

COP 3415 Syllabus

Course Information

- **Course Number and Title:** COP3415.01- Data Structures
- **Credit Hours:** 3 (Lecture hours: 3, Lab hours: 0)
- **Class Meeting Day, Time:** MWF, 2 PM-2:50 PM
- **Academic Term:** Spring 2026

Instructor Information

- **Instructor:** Dr. Paniz Abedin
- **Office Location:** BARC-2236
- **Office Hours:** MWF 1-2PM
- **Email address:** pabedin@floridapoly.edu

Course Delivery and Course Description

- **Delivery Mode:** Face-to-Face learning experience with class meetings twice a week in the class meeting location specified above. Please check the Canvas course website for all information, including announcements, discussions, and any supplementary material for topics covered in this course.
- **Course Website:** <https://floridapolytechnic.instructure.com/courses/8426>
- **Official Catalog Course Description:** The course studies a variety of useful algorithms and analyzes their complexity. Students will gain an understanding of principles and data structures that are useful in algorithm design.
 - **Prerequisite(s) or Co-requisite:**
 - COP 2080 - Computation Problem Solving in Python and COP 3337 - Object Oriented Programming with a "C" or better grade
 - **Communication/Computation Skills Requirement (6A-10.030):** No
 - **Required Texts and Materials:** A. Drozdek, "Data Structures and Algorithms in C++," 4th Edition, Cengage Learning, 2012, ISBN-13: 978-1133608424
- **Course Objectives:** To provide students with the capability of applying suitable data structures and design efficient algorithms toward problem solving.
- **Course Learning Outcomes:**

Course Learning Outcomes	Program Outcome (ABET Criteria (CAC))	Learning Level*
Develop and apply solutions using the basic data structures	1, 2, 4	Application
Analyze and compare the efficiency of different data structures.	1,2,6	Analysis
Demonstrate understanding in applying data structures manipulating techniques	1,2,6	Application
Infer, write, and debug C++ programs that are using different data structures.	1,2	Analysis
Evaluate appropriate data structures through effective communication in a team environment for solving complex problems	1,2,3	Comprehension

ABET CAC Learning Outcomes:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. 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. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing based solutions.

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.
- **Peer Learning Strategists (PLS):** Are specially trained student leaders who help their peers strategize approaches to course content and work through solution methods. PLS work in collaboration with the courses they support so the content and methods are aligned with your instructors' expectations. Students can meet with a PLS in The Learning Center, which is located on the first floor of the Innovation, Science and Technology (IST) building in room 1019.
- **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>.

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).

Participation

Students are expected to participate in the classroom experience. The use of earbuds/headphones during class is specifically not allowed and students who engage in this behavior may be asked to leave the class for the day (noting exceptions for authorized accommodations). In addition, students who routinely do not bring materials to class that are required for participation, will not be given credit for class attendance, and if this becomes a pattern of behavior,

may be asked to leave the class for the day. Persistent problems with participation may result in a [code of conduct](#) referral.

Late Work/Make-up work

No late submissions are allowed for assignments, projects or quizzes. In general, there is no make-up for assignments and quizzes. Make-up for a missed exam will be provided, given that an official excuse is presented.

Grading Scale

Grades will be determined according to the following scale: (See also [University Grading Policy](#)).

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

Assignment/Evaluation Methods

Assignment	Percentage
Homework assignments	20%
Midterm Exam	20%
Final Exam	20%
Projects	20%
Quizzes	15%
Participation	5%
Total:	100%

*Students are expected to spend at least two hours completing “out of class student work” **for each hour** in class. That makes around 9 hours a week.

- **Homework Assignments:** There will be several assignments and they will be posted on Canvas.
- **Projects:** There will be several projects (programming assignments) and they will be posted on Canvas.
- **Quizzes:** There will be multiple quizzes during the semester. All quizzes are pop up quizzes.
- **Participation:** It is important that you actively participate to learn the course subject.
- **Midterm Exam:** will test the subjects covered till mid semester.

- **Final Exam:** will test the subjects covered after Midterm Exam.

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 accommodations 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 accommodations.

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 accommodations must be made in advance. Accommodations are 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.edu/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 accidentally, 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.

Course Schedule (Tentative)

- We will cover most of the topics listed below. We might not cover all.
- Important Dates: <https://floridapoly.edu/academics/academic-calendar/index.php>

Week	Dates	Topic	Out of Class Student Homework and holidays
1	1/12/2026 - 1/16/2026	Complexity Analysis - Big-O Notation - Ω and Θ Notations	
2	1/19/2026 - 1/23/2026	Complexity Analysis - Best, Average, Worst Case	1/19 Martin Luther King Jr. Holiday - No Classes Assignment 1: Complexity Analysis
3	1/26/2026 - 1/30/2026	Linked Lists - Singly Linked Lists - Doubly Linked Lists - Circular Lists	
4	2/2/2026 - 2/6/2026	Queues - Queues functions(Enqueue, Dequeue, ...) - Priority Queues - Linked list implementation of Queues	
5	2/9/2026 - 2/13/2026	Stacks - Stacks functions (Push, Pop, Top, ...) - Array implementation of stack - Linked list implementation of Stack	Assignment 2: Linked Lists and Queues
6	2/16/2026 - 2/20/2026	Recursion - Function Calls - Recursive implementation	Assignment 3: Stacks Project 1 : Stacks
7	2/23/2026 – 2/27/2026	Binary Trees - Binary Search Trees Tree Traversal (BFS, DFS, ...)	
8	3/2/2026 - 3/6/2026	Binary Trees -Insertion, Deletion - Recursive Implementation	(3/2 Monday)Midterm Exam Project 1 is due
9	3/9/2026 - 3/13/2026	Binary Trees - BST different functions - AVL Trees	Assignment 4: BST Project 2 : BST

		Heaps	
10	3/16/2026 - 3/20/2026		Spring Break
11	3/23/2026 - 3/24/2026	Heaps Priority Queues Heap Sort	
12	3/30/2026 - 4/3/2026	Tries Graphs - Representations Graphs algorithms - BFS, DFS	
13	4/6/2026 - 4/10/2026	Graphs algorithms - Minimum Spanning Trees - Graph Coloring	Assignment 5: Graphs
14	4/13/2026 - 4/17/2026	Sorting Algorithms - Insertion sort, - Selection sort - Heap sort	
15	4/20/2026 - 4/27/2026	Sorting Algorithms - Quick sort - Merge sort Hashing - Hash Functions - Folding - Collision - Open Addressing	Project 3: Team Project
16	4/27/2026 - 5/1/2026	Hashing - Open Addressing - Rehashing Final Exam	

I reserve the right to modify this schedule as required by the progression of the class.

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Important Dates		
Jan 19	M	Martin Luther King Jr. Holiday - No Classes
Feb 10	T	Career day – No Classes
March 16 - 20	M-F	Spring break - No Classes
April 17	F	Withdrawal Without Academic Penalty Deadline (W assigned)
May 13	W	Final Grades Available Online

Disclaimer: This syllabus is tentative and may be subject to change. Everything in the syllabus might change except for: 1) the Course Description; 2) the textbook; and 3) the grading policy.