



*Spring 2024*

**CSCI-58/358**

**Programming Essentials in Python  
Syllabus**

**Instructor:** Simon Sultana, Ph.D.

**Department:** Computer Science

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**Response time:** < 24 hours

**Section Number:** 52002/52003

**Unit(s):** 3

**Dates:** 1/8/2024 – 5/16/2024

**Location:** Online, Asynchronous

**Live Q&A:** Mondays 1pm on Zoom

**Office Hours:** MW 10am-12pm, TuTh 2-3pm,  
(PHY-81/Zoom), or by appt

**Prerequisites:** MATH-3A – College Algebra for STEM

**Advisory:** ENGL-1A – Reading and Composition or ENGL-1AH Honors Reading and Composition

**Course Description:** This course prepares students for Python Institute's Certified Associate in Python Programming (PCAP) by addressing objectives as specified in the curriculum. **ADVISORIES:** Mathematics 3A and English 1A or 1AH. (A, CSU).

**Course Goals and Student Learning Outcomes:**

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

- Explain the processes a computer uses in executing a programming solution
- Develop critical thinking and problem-solving skills using an algorithmic approach
- Demonstrate the programmer's role in the software development process
- Design computer programs to solve outside world problems

**Objectives:**

*In the process of completing this course, students will:*

- Use an integrated development environment to create and troubleshoot a programming project.
- Investigate the major components of a computer and their role in executing a program.
- Utilize expressions to perform arithmetic operations.
- Choose proper types to represent various data.
- Utilize conditional branching to implement decision making in an algorithm.
- Utilize loops to efficiently perform repetitive tasks.
- Modularize a program into smaller parts by properly using functions.
- Build and iterate through dictionaries.
- Utilize object-oriented approach in program design by properly defining classes, attributes, and methods.

Student Learning Outcomes are statements about what the discipline faculty hope you will be able to do at the end of the course. This is NOT a guarantee: the ultimate responsibility for whether you will be able to do these things lies with you, the student. In addition, the assessment of Student Learning Outcomes is done by the department in order to evaluate the program as a whole, and not to evaluate individual faculty performance.

## Required or Recommended Textbooks and Materials:

Textbooks:

1. **Required:** NetAcad account. Accept invitation via email sent before semester start and register for account (no cost).
2. **Optional:** *Starting out with Python*, 5th Ed., By Tony Gaddis, Pearson

This course aims to prepare you for PCEP and PCAP certification. The NetAcad resource is the only one required but you might find these optional resources useful to better prepare you for the certification exams.

## Learning Management System: CANVAS:

Canvas (<https://scccd.instructure.com/>) is used to post announcements, course information, programming assignments, and grade. You will submit your programming assignments on Canvas.

To log-in Reedley College CANVAS:

Username: Your 7-digit student ID number.

Password: If you have not previously changed your password, it is:

*First name initial (upper case) + last name initial (lowercase) + date of birth (mmddyy)*

Example: John Smith born on July 9th of 1988 Password = Js070988

## **Topics:**

### **Course Outline**

- A. Introduction
  1. Python language
  2. Computer programming
- B. Working with data
  1. Data types
  2. Variables
  3. Basic input-output operations
  4. Basic operators
- C. Making decisions
  1. Boolean values
  2. Conditional execution
  3. Loops
  4. Lists
  5. Logical operators
  6. Bitwise operators
- D. Modularity and organization of data
  1. Functions
  2. Tuples
  3. Dictionaries
  4. Data processing
- E. Packaged solutions
  1. Modules
  2. Packages
  3. Python Installation Package
- F. String handling & Exceptions
  1. Strings
  2. String Methods
  3. List Methods
  4. Exceptions

G. Object-Oriented Programming

H. Miscellaneous

**Lab Content:**

Following lecture content is practiced by students in computer laboratory exercises: conditional execution, loops, lists, processing lists, writing functions, exceptions, strings, secure data reading, object-oriented programming, working with files, operating systems module, datetime/time modules, calendar module

**Tentative Schedule:**

|   | Assignment Points | Date             |
|---|-------------------|------------------|
| <b>PE1 Module 1 - Introduction to Python and computer programming</b>   | <b>20</b>         | <b>1/8/2024</b>  |
| Schedule One-on-One   |                   | 1/14/2024        |
| <b>Live Q&amp;A Session online</b>  |                   | 1/8/2024         |
| <b>Live Q&amp;A Session online</b>  |                   | 1/15/2024        |
| POGIL Activities (forum post due Tuesday before)  |                   | 1/18/2024        |
| PE1 Module 1 Study Resources Completion   |                   | 1/21/2024        |
| PE1 Module 1 Test   | 20                | 1/21/2024        |
| <b>PE1 Module 2 - Data types, variables, basic input-output operations, basic operators</b>                                   | <b>20</b>         | <b>1/22/2024</b> |
| <b>Live Q&amp;A Session online</b>  |                   | 1/22/2024        |
| <b>Live Q&amp;A Session online</b>  |                   | 1/29/2024        |
| POGIL Activities (forum post due Tuesday before)  |                   | 2/1/2024         |
| PE1 Module 2 Study Resources Completion   |                   | 2/4/2024         |
| PE1 Module 2 Test   | 20                | 2/4/2024         |
| <b>PE1 Module 3 - Boolean values, conditional execution, loops, lists and list processing, logical and bitwise operations</b> | <b>20</b>         | <b>2/5/2024</b>  |
| <b>Live Q&amp;A Session online</b>  |                   | 2/5/2024         |
| <b>Live Q&amp;A Session online</b>  |                   | 2/12/2024        |
| POGIL Activities (forum post due Tuesday before)  |                   | 2/15/2024        |
| PE1 Module 3 Study Resources Completion   |                   | 2/18/2024        |
| PE1 Module 3 Test   | 20                | 2/18/2024        |
| <b>PE1 Module 4 - Functions, tuples, dictionaries, and data processing</b>  | <b>20</b>         | <b>2/19/2024</b> |
| <b>Live Q&amp;A Session online</b>  |                   | 2/19/2024        |
| <b>Live Q&amp;A Session online</b>  |                   | 2/26/2024        |
| POGIL Activities (forum post due Tuesday before)  |                   | 2/29/2024        |
| PE1 Module 4 Study Resources Completion   |                   | 3/3/2024         |
| PE1 Module 4 Test   | 20                | 3/3/2024         |
| <b>Python Essentials 1 - Summary Test</b>   | <b>170</b>        | <b>3/4/2024</b>  |
| <b>Live Q&amp;A Session online</b>  |                   | 3/4/2024         |
| PE1 Summary Test  | 70                | 3/10/2024        |
| <b>PE1 Supplementary Exam</b>   | <b>100</b>        | <b>3/10/2024</b> |
| <b>PE2 Module 1 - Modules, Packages and PIP</b>   | <b>20</b>         | <b>3/11/2024</b> |

|  |            |                  |
|--|------------|------------------|
| Live Q&A Session online  |            | 3/11/2024        |
| Live Q&A Session online  |            | 3/18/2024        |
| POGIL Activities (forum post due Tuesday before)                   |            | 3/21/2024        |
| PE2 Module 1 Study Resources Completion                            |            | 3/24/2024        |
| PE2 Module 1 Test  | 20         | 3/24/2024        |
| <b>PE2 Module 2 - Strings, String and List Methods, Exceptions</b> | <b>20</b>  | <b>4/1/2024</b>  |
| Live Q&A Session online  |            | 4/1/2024         |
| Live Q&A Session online  |            | 4/8/2024         |
| POGIL Activities (forum post due Tuesday before)                   |            | 4/11/2024        |
| PE2 Module 2 Study Resources Completion                            |            | 4/14/2024        |
| PE2 Module 2 Test  | 20         | 4/14/2024        |
| <b>PE2 Module 3 - Object-Oriented Programming</b>                  | <b>20</b>  | <b>4/15/2024</b> |
| Live Q&A Session online  |            | 4/15/2024        |
| Live Q&A Session online  |            | 4/22/2024        |
| POGIL Exercises (forum post due Tuesday before)                    |            | 4/25/2024        |
| PE2 Module 3 Study Resources Completion                            |            | 4/28/2024        |
| PE2 Module 3 Test  | 20         | 4/28/2024        |
| <b>PE2 Module 4 - Miscellaneous</b>                                | <b>20</b>  | <b>4/29/2024</b> |
| Live Q&A Session online  |            | 4/29/2024        |
| Live Q&A Session online  |            | 5/6/2024         |
| POGIL Exercises (forum post due Tuesday before)                    |            | 5/9/2024         |
| PE2 Module 4 Study Resources Completion                            |            | 5/12/2024        |
| PE2 Module 4 Test  | 20         | 5/12/2024        |
| <b>Python Essentials 2 - Summary Test</b>                          | <b>170</b> | <b>5/13/2024</b> |
| Live Q&A Session online  |            | 5/13/2024        |
| <b>PE2 Summary Test</b>  | <b>70</b>  | <b>5/16/2024</b> |
| <b>PE2 Supplementary Exam</b>                                      | <b>100</b> | <b>5/16/2024</b> |
| <b>TOTAL</b>   | <b>500</b> |                  |

**Subject to Change:**

This syllabus and schedule are subject to change. If you are absent from class meeting, it is your responsibility to check on any changes made while you were absent.

**Evaluation:**

Students will be evaluated on the basis of their performance on various assignments according to the following scale. The instructor reserves the right to adjust weights as it may be required throughout the semester.

Points in the course total 400 and are distributed as follows:

- Module Tests (x8)..... 160
- Summary Tests, Supplementary Exams... 240

Final grade is assigned using following scale:

|                        |   |
|------------------------|---|
| 895 -1000 points ..... | A |
| 795 - 894 points.....  | B |
| 695 - 794 points ..... | C |
| 595 - 694 points ..... | D |
| < 595 points.....      | F |

### **Attendance**

It is highly important you engage with this course throughout the week so as not to fall behind. It will be difficult to catch up once you fall behind. I am available via synchronous online meetings and you are encouraged to make use of these opportunities to assist your learning in the course. You are encouraged to have your camera turned on and will have the best experience if you use earbuds/headphones.

Students will be dropped from the class if they fail to participate in the first week of the semester. During the semester up to final drop date, any student who missed two weeks of class participation (cumulative) will be dropped from this class (i.e. 4 classes).

Make-up tests are limited to students who have made arrangements with the instructor **prior** to the announced testing date or those students who have been excused by High School Attendance Office. Exam material is constructed from class discussions, assigned readings, guest lectures, video presentations, and special assignments. **Unless the student receives prior approval from the instructor, no make-up tests will be allowed.**

### **Grading Policy**

Python Institute Study Resources, Quizzes, and Tests:

These exercises by the Python Institute are assigned in each of the eight course modules and will be linked in Canvas.

POGIL Exercises:

POGIL exercises are assigned in most modules and are optional to aid your learning. These are not graded but you will be given feedback if you complete them. Students are welcome to work synchronously in small groups of 3-4 on their own schedules. Students may also choose to work alone if they prefer. It is recommended students meet synchronously early in the week to ensure sufficient time to clarify questions. A weekly discussion forum is available for the group speaker (one of the roles in POGIL) or student working alone to respond to questions in the assignment or pose questions to the instructor or feedback to other groups. One submission can be turned in on Canvas and only one per group or student working alone. Student names should be at the top of all documents submitted.

### **Course and College Policies:**

#### **Access to Technology**

This course is conducted asynchronously online. Students will need access to a reliable computer and reasonably fast internet access. If you are or know of a student who might benefit, please share that Reedley College has available laptops and accessories to loan to students as needed. Please contact the technology department at 559-637-2555.

#### **Late Policy**

Module completion dates are flexible but students are encouraged to stay on schedule as much as possible to avoid falling behind. It will be difficult for a student to catch up once behind. Completed POGIL exercises are to be submitted electronically **by one person in the group** in Canvas and all work should be shown. POGIL exercises submitted late but may be delayed in receiving feedback.

## **Communication Policy**

Communication is vital to success in this course. Please know that although we may not be physically meeting this semester, I as your instructor am here to help. The best ways to get in contact with me are to visit live Q&A sessions, via the Q&A discussion forum, by inbox message, or by email. On Mondays – Fridays, students can typically expect a response within 12 hours (often much faster, especially if before 5pm) and I will always respond within 24 hours except for Sundays. If a student does not receive a response within this time period, please assume there was some error in communication and try again or use a different means. Students are asked to include the course name and a brief summary (2-5 words) describing the content of the message in the subject field of all electronic communication. Always use the email address provided by the college for communication and ensure that it is checked regularly.

## **Online Attendance Policy**

Student engagement in submitting course deliverable serve as proof of engagement in this course. As a result, students who do not communicate with the instructor nor submit an assignment in the first week will be dropped automatically from the course. Students who go two weeks without submitting an assignment or do not communicate with the instructor will be dropped before the college's announced last date to drop a class to avoid a 'W' (please see course schedule). Students who are considering dropping this class are asked to consider this [resource](#) and please contact the instructor.

## **Cheating & Plagiarism**, see Cheating and Plagiarism under Campus Policies:

Cheating and plagiarism is prohibited in the class. Incidents of cheating and plagiarism will result a failing grade on the particular assignment in question. Please see Student Conduct Standards at <https://www.reedleycollege.edu/about/about-us/policies-and-procedures/student%20conduct%20standards.html> for more information about academic integrity.

Each student is expected to assist in the overall environment of the classroom making it conducive to learning.

Code created by external sources can be utilized with permission from the instructor and 1) must be properly documented so as not to plagiarize the work of others and 2) must not make up more than 10% of the actual code (exclusive of documentation) of the project.

It is expected each student will do his/her own work unless otherwise instructed. This course involves both individual work and collaborative work. It is your responsibility to understand the guidelines that apply to each kind of work, and to be clear about which assignments are individual assignments and which are collaborative.

Activities not designated as cooperative assignments in this course are to be done individually. Submissions will be checked for plagiarism using both computer and human similarity checkers. Take extreme precautions that your individual work is not viewed by other students. This includes deleting all your computer files from public workstations when you are finished, retaining private permissions on your files, destroying printouts of source code, and not letting other students use your personal computer where you store your coursework.

In addition, the work you submit must be entirely your original creation. Using solutions from any other source is forbidden; in particular, using solutions (either instructors' or other students') from previous offerings of this or other courses is not allowed. Using solutions found on the Internet or getting help from online forums is not allowed. Assignments which appear to be the result of a "group effort", or appear to have been copied from another student, will be considered plagiarized. Violations of this policy will be reported as violation of academic integrity per college policy.

In-class activities are designated as pair or team activities. Students will be assigned a partner or will self-assign to complete these activities. Be sure to use these collaborative activities as a chance to master the skills, as there will be quizzes in which each person must perform the skills individually.

### **A note on the use of AI**

It is crucial to address the potential perils associated with the misuse of Artificial Intelligence (AI) in academic settings. Using AI to cheat not only undermines the learning experience but also violates the principles of academic integrity.

Perils of AI Cheating:

- **Ethical Breach:** Utilizing AI to cheat goes against the core values of honesty, integrity, and personal responsibility in academic pursuits.
- **Short-Term Gains, Long-Term Consequences:** While AI might provide a temporary advantage, the long-term consequences include a lack of genuine understanding, hindering your overall academic and professional development.
- **Violation of Academic Policies:** Most educational institutions have strict policies against cheating. Using AI to gain an unfair advantage can lead to severe academic penalties and damage your academic record.
- **Missed Learning Opportunities:** The primary purpose of education is to foster genuine understanding and skill development. Cheating with AI denies you the opportunity to acquire essential knowledge and skills.

My Expectations:

I, as your instructor, emphasize the importance of upholding academic integrity. I trust you will approach your studies with honesty, diligence, and a commitment to genuine learning.

Remember the true value of your education lies not just in grades but in the skills, knowledge, and ethical foundation you acquire. Resist the temptation to misuse AI for academic dishonesty, and instead, channel your efforts towards becoming proficient, ethical computer scientists.

Let's create an environment where academic excellence is synonymous with integrity.

### **Accommodations for Students**

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the Reedley College Disabled Students Programs & Services (DSP&S) Department at (559) 638-0332. You can find more information at <https://www.reedleycollege.edu/student-services/disabled-student-programs-and-services/index.html>.

**Reedley College is committed to creating accessible learning environments consistent with federal and state law. To obtain academic adjustments or auxiliary aids, students must be registered with the DSP&S office on campus. DSP&S can be reached at (559) 638-3332. If you are already registered with the DSP&S office, please provide your Notice of Accommodation form as soon as possible.**

### **Important College Dates Spring 2024**

|  |          |               |
|--|----------|---------------|
| Class begins   | Monday   | 01/08/2024    |
| Last day to drop a full-term class for a full refund | Friday   | 01/19/2024    |
| Last day to register                                 | Friday   | 01/26/2024    |
| Last day to drop this class to avoid a “W” in person | Friday   | 01/26/2024    |
| Last day to drop this class to avoid a “W” online    | Sunday   | 01/28/2024    |
| Last date to drop this class                         | Friday   | 03/08/2024    |
| Spring recess (no classes held)                      | Mon-Fri  | 03/25-29/2024 |
| No classes, campus is closed                         |          |               |
| Martin Luther King, Jr. Day observed                 | Monday   | 01/15/2024    |
| Lincoln Day observance                               | Friday   | 02/16/2024    |
| Washington Day observance                            | Monday   | 02/19/2024    |
| Good Friday  | Friday   | 03/29/2024    |
| Final Exams Due                                      | Thursday | 05/16/2024    |