**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]](#footnote-1)**  (Use outline form) | Mon 4/9 | Wed 4/11 | 7pm |
| **Program #1** | Program[[2]](#footnote-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** | Program2 | 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** | Program2 | 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 |

**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,  **Malik: 1, Shk: 1**

Class Introduction, and Review Outline.

**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** **Malik: 9,** **Shk: 3**

* What they are
* How to create them
* Working with arrays of structures

**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.***

1. Algorithm submission should be written in outline form (400-600 words); include a flow chart [↑](#footnote-ref-1)
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 [↑](#footnote-ref-2)