FLORIDA POLYTECHNIC UNIVERSITY

Syllabus - COP 2080 Computation Problem Solving in Python Spring 2026

Course Information

- **Course Number and Title:** COP 2080 Computation Problem Solving in Python
- **Credit Hours:** 3 (3 lecture / 0 lab)
- **Academic Term:** Spring 2026
- **Section:** 1
- **Delivery mode**: Face-to-face (in-person / in-class)
- **Class Meeting Day, Time & Location:** MWF 2:00pm-2:50pm, BARC-2220

Instructor Information

- **Instructor:** Chrisitan Navarro
- **Office Location:** ARC-1191
- **Office Hours**: M/F:10-11:00am, Wed : 10-12:00pm in ARC1191 or by appointment
- **Email address**: cnavarro@floridapoly.edu

Course Description

- **Course Abstract:** Problem solving in Computer Science is more than memorizing the syntax for a programming language. To solve computational problems, students will first need to understand the problem and learn how to decompose the problem into elements that can be solved by recognizing patterns and developing the appropriate algorithms. In addition to programming, the course will guide students in the use of version control and team communication with an agile development approach.

  The Python programming language will be utilized due to its fast development time and concise syntax. Python is an interpreted language that is popular for developing websites and software, task automation, data analysis and visualization. It is also often used as a complement to other programming languages within the same environment.

- **Official Catalog Course Description**: This course explores popular CS problems, modelling and optimization of solutions. Essential topics included: Python programming, data structures, scientific calculations, basic cryptography, and graphical user interfaces.

- **Course Pre and/or Co-Requisites**: COP 2271 - Introduction to Computation and Programming

- **Required Texts and Materials:**
  - Database Systems: Design, Implementation, and Management, 14th Edition, Carlos Coronel, Steven Morris, ISBN: 978-0357673034, 0357673034. [Required]
  - Github/Codespaces account (EDU), Google account, Florida Poly VPN client, SSH terminal

Course Learning Outcomes (CLOs)

- CLO-1: Demonstrate modeling and implementing solutions with Python.
- CLO-2: Analysis of team projects and description of experience.
- CLO-3: Demonstrate the proper documentation of projects and source control etiquette.
- CLO-4: Implement a solution that fulfills specific project requirements.

Alignment with Program Outcomes (ABET)

The Computer Science program at Florida Polytechnic University has aligned its Program Outcomes with the ABET Students Outcomes 1-6 from the ABET General Criterion 3 and the ABET Program Criteria. The table shown below summarizes how the CLOs stated above align with the Program Outcomes (ABET 1-6).

These outcomes are:

1. **Analyzing a Problem**: Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions
2. **Implementing a Solution**: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline
3. **Communicating Effectively**: Communicate effectively in a variety of professional contexts
4. **Performing Legal & Ethical Analysis**: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
5. **Collaborating as a Team**: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
6. **Applying theory**: Apply computer science theory and software development fundamentals to produce computing-based solutions.

Program Outcome (ABET)	CLO-1	CLO-2	CLO-3	CLO-4	CLO-x
Analyzing a Problem				**X**	
Implementing a Solution				**X**	
Communicating Effectively		**X**	**X**		
Performing Legal & Ethical Analysis					
Collaborating as a Team		**X**			
Applying theory	**X**		**X**	**X**	

Course Policies

Attendance

- Students in **face-to-face (this includes labs and C-courses)** courses are expected "to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor" (University Policy, FPU-5.0010AP).
- Exceptions to any attendance requirements may be made on a case-by-case basis.

Participation

Students are expected to participate in the classroom experience. This may include in-class participation assignments based on the material presented during recent classes. The assignment is intended to be completed in class but may have a close time of the end of the day.

The use of earbuds/headphones during class lecture is not allowed and students who engage in this behavior may be asked to leave the class for the day (noting exceptions for accommodations). Students are expected to bring materials to class that are required for participation.

Late Work/Make-up work

Homework is typically due on Sunday night but may be submitted for an additional 48 hours. This policy does not apply for excused absences.
In general, there is no make-up for participation, quizzes or exams. A make-up for a missed quiz or exam will be provided given that an approved excuse is presented within 7 days of the absence. This may include illness or participation in a school authorized function.

Grading Scale

(See also University Grading Policy).

Assignment/Evaluation Methods

Assignment	Percentage
Participation	15%
Quiz & Exam	25%
Homework	25%
Project	30%
Attendance	5%

A	above 93%	**B**	83% - 86%	**C**	73% - 76%	**D**	63% - 66%
A-	90% - 92%	**B-**	80% - 82%	**C-**	70% - 72%	**D-**	60% - 62%
B+	87% - 89%	**C+**	77% - 79%	**D+**	67% - 69%	**F**	below 60%

Types of Activities

For coursework (exams, quizzes), you are expected to do your own work individually and privately without any discussion with other students, the use of previously graded academic work, or the use of outside resources. Participation assignments are completed within class and can be worked with your peers. Homework is considered an individual assignment. The final project will be a group project. A final project peer review will be scheduled.

Course Schedule (tentative)

- Important Dates: https://floridapoly.edu/academics/academic-calendar/index.php

Week	Class (TR) / Topic	Activity
1	Getting Started with Python Datatypes and Structures Git, Gist, Github & Codespaces	Text CH01- Introduction to Python Text CH02-Built-In Data Types HW
2	Data Types, Dictionaries, Conditionals and Iteration	Text CH02-Built-In Data Types Text CH03-Conditionals and Iteration HW
3	Functional Programming	Text CH04-Functions, the Building Blocks of Code HW
4	Special Functions, Comprehension and Generators	CH-05 List Comprehension Map, Zip, Filter Quiz 1
5	Objects and Classes Inheritance, Operator Overloading, polymorphism	Text CH06-Object Oriented Programming Class and Inheritance HW
6	Exceptions, Content Mgrs, Files,	Text CH07 Exceptions Text CH08-Files & Data Persistence Quiz 2
7	Cryptography, Debugging Logging Module	Text CH09-Cryptography Text CH11-Debugging and Profiling

8	REST API Development JSON Parsing Authentication	Text CH14-Introduction to API Development Midterm Exam
9	GUI and Dashboards – Steamlit	HW
	Spring Break	
10	Agile-SCRUM Scientific Calculations | Numpy,	Canvas documents
11	Generative AI Fundamentals Langchain Framework	Canvas documents
12	AI Agents Grounding Searches ReAct Agents	Canvas documents HW
13	Function Calling Agents Callback Handlers Web Application Agents	Canvas documents Quiz 3
14	Retrieval Augmented Generation Agents Embeddings and Vector Stores	Canvas documents
15	Project Beta Testing Reading Days	Final Project
	Final Project Presentations	

Academic Support Resources

- **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center (TLC)**: : The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
- **Knack Tutoring:** Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
- **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit https://floridapoly.edu/writingcenter.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The University, through the Office of Disability Services (ODS), facilitates reasonable accommodation for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodation.

If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the ODS student portal and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodation must be made in advance. Accommodation is not retroactive.

If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible.

The Office of Disability Services (ODS):
DisabilityServices@floridapoly.edu
(863) 874-8770
The Access Point
ODS website: www.floridapoly.edy/disability

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See University Policy.)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. You may speak to your professor, but your professors have an obligation to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University Ombuds Office, BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at Peace River Center, 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discussion resources and options available.

Academic Integrity

The faculty and administration take academic integrity very seriously. Violations of academic integrity regulation include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in an academic integrity hearing and sanctions against the accused student if found in violation. Sanctions range from receiving a zero on the exam or assignment, to expulsion from the university. Repeat offenders are subject to more severe sanctions and penalties.

Any "special" instructions that are appropriate for academic integrity and the course should go here.

(It is essential that a heading and a statement on what constitutes, includes, academic integrity be included in the syllabus, and that the students be made aware of academic integrity at the beginning of a course.)

Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidently, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action).

Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is ***prohibited****.*

Civility and Collegiality

Faculty and students come to the university for the same reason, which is to participate in a highly professional educational environment. To that end, both students and faculty are expected to treat each other with mutual regard and civility. Communication, written, oral and behavioral, between faculty and students must remain respectful. Within and outside of the classroom, students must refrain from derogatory comments toward the faculty member and their fellow students, and faculty as well must refrain from derogatory comments toward their students. Faculty and students should address each other with respect, in accordance with the wishes of the faculty and the students: for example, no one should be addressed by their last name alone.

Faculty from the outset of a course can and should specify what constitutes activities and behavior that take away from, that diminish, the educational environment. An individual student's distracting behavior impedes the education of fellow students, which itself is a form of disrespect. Civility and collegiality also include respecting each other's time: for example, neither students nor faculty should arrive late to class (unless unforeseen, pressing circumstances prevail); faculty should be present at the posted office hours; and students and faculty should be punctual when meeting times are scheduled. In more general terms, collegiality means respecting the right of both faculty and students to participate fully and fairly in the educational enterprise.

Disclaimer:

This syllabus is tentative and may be subject to change. Everything in the syllabus might change except for 1) Course Description; 2) Textbook; and 3) Grading Scale.