



## Nature of Computing

### CSCI 104 Section 04

SEMESTER (Fall 2017)

#### PROFESSOR/CLASS INFORMATION

##### Shieu-Hong Lin

(Course) Title: Nature of Computing

Term: Fall, 2017

Location: Busn 210

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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: Grove 8

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
- Class notes on the concepts of computing.
- Optional: Technology in Action: Introductory Edition: 11<sup>th</sup>.

## LEARNING TASKS (Assignments) & ASSESSMENT (Grading)

### Task 1: Weekly Attendance and Progress Reports

**Weight:** 50%    **Date:** Thursday of the week typically

**Description:** Turn in a weekly report on attendance and notes on the progress in learning.

**Assessment:** 6 points in total for each report.

(i) **Attendance (3 points):** The student needs to attend the class to gain 3 points.

(ii) **Notes on the progress in learning (3 points):** The student needs to submit a few paragraphs as **the reflection** on the new concepts he/she has learned through the lectures and the reading materials. The student is strongly encouraged to take succinct notes in the class and expand them to gain the full points.

- 3 points (Good): The notes solidly reflect reading, experiments, and coding done, consistent with the effort spent in the work
- 2 points (Insufficient): More details should be provided in the notes to better reflect the effort spent in the work.
- 1 point (Inadequate): A lot more details should be provided in the notes to better reflect the effort spent in the work.
- 0 point (Unacceptable): There is no report or the notes are far too sketchy to reflect anything about time spent in the work.

### Task 2: Lab Assignments and Final Project

**Weight:** 45% in total; 30% for **Lab Assignments** and 15% for the **Final Project**

**Description:**

(i) **Lab assignments (30%):** 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:** 2 points for each lab.

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

**(ii) Final Project (15%):** In the end of the semester, the student puts together what they have learned to create a final program demonstrating animation and beauty. It could be a final program of his/her own design or the student can follow a basic template we'll provide in the class.

### **Task 3: Midterm Exam**

**Weight:** 10%

Test the understanding of basic concepts in computing.

## **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 and Progress Report | 50 %        |
| Lab Assignments                       | 30%         |
| Midterm Exam                          | 10 %        |
| Final Project                         | 15%         |
| <b>Total</b>                          | <b>105%</b> |

### **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:<br>Part I : Variables and storing information in variables |
| 3    | Program the behavior of the computer:<br>Part II: Input/output                                   |
| 4-5  | Program the behavior of the computer:<br>Part III: Operations and expressions                    |
| 6-7  | Program the behavior of the computer:<br>Part IV: Conditional statements                         |

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