



Nature of Computing

CSCI 104 Section 04

SEMESTER (Spring 2018)

PROFESSOR/CLASS INFORMATION

Shieu-Hong Lin

(Course) Title: Nature of Computing

Term: Spring, 2018

Location: Busn 210

Office Phone: 562 903-4741

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Course Code/#: CSCI 104 Section 4

Class Days/Time: Th 1:30-3:20 pm

Credit Hours/Units: 2

Office Location: Lim 137

Meetings with Professor: Make Appt via Email

Admin Assistant: Jerrienne Smith, x4741

Dept. Website: <http://csci.biola.edu>

Class Website: <http://csci.biola.edu/csci104Lin/>

Avoid the use of stereotypes or terminology that demeans persons or groups based on age, disability,

COURSE DESCRIPTION

The history of computing machines. Computer logic and binary arithmetic. Elementary concepts of computers. Elementary programming. Societal impact of computers. Offered every Semester.

COURSE ALIGNMENT WITH PROGRAM LEARNING OUTCOMES

CSCI 104 Nature of Computing: This lower-division course is an elective general-education course for non-CS majors. Successful completion of this course (see next section) will prepare students to demonstrate a general understanding of computer science and its applications.

COURSE OBJECTIVES AND STUDENT LEARNING OUTCOMES

By the completion of this course including class participation, class assignments (referred to as "Tasks"), class readings and group interaction, the following objectives and learning outcomes will be assessed and demonstrated:

IDEA Objective #1: Learning fundamental principles, generalizations, or theories underlying modern information and computation infrastructures. (Essential emphasis).

STUDENT LEARNING OUTCOMES (The learner will demonstrate that he or she has satisfactorily fulfilled IDEA Objective #1 by being able to):

- comprehend the basics of modern computer hardware and software,
- write simple programs in Processing based on the fundamental programming concepts/features provided by Processing and its programming environment, and
- generate visual effects of animation and beauty as an application of computer science.

REQUIRED TEXTS

- Online references and tutorials on Processing from <https://processing.org/> and more
- **Optional:** Technology in Action: Introductory Edition: 11th.

LEARNING TASKS (Assignments) & ASSESSMENT (Grading)

Task 1: Weekly Attendance Report

Weight: 25%

Date: Weekly after the class

Description: Turn in the class notes and the reflection after each meeting.

Assessment: 6 points in total for each report.

- **Attendance (2 points):** The student needs to attend the class to gain 2 points.
- **Class notes (2 points):** The student needs to **take notes in the class** to succinctly document the key concepts and programming constructs introduced in the class.
- **Reflection (2 points):** The student needs to **put down** 1-2 paragraphs as **reflection** on the experiences of class (programming) activities.

Task 2: Lab Assignments

Weight: 30%

Date: One week after it is posted

Description: During the semester, the student develops simple programs in Processing based on the concepts investigated in sample programs studied in the class to generate visual effects of animation and beauty. These lab assignments are designed to help the student incrementally develop basic programming skills to better understand the nature of computing.

Assessment: 3 points for each lab.

- **3 points:** Well done.
- **2 points:** Partially done with minor flaws in the result.
- **1 point:** Partially done with serious flaws in the result.
- **0 point:** No work shown.

Task 3: Programming Projects

Weight: 40%

Description:

- (i) **The tic-tac-toe project** (10%): The student will be guided to incrementally develop a program for playing tic-tac-toe by using the work they have done in the lab assignments.
- (ii) **The 8-puzzle project** (10%): The student will be guided to adapt the framework of the tic-tac-toe program to develop a program for playing the **8-puzzle** game.
- (iii) **The bouncing ball project** (20%): The student will be guided to adapt the framework of a few bouncing-ball programs to design and develop a program for playing a simple 2D game.

Task 4: Faith-and-Learning Integration Reflection

Weight: 10%

Description: Reflection on the connection between the creation accounts in Genesis and the programming experiences this semester.

CLASS INFORMATION

1. Class Attendance:

Attendance: You are expected to attend the class regularly. It is a critical component of the course since we will explore Processing as a programming language to learn the fundamental concepts of computing. We'll study sample programs using the computers in the lab. Missing the class will seriously hamper your understanding of many key concepts and programming skills critically needed in your assignments.

Points for attendance: Points are counted for your class attendance as you reported in the weekly attendance and progress report.

2. Submission of Work and Late Policy:

Due dates of various assignments will all be on Thursdays. You need to submit your work online under Canvas. The submission link under canvas will remain open for a week. No submission will be allowed after the submission link is closed.

3. Computation of Final Grade:

Weekly Attendance Report	25 %
Lab Assignments	30%
Projects	40 %
Reflection Assignment	10%
Total	105%

4. Final grades will be awarded on the following point system:

A	93%
A-	90%
B+	87%
B	84%
B-	80%
C+	77%
C	74%
C-	70%
D+	67%
D	64%
D-	60% to pass class

GENERAL INFORMATION

1. The GPA System used by the University Registrar's Office is:

A = 4.0	B = 3.0	C = 2.0	D = 1.0
A- = 3.66	B- = 2.66	C- = 1.66	D- = 0.66
B+ = 3.33	C+ = 2.33	D+ = 1.33	F = 0.0

Tentative Schedule

Week	Subject of Exploration
1	Make the computer interact/ behave as we want
2	Program the behavior of the computer: Part I : Variables and storing information in variables
3	Program the behavior of the computer: Part II: Input/output
4-5	Program the behavior of the computer: Part III: Operations and expressions
6-7	Program the behavior of the computer: Part IV: Conditional statements

8	Review and Midterm
9-10	Program the behavior of the computer: Part V: Loops and Iterations
11-12	Program the behavior of the computer: Part VI: Functions
13-15	Final project: Putting things together