Programming Logic: Python
CSB2150

Course Description
This course will guide the student in developing structured program logic with good programming practices. Included in the course are fundamental programming concepts, including decision making, looping, and classes with a focus on practical examples. The text contains flowcharts and pseudocode to provide some familiarity with these development tools. Simulated tasks are provided for Python.

Rationale
This course is designed to offer the student hands-on practical experience that allows them to begin thinking “like a programmer.” It is an introductory step to learning to program with more detail in Python.

Prerequisite
Junior Standing

Measurable Learning Outcomes
A. Demonstrate possession of a solid grasp of language-independent programming logic.
B. Interpret basic programming concepts including good style and logical thinking.
C. List the advantages of writing structured programs.
D. Detect the intricacies of decision making, looping, and array manipulation.
E. Articulate the details of file handling.
F. Interpret more advanced techniques in array manipulation and modularization.
G. Describe concepts and terminology used in object-oriented programming, including classes, objects, multithreading, and animation.

Course Materials
See LUOA’s Systems Requirements for computer specifications necessary to operate LUOA curriculum. Also view Digital Literacy Requirements for LUOA’s expectation of users’ digital literacy.

This course contains additional physical materials. See the materials page toward the end of this syllabus for a listing of course materials.
This course makes use of third-party digital resources to enhance the learning experience. LUOA staff and faculty have curated these resources. Students can safely access them to complete coursework. Please ensure that internet browser settings, pop-up blockers, and other filtering tools allow for these resources to be accessed. See Technologies and Resources Used in this Course below for a specific list.

- Note: Embedded YouTube videos may be utilized to supplement LUOA curriculum. YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, LUOA is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the Jerry Falwell Library.

Technologies and Resources Used in this Course

The following resource(s) are used throughout this course:

- Cengage MindTap

Course Grading Policies

The student’s grades will be determined according to the following grading scale and assignment weights. The final letter grade for the course is determined by a 10-point scale. Assignments are weighted according to a tier system, which can be referenced on the Grades Page in Canvas. Each tier is weighted according to the table below. Items that do not affect the student’s grade are found in Tier 0.

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>Assignment Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  90-100%</td>
<td>Tier 0 0%</td>
</tr>
<tr>
<td>B  80-89%</td>
<td>Tier 1 25%</td>
</tr>
<tr>
<td>C  70-79%</td>
<td>Tier 2 35%</td>
</tr>
<tr>
<td>D  60-69%</td>
<td>Tier 3 40%</td>
</tr>
<tr>
<td>F  0-59%</td>
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</tbody>
</table>

Course Policies

Students are accountable for all information in the Student Handbook. Below are a few policies that have been highlighted from the Student Handbook.

Types of Assessments

To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, “1.2.W Quiz: The American Revolution.” These identifiers were placed on the Modules page to help students understand which Honor Code and Resubmission policies apply to that assessment (see the Honor Code and Resubmission policies on the pages that follow for further details).
- **Lesson:** *Any item on the Modules page designated as a “Lesson”*
  These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.

- **Assignment:** *Any item on the Modules page designated as an “Assignment”*
  Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.

- **Quiz:** *Any item on the Modules page designated as a “Quiz”*
  This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.

- **Test:** *Any item on the Modules page designated as a “Test”*
  This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

**Resubmission Policy**

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson:** Students are automatically permitted two attempts on a Lesson. The student may freely resubmit for their first two attempts without the need for teacher approval.

- **Assignment:** Students are intended to do their best work the first time on all Assignments. However, any resubmissions must be completed before the student moves more than one module ahead of that Assignment. For example, a student may resubmit an Assignment from Module 3 while in Module 4 but not an Assignment from Modules 1 or 2. High School students may not resubmit an Assignment without expressed written permission from the teacher in a comment.

- **Quiz:** Students may NOT resubmit for an increased grade.

- **Test:** Students may NOT resubmit for an increased grade.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request, and that request will need to be approved by a Department Chair.

**Consequences for Violations to the Honor Code**

Every time a student violates the Honor Code, the teacher will submit an Honor Code Incident Report. The Student Support Coordinator will review the incident and allocate the appropriate consequences. Consequences, which are determined by the number of student offenses, are outlined below:

- **Warning:** This ONLY applies to high school Lessons and elementary/middle school Assignments and Lessons. Students should view these actions as learning opportunities.
• **Lessons:** A zero will be assigned for the question only.
• **Elementary/Middle School Assignment:** The student must redo his or her work; however, the student may retain his or her original grade.

• **1st Offense:**
  • **Lesson, Quiz, or Test:** The student will receive a 0% on the entire assessment.
  • **Assignment:** The student will either:
    • Receive a 0% on the original assignment
    • Complete the Plagiarism Workshop
    • Retry the assignment for a maximum grade of 80%

• **2nd Offense:** The student will receive a 0% and be placed on academic probation.
• **3rd Offense:** The student will receive a 0% and the Faculty Chair will determine the consequences that should follow, possibly including withdrawal from the course or expulsion from the academy.
Materials List
CSB2150

COURSE MATERIALS

- Cengage MindTap – access to this simulation software is provided directly through your Canvas course – no access code or key is required
- USB flash drive or cloud storage - this course may require students to create several projects which should be backed up regularly to a flash drive or a repository on the Cloud. Lost projects which are not backed up may need to be recompleted if there are technical issues for the student.
Scope and Sequence
CSB 2150

Topic 1: An Overview of Computers and Programming

Topic 2: Elements of High-Quality Programs

Topic 3: Understanding Structure

Topic 4: Making Decisions

Topic 5: Looping

Topic 6: Arrays

Topic 7: File Handling and Applications

Topic 8: Advanced Data Handling Concepts

Topic 9: Advanced Modularizations Techniques

Topic 10: Object-Oriented Programming

Topic 11: More Object-Oriented Programming Concepts

Topic 12: Event-Driven GUI Programming, Multiheading, and Animation