CS162-001: Due Dates

Spring 2018

(The following dates are subject to change!)

Program Number	Assignment Description	Due Date	Late Date	Due Time
Algorithm #1	Algorithm and Flowchart[1] (Use outline form)	Mon 4/9	Wed 4/11	7pm
Program #1	Program[2]	Mon 4/16	Wed 4/18	7pm
Algorithm #2	Algorithm and Flowchart[1] (Use outline form)	Mon 4/23	Wed 4/25	7pm
Program #2	Program[2]	Mon 4/30	Wed 5/2	7pm
Algorithm #3	Algorithm and Data Flow Diagram[4] (Use paragraph form)	Mon 5/7	Wed 5/9	7pm
Program #3	Program[2]	Mon 5/14	Wed 5/16	7pm
Algorithm #4	Algorithm and Data Flow Diagram[4] (Use paragraph form)	Mon 5/21	Wed 5/23	7pm
Program #4	Program[3]	Mon 5/28	Wed 5/30	7pm
Program #5	Program[3] **(No Algorithm and No diagram)**	Wed 6/6	No Late Program #5	7pm

Quiz or Exam #	Topics	Date	Time
Quiz #1	• Conditionals and Loops	Wed 4/18	In-class (50 min)
Midterm Exam	• Topics 1 and 2	Mon 4/30	In-class (1 hr 50 min)
Quiz #2	• Structs, pointers • External Data Files • LLL Traversal	Wed 5/30	In-class (50 min)
Final Exam	• Comprehensive • Topics 1-6 • Linear Linked Lists	Mon 6/11	7:30pm-9:20pm

1 Algorithm submission should be written in outline form (400-600 words); include a flow chart

2 Program submission includes .cpp file.

3 Program submission includes .cpp and .h files. Please tar your submissions.

4 Algorithm submission should be written in paragraph form; include a data flow diagram

CS162: Course Outline: *(7th Edition of Malik)*

Spring 2018

(the following outline is subject to change!)

WEEKS #1 and 2: Getting started with C++

Date: **Topic:** **Reading/Projects:**

4/2 **Topic #1** ***** Please read the syllabus *****

• Introduction: Syllabus, Objectives for the Course, Class Introduction, and Review Outline. **Malik: 1, Shk: 1**

4/4 **• Overview and/or Review of C++** **Malik: 2, 3**

- Structure of C++ Programs
- C++ Statements
- Data Types
- Operators

Week #1 Lab Session: **By Lab#1 – Get a CS Account (prior to your first lab!)**

Linux Lab #1 – Getting Started with linux

CS162 Lab #1 – Getting Started **No Prelab Exercises for the first lab!**

4/9 **• Continue with C++ (Loops and Arrays)**

• I/O, Conditionals, Repetition, Arrays **Malik: 4, 5, Shk: 2**

- Branching Statements
- Loops and Relational Expressions
- I/O and formatting output
- Arrays, Strings, String I/O

4/11 Demonstration: Creating a complete program in C++

- Explore C++ assignment statements, conditionals, and truth tables
- Explore C++ arrays of characters

Week #2 Lab Session: **Bring completed Prelab Exercise!**

Level 1 Linux Exercise #1.1 – Files and Directories

CS162 Lab #2 – Topic #1 Getting Started with C++ syntax

Bring your two Lab books and have the CS162 Lab #2 Pre-Lab exercises completed!

Practice creating a C++ program using assignment statements, conditionals and truth tables

Gain experience with loops

WEEK #3: Functions

Date: **Topic:** **Reading/Projects:**

4/16 Topic #2

Overview of C++ Functions **Malik: 6, 7**

- Prototypes vs. Function Definitions
- Pass by value, by reference, by const
- Passing fundamental types and arrays

4/18 Functions:

- Demonstration: Designing using modularity
- Demonstration: Writing programs using functions with arguments
- Explore C++ functions, pass by reference, pass by value, and returning values

- **QUIZ #1 on Conditionals and Loops**

Week #3 Lab Session: **Bring completed Prelab Exercise!**

Level 1 Linux Exercise #1.2 – Wildcards
CS162 Lab #3 – Arrays

- Bring your Pre-Lab exercise completed!
- Practice C++ arrays of characters, creating, reading, manipulating
- Gain experience with cstring and cctype libraries
- If you can't complete the entire lab, consider attending a makeup session
- Complete the self-check quiz in the CS162 lab manual after you have finished the lab! Remember to work on the self-check quiz as closed-book, closed notes!

WEEK # 4: Structures, External Files

Date:	Topic:	Reading/Projects:
4/23	**Topic #2: Structures** • What they are • How to create them • Working with arrays of structures	**Malik: 9, Shk: 3**
4/25	**Prepare for the Midterm** • Review concepts • Discuss expectations for the midterm • Work through sample problems	

Week #4 Lab Session: **Bring completed Prelab Exercise!**

Level 1 Linux Exercise #1.3 – Using Redirection
CS162 Lab #4 – Functions and Arguments

- Bring your Pre-Lab exercise completed!
- Remember to read the background information in the lab manual prior to completing the prelab exercises
- Practice: Writing programs using functions with arguments
- Explore C++ functions, pass by reference, pass by value, and returning values
- Use the self-check quiz after the lab is over to determine your level of proficiency!
- And, remember to program every day!!

WEEK #5: Midterm and Proficiency Demos

Midterm Proficiency Demos Take place during Weeks #4-5

- Midterm Proficiency Demos are by appointment
- You will receive an appointment calendar link through PSU (pdx.edu) email

Date: **Topic:** **Reading/Projects:**

4/30 Midterm Exam

5/2 External Files and Structs

- Lecture: External Data Files
- Demonstration: Writing programs using structs and external files
- Explore C++ functions working with structs
- Experience external data files

Week #5 Lab Session: **Bring completed Prelab Exercise!**

Level 1 Linux Exercise #1.4 – Backing-up Files
CS162 Lab #5 – Structures and External Files

- Bring your Pre-Lab exercise completed!
- Practice: Writing programs using structs
- Explore C++ functions working with structs
- Experience using external data files
- *** Pay particular attention to the CS162 CS Midterm Proficiency Demonstration section in the CS162 Lab manual!

WEEK # 6: Pointers and Dynamic Memory

Date:	Topic:	Reading/Projects:

5/7 Topic #3 C++ Class Construct, Data Abstraction and Abstract Data Types

- Data Abstraction and Abstract Data Types **Malik: 10**
- The C++ Class, Class versus Structs **Shk: 4**
- Class Constructors, Defining and Using Functions and Classes.
- General discussion of the C++ Class and creating .h files
- Constructors

5/9 Pointers and Dynamic Memory **Malik: 12**

- Introduce pointer variables, memory allocation and deallocation
- Examples manipulating pointers **Shk: 5.1-5.4**

Week #6 Lab Session: **Bring completed Prelab Exercise!**

Level 1 Linux Exercise #1.5 – Archiving Files
CS162 Lab #6 – The Class Construct

- Bring your Pre-Lab exercise completed!
- Experience building classes and member functions
- Pay close attention to the Linux exercises #1.4 and 1.5 on backing up and archiving

WEEK #7: Linear Linked Lists

Date: **Topic:** **Reading/Projects:**

5/14 Pointers and Dynamic Memory
- Pointer Arithmetic
- Pointers to structs (learn about the . versus ->)

Topic #4
Dynamic Data Structures **Malik: 17**
- Review of Pointers and the new Operator
- Pointer Arithmetic
- Introduction to Linked Lists **Shk: 5.5-5.6**
- Demonstration: Using pointers and linked lists

5/16 Topic #4 Continued
Dynamic Data Structures
- Insert Algorithms for Linear Linked Lists

***** LAB #7 is the topic of our final proficiency demos!!!!!**

THURSDAY LAB
Week #7 Lab Session: **Bring completed Prelab #7 Exercise!**

Level 1 Linux Exercise #1.6 – Getting Started with vim
CS162 Lab #7 – Pointers and Dynamic Memory

- Bring your Pre-Lab exercise completed!
- Remember to read the background information prior to completing the Pre-Lab exercises!
- Experience pointers and dynamic memory
- Practice traversing linear linked lists
- Continue exploring the use of classes

WEEK # 8: Manipulating Linear Linked Lists

Date: **Topic:** **Reading/Projects:**

5/21 Topic #4 Continued
Dynamic Data Structures
- Insert and Removal Algorithms
- Demonstration: Inserting and Removal
- Explore writing functions to traverse and modify a linear linked list
- Explore Classes and dynamic structures
- Intro to Recursion using a recursive destructor

5/23 Topic #5 Recursion **Malik: 15**
Shk: 4.10, 6

- The Nature of Recursion, Tracing a Recursive Function, Recursive Mathematical Functions, Recursive Functions with Array Arguments
- Work through examples of recursion in class
- Problem solving with Recursion

Week #8 Lab Session: **Bring completed Prelab Exercise for Lab #7 and #8!**

Complete Level 1 Linux Exercise #1.6 – Getting Started with vim
Complete CS162 Lab #7 – Pointers and Dynamic Memory

Level 1 Linux Exercise #1.7 – vim Navigation
CS162 Lab #8 – Linear Linked Lists

- Bring your Pre-Lab exercises completed!
- Experience building and removing from linear linked lists
- Continue exploring the use of classes
- IMPORTANT – make sure to practice working with linear linked list problems daily!

WEEK #9: Recursion

Date: **Topic:** **Reading/Projects:**

5/30 Recursion and LLL: Practicing

- Demonstration: Recursion and LLL
- Explore writing recursive functions

6/4

QUIZ #2 on Structs, External Files, Pointers and LLL Traversal

Week #9 Lab Session: **Bring completed Prelab for Lab #9**

Level 1 Linux Exercise #1.8 – Making Modifications with vim

CS162 Lab #9 – Recursion

- Bring your Pre-Lab exercises completed!
- Remember to read the background information in the CS162 Lab manual before completing the Pre-Lab exercises
- Experience applying recursion to LLL problems
- Practice Linear Linked lists

- IMPORTANT – make sure to practice working with linear linked list problems daily!

WEEK #10: Advanced Pointers and Review

Date:	**Topic:**	**Reading/Projects:**

6/4 **Topic #6 Arrays with Structured Elements** **Malik: 8**

• Arrays of Arrays: Multidimensional Arrays, **Shk: 8**
Creating Arrays of Arrays, Arrays of Structs, and Arrays of Class Elements.

6/6 **Prepare for Final Exam**

- Review concepts
- Discuss expectations for the midterm
- Work through sample problems

Week #10 Lab Session: **Bring completed Prelab for Lab #10**

Level #1 Linux Self Check Exercises

CS162 Lab #10 – Practicing LLL

- Bring your Pre-Lab exercises completed!
- Remember to read the background information in the CS162 Lab manual before completing the Pre-Lab exercises
- Experience applying recursion to LLL problems
- Practice Linear Linked lists

- IMPORTANT – make sure to practice working with linear linked list problems daily!

Finals Week:

Final Proficiency Demonstrations take place by appointment during week #10 and finals week

An appointment calendar link will be emailed to your pdx.edu email!

Final Exam Time: **Monday June 11th 7:30pm – 9:20pm**

******IMPORTANT – ALL Proficiency demos MUST BE COMPLETED BY June 13th, no exceptions.***