Seneca POLYTECHNIC | SCHOOL OF COMPUTER PROGRAMMING & ANALYSIS

Course Code	DSA456	Course Section	NFF	Course Title	Data Structures and Algorithms
Term	Fall 2024 (2247)	Course Outline Link	Course outline	Instructional Mode	HyFlex/Hybrid
Scheduled Weekday for Lecture	Tuesday	Scheduled Class Start Time (in Eastern Time)	11:40 AM	Scheduled Class End Time (in Eastern Time)	1:25 PM
Scheduled Weekday for Lab	Thursday	Scheduled Class Start Time (in Eastern Time)	11:40 AM	Scheduled Class End Time (in Eastern Time)	1:25 PM
		September-December			
Professor's Name	Hamed Karimi	Professor's Email Address	hamed.karimi@senecapolytechnic.ca	Professor's Telephone Number	N/A
Scheduled Office Hours	Tuesdays, 5PM-6PM (Virutally Through Zoom; Email for Appointment)	Professor's Preferred Method of Communication	Email	Expected Response Time	Less than Two Business Days

Assessment Summary

Assignment : 20% (2 @ 10% each)

Labs: 10% (Top 5 of 6 @ 2% each)

Quizzes 10% (Top 5 of 6 @ 2% each)

Midterm Test: 30%

Final Test: 30%

The semester starts on September 3rd					
Week	Class type	Topics/Activities	Instruction Mode	Class Location	Assessment Due (Type and weight)
Week 1	Lecture	Introduction, Introduction to Python	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Sep. 3 - 6	Lab	Introduction, Introduction to Python	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Lab 0 - 0%
Week 2	Lecture	Analysis of Algorithms, Asymptotic Notation	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Sep. 9 - 13	Lab	Analysis of Algorithms, Asymptotic Notation	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Lab 1- 2%, Quiz 1 - 2%
Week 3	Lecture	Recursion, Searching and Sorting	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Sep. 16 - 20	Lab	Recursion, Searching and Sorting	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Lab 2 - 2%
Week 4	Lecture	Searching and Sorting, Lists	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Sep. 23 - 27	Lab	Searching and Sorting, Lists	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Quiz 2 - 2%
Week 5	Lecture	Lists, Stacks and Queues	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	

Sep. 30 - Oct. 4	Lab	Lists, Stacks and Queues	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Lab 3 - 2%
Week 6	Lecture	Tables	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Oct. 7 - 11	Lab	Tables	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Quiz 3 - 2%
Week 7	Lecture	Cleanup and Review	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	Assignment 1 due- 10%
Oct. 14 - 18	Lab	Test 1	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Test 1 - 30%
Study week is from October 21st to October 25th					
Week 8	Lecture	Graphs	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Oct. 28 - Nov. 1	Lab	Graphs	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Lab 4-2%
Week 9	Lecture	Trees and Heaps	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Nov. 4 - 8	Lab	Trees and Heaps	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Quiz 4- 2%
Week 10	Lecture	Heaps and Heapsort	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Nov. 11 - 15	Lab	Heaps and Heapsort	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Lab 5 - 2%
Week 11	Lecture	Binary Search Trees	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Nov. 18 - 22	Lab	Binary Search Trees	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Quiz 5 - 2%
Week 12	Lecture	Augmented data structures	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	
Nov. 25 - 29	Lab	Augmented data structures	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Lab 6 - 2%
Week 13	Lecture	Complexity Theory	Flexible (Attend on campus or online)	Physical Classroom (Newnham - Building A - A3065)	Assignment 2 Due, 10%
Dec. 2 - 6	Lab	Wrap Up-Review	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Q6 - 2%
Week 14	Lecture	Wrap Up-Review/Final Test	In-Person (Attend on campus)	Physical Classroom (Newnham - Building A - A3065)	Final Test-30%
Dec. 9 - 11	Lab	Final Test	In-Person (Attend on campus)	Physical Classroom (Newnham - Building B - B3040)	Final Test-30%
The semester ends December 11th					

Other Important Semester Dates

September 2nd - Labour Day (Seneca Closed)

September 3rd – Fall Term Begins

October 14th - Thanksgiving (Seneca Closed)

December 11th – Fall Term Ends

December 25th - January 2nd - Holiday Period — (Seneca closed)

IMPORTANT INFO

Primary Addendum Approved by:

Please read this addendum to the general course outline carefully. It is your guide to the course requirements and activities.

Please refer to the course outline for learning outcomes, course description and text and materials.

Please also visit Welcome | School of Computer Programming and Analysis (senecapolytechnic.ca) for key information on courses, graduation requirements, transfer credit, and more from the School of Computer Programming and Analysis.

Course Policies

Assessment Summary

Assignment : 20% (2 @ 10% each)

Labs: 10% (Top 5 of 6 @ 2% each)

Quizzes 10% (Top 5 of 6 @ 2% each)

Midterm Test: 30%

Final Test: 30%

In order to pass DSA456 you must:

Achieve a grade of 50% or better on the weighted average of the midterm and final tests OR achieve a grade of 50% on final test

Achieve an overall grade of 50% or higher. See chart below for Grading Policy

Grading Policy

A+	90% to 100%
A	80% to 89%
B+	75% to 79%
B	70% to 74%
C+	65% to 69%
C	60% to 64%
D+	55% to 59%
D	50% to 54%
F	0% to 49% (Not a Pass)

Labs

Labs are short programming, analysis, or long answer problems. Labs are meant to reinforce ideas and concepts covered. They typically should not require more than **two to four hours of work each**. Missed labs get a grade of 0. Everyone will be allowed to miss one lab without penalty. In other words, if there are 6 labs, only the top 5 grades will count towards your final mark. The lowest lab grade is always dropped. You do not need to ask permission or let us know. It will be automatic.

Labs have a grade of 0, 1, and 2. If they are correctly completed and submitted before the due date, the grade is 2. If there are significant errors and or missing components but the most of it is done, you may get a mark of 0.5. Note that for any lab that has a coding component, **a test verification is a MINIMUM requirement for any consideration of partial marks. If labs are not** submitted by the due date, the grade for the lab will be 0.

Assignments

Assignments are more complex assessments that are meant to develop deeper, professional skills. They are graded on the quality of the work (ie completion is a minimum requirement only, see assignment grading section). The quality of a piece of work includes many different aspects but can include:

Documentation, Consistent coding style and practices, Correct Memory Usage, Correctness of Code for edge cases, Efficiency, Correct mathematical and analytical statements for analysis, Thorough, complete, and correct answers to the reflection question

Assignment Grading

In earlier programming courses, the focus was on solving a problem and writing code that was working, well structured and well documented. Those requirements are still in place for DSA456. However, a large part of this course is about the analysis of source code. As such, simply making the code "work" and having well-structured, documented code will not be good enough for full marks on an assignment. Your code must not only work to spec but also have an efficient implementation. This will apply to all programs for this course. If your solution is not algorithmically efficient, marks will be deducted. You may even need to resubmit your program if it is very far off from the optimal efficiency. You will need to think through your code in order to get full marks for your work.

Academic Policies

http://www.senecapolytechnic.ca/about/policies/academics-and-student-services.html
For further information, see a copy of the Academic Policy, available online (http://www.senecapolytechnic.ca/about/policies/academics-and-student-services.html) or at Seneca's Registrar's Offices.

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