

CYBR110: Introduction to Programming

College of Graduate and Continuing Studies, Norwich University

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Course Description

3 credits

This is a hand-on introductory course to computer programming using the Python programming language. Topics covered include program design, variables, data types, control structures, functions, classes, abstraction, and object-oriented concepts. Debugging, quality software engineering techniques, and security concerns will be discussed throughout.

As software becomes more ubiquitous in every aspect of our lives, it is imperative that cyber security professionals have a fundamental understanding of common programming paradigms. In this course, we will use the Python programming language to study structured programming and introduce students to program design.

Course Outcomes

The goal of the course is to provide students with the fundamentals of programming using a modern programming language

By the end of this course, students will be able to:

- Install and configure a Python development environment.
- Design, write, debug, and execute basic Python programs.
- Describe and implement common Python control structures and library functions.
- Utilize lists and dictionaries to store and arrange data in Python programs.
- Design and implement functions.
- Implement basic input/output techniques in Python.
- Describe object-oriented programming.
- Basic software design and documentation.
- Implement exception handling.

Weekly Outline

The week-by-week breakdown of topics is as follows:

Week	Topic	Readings	Assignments
Week 01	Introduction to Programming and Data	Chapter 1, 2, Appendix A, Appendix B	Lab 1
Week 02	Lists and Basic Data Structures	Chapter 3, 4	Lab 2
Week 03	Conditionals and More Data Structures	Chapter 5, 6	Lab 3
Week	Program Input and	Chapter 7	Lab 4

04	Looping Structures		
Week 05	Functions	Chapter 8	Lab 5
Week 06	Classes and Objects	Chapter 9	Lab 6
Week 07	Files, Exceptions, and Code Testing	Chapter 10, 11	Lab 7
Week 08	Software Engineering Project	Part 2: Projects	Final Project

Required Textbooks

All Required Reading assignments are listed in each week's activities.

Textbooks for this seminar are:

- **Matthes, E. (2019). *Python crash course: A hands-on, project-based introduction to programming*. No Starch Press, Inc.**

In lieu of a writing handbook, we strongly recommend that students use the [Purdue Online Writing Lab](#) as a primary writing resource. Your instructor will provide additional writing guidance.

Discussion Overview

In this course, you will be assigned to a small discussion group (if class size permits). Each week your group will discuss at least one question; all questions will be graded. You are expected to contribute *a minimum of at least three posts* to each question every week. The quality of your posts and those of your fellow students will create a lively discussion and ensure that a high level of learning takes place.

Your **first** post should be substantive (approximately 150-250 words) and it should be made by **Tuesday** (the earlier you make your initial posts, the more your classmates, and you, will have to work with). Your deadline for first post is Wednesday night after which time you will lose points for the week. It should answer the question using your own experience, if appropriate, and, very importantly, it should refer to the readings of that week, using correct APA citations. You should all conduct additional readings and research beyond the readings and resources provided for each week in order to completely answer the discussion question.

Your **second** two posts should be responses to posts made by your fellow group members. This is a minimum requirement as you are expected to respond to more posts in order to have a lively discussion. Responses such as, "Good point," or, "I agree," are not sufficient. Your response posts should be substantive—ask questions, point out additional thoughts, spur deeper insights and thoughts, etc. Posts should build on the course content and add momentum to our collective learning. Disagreement and critical feedback are part of an academic classroom, as is respect for the diversity of opinion. Above all, respect for each other as learners is paramount. Challenging, disrespectful, abusive, or profane language will not be tolerated in any form.

For more information about what is expected in regard to discussion postings, please review the Weekly Discussion Rubric and Discussion Guidelines in the Resource area of this classroom.

Assignments

This course consists of weekly labs where students will create code from scratch based on the week's readings.

If the student will have any trouble with the readings or labs (scheduling, amount of time, etc.) make sure to contact the instructor immediately.

[Lab Exercises](#)

The lab assignments for this course will require the use of the Python 3.7 Integrated Development Environment (IDE). The Python 3.7 IDE is available for Windows, Linux and Mac OS X environments at python.org/downloads/. You will download and configure the Python 3.7 IDE as part of your week 1 lab activity. Each lab is due on Saturday at 11:55pm Eastern time of the week it is assigned. Make sure you follow **all** of the instructions for each lab.

Submit the appropriate file(s) and use the following naming convention. Lastname_WeekX_AssignmentX.docx, where the X represents the appropriate week number and/or assignment number. For example: 'Smith_week01_assignment01.docx'.

Furthermore, a header is required at the top of the MS Word documents that includes your full name, the assignment information and the date. For example:

John Smith
Week 1, Lab 1
October 1, 2016

[Submission Deadlines](#)

Discussions officially close on Saturday of each week at 11:55 PM Eastern time. Posts submitted after that time will not be graded.

Labs are due on their assigned dates at 11:55 PM Eastern time.

[Late Submission](#)

It is important that assignments and discussion posts be completed on time. Extensions of deadlines will be given only for serious extenuating circumstances. Late work will be penalized 20 points for each day, for up to 2 days. After 2 days, the student will receive no credit for the assignment. Students are encouraged to contact the instructor and discuss a deadline if extenuating circumstances require a late submission. There is a zero-tolerance late policy for discussions. Students are required to submit their discussion responses during the assigned week in order to maintain an active and collaborative learning environment. No late work will be accepted for discussion forums.

If you know that you will not complete an assignment/discussion on time, contact the instructor ahead of time.

[Grading Criteria](#)

Each week you will have lab and discussion assignments to complete and each assignment will be graded based on the category it falls into. Grading for the weekly discussions will be based on quality of your posts (initial and response posts). Remember, discussion questions are designed to foster intellectual conversation regarding the subject. Discussion post responses that lack intellectual merit are not acceptable and have no place in this course (i.e. Good job!, Great post!, I agree.....).

Extra credit submissions and the length of such submissions require advanced approval by your instructor. Instructors are not required to use the grading rubric, or provide rubric scores. Instructors do not have to provide

the same level of formal feedback on extra credit submissions as they do on essay assignment, but should provide whatever level of useful feedback is appropriate.

The **maximum** grade based on word-count is 0.005 credit/word, or 5 points per 1,000 words. Thus a student who agrees to submit a 2,000-word essay on a specific topic approved in advance may have **up to** 10 points added to the “Extra Credit” column in the gradebook. These points are added to the total points accumulated and may cause the total to exceed 400 points.

Extra credit assignments cannot be used as a substitute for missed research papers. The way to obtain credit for missed research papers is to request permission to submit the paper late.

Grades

The following table shows the graded assessment types contained within this course and the assigned weighting to determine the final course grade.

Note that the Labs comprises over 50% of the grade.

Graded Assessment Types	Weights (%)
Discussions (8 weeks) and Participation	25%
Labs (7 weeks)	55%
Final Project	20%
TOTAL	100 %

Letter grades for the course will be based on the following grading scale:

Letter Grade	Percentage	Grade Point
A	93-100%	4.0
A -	90-92.9%	3.7
B +	87-89.9%	3.3
B	83-86.9%	3.0
B -	80-82.9%	2.7
C +	77-79.9%	2.3
C	75-76.9%	2.0
C -	73-74.9%	1.7
D +	70-72.9%	1.3
D	67-69.9%	1.0
D-	63-66.9%	0.7
F	0-62.9%	0.0

For complete information on the Grading Policy, please refer to the [CGCS Online Catalog](#) (Sub-Section of Catalog on "Grades.").

[Academic Honesty and the Norwich University Honor Code](#)

A student must submit work that represents the student's own original analysis and writing. Copying another's work is not appropriate. If the student relies on the research or writing of others, the student must cite those sources. Words or ideas that require citations include, but are not limited to all hardcopy or electronic publications, whether copyrighted or not, and all verbal or visual communication when the content of such communication clearly originates from an identifiable source. While students are encouraged to seek editing feedback, extensive revisions of one's work by another person is considered a lack of academic honesty, as it is representing another student's work as one's own.

For more information see:

[Academic Dishonesty](#)

[Academic Integrity](#)

[Norwich University Honor Code](#)

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[Section 504 of the Rehabilitation Act of 1973/ADA](#)

Please consult [Appendix H: University Policy - Section 504 of the Rehabilitation Act of 1973/Americans with Disabilities Act \(ADA\)](#) for instructions on obtaining an accommodation.

Disclaimer: Please note the specifics of this Course Syllabus are subject to change. Students are responsible for abiding by any such changes. Your instructor will notify you of any changes.

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