LeMoyne-Owen College
Division of Computer Science
Data Structures, COSI 330
Fall, 2024

Instructor:	Valerie Chu, Ph.D.
Office Room:	GOH 400D or Teams
Office Phone:	Teams Chat, (901) 435-1378 or (901) 568-4424 (cell)
Office Hours:	MWF 11:00 a.m. to 1:00 p.m.
	Tues/Thurs 12:15 p.m. to 2:15 p.m.
Email Address:	valerie_chu@loc.edu
URL:	https://www.loc-cs.org/~chu/

Credit Hours: Three

Prerequisites: COSI225

Class Meeting: Tuesday/Thursday 9:30 a.m. - 10:45 a.m.

Syllabus

Texts: *Fundamentals of Python: Data Structures, 2nd Edition,*
Kenneth A. Lambert. *ISBN: 978-0-357-12275-4*
Publisher: Cengage

Course Description:

This course is an introduction to data structures including lists, stacks, queues, trees, graphs, etc. Searching, sorting, merging, information storage and retrieval also are covered. Three hours of lecture per week.

College Graduate Competencies:

The two college graduate competencies (CGC) that are directly addressed in Data Structures are:

1. Think creatively, critically, logically, and analytically using both quantitative and qualitative methods for problem solving.
2. Communicate effectively (listen, speak, read, and write) on formal and informal levels.

Major Area Competency Levels:

The college graduate competencies are developed specifically for this course through major area competency levels (MAC). By the end of this course, students should have attained proficiency in the following major area competencies:

1. Demonstration of critical and logical skills to solve problems using Data Structures (CGC#1).
2. Show the ability of describing all possible ways of solving problems using Data Structures. (CGC#2).

Course Objectives:

The identified major area competencies focus on solving problems logically. Therefore, students are expected to show proficiency in the following:

1. Demonstrate familiarity with data structures such as lists, stacks, queues and their variations.
2. Demonstrate the understanding of different techniques for implementing these fundamental abstract data structures.
3. Enhance object-oriented programming concepts such as encapsulation, inheritance and polymorphism.
4. Provide a foundation for further studies in Computer Science.

Attendance Policy: In accordance with college policy, classroom attendance is required. The following standard will be applied:

1. If unexcused absences total 15% of the regularly scheduled class meetings, the instructor has the authority to lower the final grade by one letter.
2. If unexcused absences total 20% of the regularly scheduled class meetings, the instructor has the authority to give a failing grade.
3. Five classes tardy —arrival to class five minutes after class has begun—will equal one unexcused absence.
4. Students must attend at least 90% of class the session to be considered present.

Technology Use: LeMoyne-Owen College is committed to enhancing student learning through the use of a variety of applicable technology. In this course, students will attend class via Microsoft Teams or be exposed to Java Compiler and Interpreter.

Demeanor: Suitable demeanor, posture and attire are required. For guidelines and the dress code, please refer to the 2011/2012 Student Handbook (8-9; 13).

Classroom Policies and Procedures:

The classroom learning experience provides opportunities for faculty and students to engage in interactive exchanges of course content. To facilitate this exchange, the following guidelines are provided:

1. Because each class session covers vital material and information, it is important that students arrive on time to each class session.
2. In order to enhance students' performance and confidence in acquiring the material, it is critical that students come to each class session prepared. This includes bringing to class required texts, supplemental materials, and assigned work, which is provided on the course outline.
3. In order to limit unnecessary distractions which would deter learning, cell phones, multi-media devices, and laptops are required to be turned off or on vibrate when class is in session, except by permission of the faculty.

Faculty reserve the right to apply penalties for noncompliance to either or all of the above guidelines.

Assignments, Assessment and Submission Requirements:

Several quizzes, two mid-term tests and a final comprehensive examination will be given. There are **no make-up tests** except for a valid document from a doctor; however, a note from home is not acceptable.

Programming or written assignments will be assigned frequently. It has to be sent through the e-mail by the deadline (noon of the due day). **Late assignments will receive the following penalties**: 1 day late, minus 10 points; 2 days late, minus 20

points; 3 days late, minus 30 points; …and so on until zero credit. Students are responsible to check a return e-mail for assignment credits. If a student has turned in assignments and there is no response from the instructor, the student has to contact the instructor directly; otherwise, the student would get zero credit for the assignment. **Duplication of programming or written assignments will not be permitted. Duplicated programming assignments as well as the original will be assigned a grade of "F".**

Policies Related to Students with Disabilities:

If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please make an appointment with Jean Saulsberry, Director of Student Development, as soon as possible at (901) 435-1727. The Student Development Office is located in the Alma C. Hanson Student Center, Room 208.

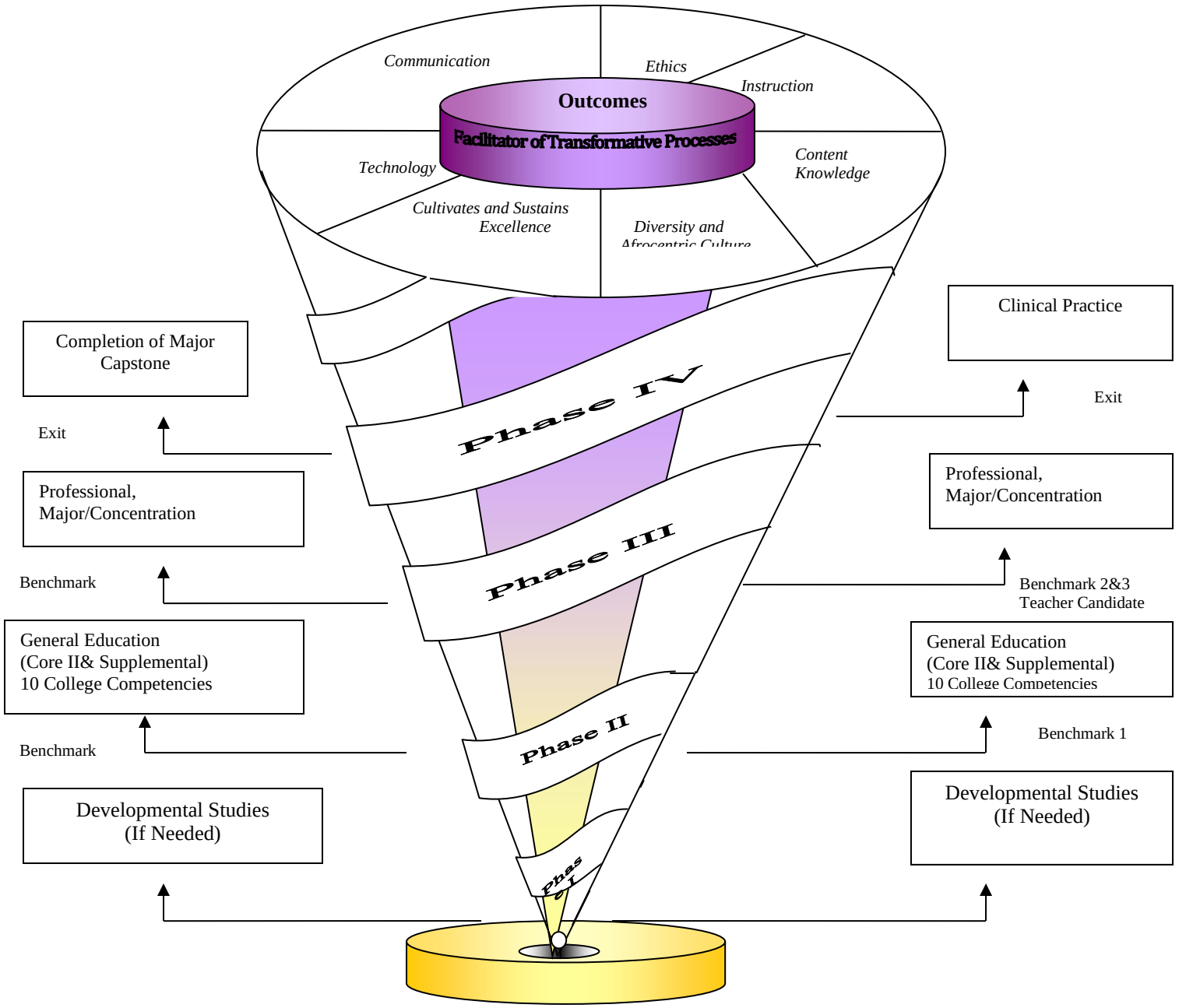
Student Performance Evaluation and Grading Scale:

The course grade will be calculated on the following distribution:		Grades will be recorded in numerical form until the final averages are determined at the end of the semester.	
Assignments	20%	*Grading Scale* will be	
Quizzes	20%	90 to 100	A,
Mid-term Tests	40%	80 to 89	B,
Final Comprehensive Exam	20%	70 to 79	C,
		60 to 69	D,
		others	F.

LeMoyne-Owen College Graduate Competencies (CGC)

LeMoyne-Owen College graduates should be able to:

1. Think creatively, critically, logically, and analytically using both quantitative and qualitative methods for problem solving;
2. Communicate effectively (listen, speak, read, and write) on formal and informal levels;
3. Distinguish, clarify, and refine personal values for the attainment of richer self-perception and relate those values to the value system of others;
4. Appreciate, understand, and know the foundations of the Afrocentric perspective;
5. Appreciate, understand, and know the foundations of diverse cultures in the context of a global community;
6. Appreciate, understand, now and pursue the principles, methods and subject matter that underlie the major discipline(s);
7. Accept social responsibility and provide service to humankind;
8. Maintain levels of literacy that allow them to understand the impact of science and technology on individuals, society, and the environment;
9. Attain motivational, personal management, interpersonal skills, professional development and research experience, as well as resourcefulness that will form the basis for a career and/or further educational experiences;
10. Attain critical skills, frame of reference, and understanding needed to appreciate and discriminate between artistic achievements.



Student

Teacher Education Pre-Candidate

The Conceptual Framework Model

Theme: Teacher as a Facilitator of Transformative Processes

Data Structures
Course Outline (tentative)

Weeks	Chapters	Topics / Readings
Week 1	1	Basic Python Programming
Week 2	2	An Overview of Collections
Week 3	3	Search, Sorting, and Complexity Analysis
Week 4-5	4	Arrays and Linked Structures
Week 6	5	Interfaces, Implementations, and Polymorphism
Week 7	6	Inheritance and Abstract Classes
Week 8	**Review and Test1**	
Week 9	7	Stacks
Week 10	8	Queues
Week 11-12	9	Lists
Week 13	6	Trees
Week 14	**Review and Test2**	
Week 15	**Comprehensive Final Exam**	

Instructor reserves the right to add or subtract assignments or assessments.