ELEC 101: Introduction to Computer Programming

Term: Winter 2025

Instructor: Kayne Lee

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Office Hours: Mondays 9-10AM

Class Schedule: Monday 10:30-11:30AM @ Stirling Hall Aud, Wednesday 10:30-11:30AM @ Chernoff Aud, Friday 10:30-11:30AM @ Biosciences Complex 1101

Course Description

This course introduces students to fundamental programming concepts using Python. Topics include variables, control structures, functions, recursion, and basic data structures. By the end of the course, students will be able to write structured programs to solve computational problems.

Grading Breakdown

- **Assignment 1: Control Structures (10%)** – Due Week 4
- **Assignment 2: Functions & Recursion (10%)** – Due Week 8
- **Assignment 3: Cumulative Project (10%)** – Due Week 12
- **Midterm Exam (20%)** – Week 6
- **Final Exam (50%)** – Exam Period

Course Schedule

Week 1: Introduction to Python & Basic Syntax

- Overview of Python

- Variables & Data Types
- Input & Output

Week 2: Control Structures – If-Else Statements

- Conditional Statements
- Boolean Logic

Week 3: Loops – For & While Loops

- Looping through Data
- Nested Loops
- **Assignment 1 Released: Text-Based Adventure Game**
  - Students will create a simple text-based adventure using `if-else` statements and loops.

Week 4: Lists, Tuples, and Dictionaries

- Storing and Manipulating Data
- List Comprehensions

Week 5: Functions & Parameters

- Defining Functions
- Function Scope
- Return Statements

Week 6: Midterm Exam

- Covers Weeks 1-5

Reading Week – No Classes

Week 7: Recursion & Advanced Functions

- Recursive Functions
- Lambda Functions

- **Assignment 2 Released: Recursive Maze Solver**
  - Students will write a function that recursively solves a simple maze.

Week 8: File Handling & Exception Handling

- Reading/Writing Files
- Try-Except Blocks

Week 9: Object-Oriented Programming (OOP) Basics

- Classes & Objects
- Inheritance & Encapsulation

Week 10: Introduction to Algorithms & Complexity

- Sorting & Searching Algorithms
- Big-O Notation

Week 11: Final Project Development

- **Assignment 3 Released: Personal Finance Tracker**
  - Students will build a small program that tracks expenses and incomes, using all concepts learned.

Week 12: Review & Final Exam Prep

Policies & Expectations

- **Late Submissions:** 10% deduction per day, up to 3 days.
- **Academic Integrity:** All work must be your own; plagiarism will result in penalties.