | Unable to determine status |

**Kean University**

| Course Code, Title, and Credits | Transfer Catagory | If non-transferable; select status |
|---|---|---|
| | | Unable to determine status |

**Monmouth University**

| Course Code, Title, and Credits | Transfer Catagory | If non-transferable; select status |
|---|---|---|
| | | Unable to determine status |

**Rowan University**

| Course Code, Title, and Credits | Transfer Catagory | If non-transferable; select status |
|---|---|---|
| CS 01102: Introduction To Programming (3) or CS 01104 - Introduction To Scientific Programming (3) | | |

**Rutgers - New Brunswick, Mason Gross School of the Arts**

| Course Code, Title, and Credits | Transfer Catagory | If non-transferable; select status |
|---|---|---|
| 01:198:107 Computing for Math and the Sciences (3) or 14:440:127 Introduction to Computers for Engineers (3) | | |

**Stockton University**

| Course Code, Title, and Credits | Transfer Catagory | If non-transferable; select status |
|---|---|---|
| | | Unable to determine status |

## 10. Course Learning Outcomes

**Learning Outcomes**

| | Students who successfully complete this course will be able to: |
|---|---|
| CLO1 | Identify the steps required in problem solving. |
| CLO2 | Describe the properties of an algorithm in order to differentiate between an algorithm and a computer program. |
| CLO3 | Design, code, test and debug simple programs and functions. |
| CLO4 | Write programs that use conditional control and repetition structures and functions. |

| | | |
|---|---|---|
| CLO5 | Construct and manipulate arrays. | |
| CLO6 | Generate programs to analyze data and present results in the context of real-world problems. | |

## 11. Topical Outline

**(include as many themes/skills as needed)**

| | Major Themes/ Skills | Assignments (Recommended but not limited to) | Assessments (Recommended but not limited to) | Course Learning Outcome(s) |
|---|---|---|---|---|
| TO1 | Problem Solving and Algorithms<br>a) Problem Solving Techniques<br>b) Algorithms<br>c) Decomposition | Reading, discussion, programming assignments (generic and/or contextualized) | Quiz, exam, individual and/or group project | CL01, CL02 |
| TO2 | Data Representation<br>a) Data Types<br>b) Identifiers<br>c) Arithmetic Operators<br>d) Variable and Declaration Statements<br>e) Data Type Conversions<br>f) Assignment Statements | Reading, discussion, programming assignments (generic and/or contextualized) | Quiz, exam, individual and/or group project | CL03, CL06 |
| TO3 | Programming by Example<br>a) Simple console input and output<br>b) Formatting output<br>c) Contextual real-world application programs<br>d) Introduction to Integrated Development Environments | Reading, discussion, programming assignments (generic and/or contextualized) | Quiz, exam, individual and/or group project | CL03, CL06 |
| TO4 | Selection Structures<br>a) Section Criteria – Relational and Logical Operators<br>b) One and Two-way Selection<br>c) Compound Conditions | Reading, discussion, programming assignments (generic and/or contextualized) | Quiz, exam, individual and/or group project | CL03, CL04, CL06 |
| TO5 | Repetition Structures<br>a) Pre-test & Post-test Loops<br>b) Nested Loops | Reading, discussion, programming assignments (generic and/or contextualized) | Quiz, exam, individual and/or group project | CL03, CL04, CL06 |
| TO6 | Functions<br>a) Creating Functions<br>b) Invoking Functions<br>c) Passing Parameters<br>d) Returning Values | Reading, discussion, programming assignments (generic and/or contextualized) | Quiz, exam, individual and/or group project | CL03, CL04, CL06 |
| TO7 | Arrays<br>a) Creating Arrays<br>b) Using Arrays | Reading, discussion, programming assignments (generic and/or contextualized) | Quiz, exam, individual and/or group project | CL03, CL04, CL05, CL06 |

## 12. Methods of Instruction

**In the structuring of this course, what major methods of instruction will be utilized?**
Lecture, programming activities and discussion.

## 13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

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**Technological Competency**
Yes

**Related Course Learning Outcome**
All

**Related Outline Component**
All

**Assessment of General Education Goal (Recommended but not limited to)**
Quiz, exam, individual and/or group project

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**Independent/Critical Thinking**
Yes

**Related Course Learning Outcome**
All

**Related Outline Component**
All

**Assessment of General Education Goal (Recommended but not limited to)**
Quiz, exam, individual and group project

## 14. Needs

**Instructional Materials (text etc.):**
An appropriate text or open educational resource will be selected

**Technology Needs:**
Continued funding for the application of choice for this course. Software development languages may include Python, MatLab, or other comparable languages.

**Human Resource Needs (Presently Employed vs. New Faculty):**
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**Facility Needs:**
Presently employed faculty can teach this course.

**Library needs:**
Library computers must continue to support the chosen application at the current version used in the course.

## 15. Grade Determinants

**The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations**

**A: Excellent**

**B+: Very Good**

**B: Good**

**C+: Above Average**

**C: Average**

**D: Below Average**

**F: Failure**

**I: Incomplete**

**R: Audit**

**For more detailed information on the Ocean County College grading system, please see Policy #5154.**

## 16. Board Approval

**History of Board approval dates**
New course board approved: May 20, 2021

Key: 2221