



Introduction Computer Science

CSCI 105

SEMESTER (fall 2015)

PROFESSOR/CLASS INFORMATION

Shieu-Hong Lin

(Course) Title: Intro to Computer Science

Term: fall, 2014

Location: Sec 1 at Busn 209, Sec 2 at LIB 141

Office Phone: 562 903-4741

Office Hours: **Monday-Thursday 8:30-10:30am**

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Course Code/#: CSCI 105

Class Days/Time: MW 10:30-11:45am Section 1

Class Days/Time: MW 1:30-3:45pm Section 2

Credit Hours/Units: 3

Office Location: Grove 8

Meetings with Professor: **Make Appt via Email**

Admin Assistant: Jerrienne Smith, x4741

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

DISABILITY SERVICES

Disability Services exist to assist any student who thinks he or she may need such assistance. Students desiring accommodations for this class on the basis of physical learning, psychological and/or emotional disabilities are to contact The Learning Center which houses both learning assistance and disability services. The Learning Center is located in the Biola Library, Upper Level, Room U-137, and this department can be reached by calling 562.906.4542 or by dialing extension #4542 if calling from on campus.

NON-DISCRIMINATION POLICY

As Christian scholars, we are keenly aware of the power of language, and believe in treating others with dignity. As such, it is important that our language be equitable and prejudice free. Good writing and speech do not make unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, sex, or sexual orientation. Respectful use of language is particularly important when referring to those outside of the religious and lifestyle commitments of those in the Biola community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of invitation.

Avoid the use of stereotypes or terminology that demeans persons or groups based on age, disability, ethnicity, gender, race, language or national origin. Avoid drawing attention to irrelevant identifiers of race or gender. Avoid gender-specific language when referencing people in general. Avoid terms that assume the universality of human experience, and in particular presume the normativity of the socially dominant group.

BIOLA UNIVERSITY MISSION STATEMENT

TRUTH~TRANSFORMATION~TESTIMONY

The mission of Biola University is biblically-centered education, scholarship, and service; equipping men and women in mind and character to impact the world for the Lord Jesus Christ.

SCHOOL OR PROGRAM MISSION/VISION STATEMENT

The Computer Science program at Biola endeavors to equip the students with the foundational understanding of the theories and practice of computing, the capability of effective problem solving based on the foundational understanding, and a holistic integration of faith and learning into their perspective of computing to impact the world for Christ.

COURSE DESCRIPTION

Introduction to computer hardware and software. Problem solving methods. Elementary concepts of algorithm development. C++ programming. Offered every year

COURSE ALIGNMENT WITH PROGRAM LEARNING OUTCOMES

This lower-division course is a core course required of all Computer Science majors designed to be taken within the first year of the program. Successful completion of this course (see next section) will prepare students to demonstrate a developing proficiency toward the accomplishment of PLOs: (i) programming and system integration and (ii) integration of faith and learning.

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 #4: Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course (Essential emphasis).

STUDENT LEARNING OUTCOMES (The learner will demonstrate that he or she has satisfactorily fulfilled IDEA Objective #4 by being able to):

- Able to use the Microsoft Visual C++ programming environment to develop C++ programs composed of multiple functions in multiple files.
- Able to fluently write C++ programs for problem solving using basic C++ language features such as built-in data types, variable declaration, arithmetic operators, conditional statements,

loops, functions, arrays, structures, and classes.

- Gain a solid understanding of fundamental concepts of computing, such as programming, programming languages, compilers, execution of programs, algorithms, and the binary system.
- Develop a perspective of faith and learning in computer science through reflection assignments on the essence of computation and the wide spectrum of applications in important and interesting areas.

REQUIRED TEXTS

- Tony Gaddis, *Starting Out With C++ From Control Structures through Objects*, 8th Ed., 2014.

ACADEMIC HONESTY

Biola University is committed to ethical practice in teaching, scholarship, and service. As such, plagiarism and other forms of academic dishonesty will not be tolerated. Please see the undergraduate/graduate student handbook and/or the departmental/program/school policy on academic honesty. It is imperative that you present all written, oral, and/or performed work with a clear indication of the source of that work. If it is completely your own, you are encouraged to present it as such, taking pleasure in ownership of your own created work. However, it is also imperative that you give full credit to any and all others whose work you have included in your presentation via paraphrase, direct quotation, and/or performance, citing the name(s) or the author(s)/creator(s) and the source of the work with appropriate bibliographic information. To do otherwise is to put oneself in jeopardy of being sanctioned for an act or acts of plagiarism that can carry serious consequences up to and including expulsion from the university.

<http://studentlife.biola.edu/campus-life/student-handbook/academic-integrity>

<http://plagiarism.org/plagiarism-101/overview/>

ONLINE AND OTHER COURSE RESOURCES

Throughout the academic term, any number of hard-copy documents or various other resources (electronic or otherwise) may be made available to students registered for this course. Those resources may be presented in class or could alternately be posted on Biola's Blackboard system or in the electronic reserves area of the library's catalog for viewing and download. It is the student's responsibility to make himself or herself aware of such materials, and to electronically save, physically print, archive, read, reference, and bring such items to class as necessary or required.

These course resources may include, but are not limited to, syllabi, rubrics, worksheets, protocols, and the like. Prior to and after the beginning of the term, students should take responsibility to periodically check the course site on the university learning management system. This will ensure he or she is in possession of all necessary items for the successful completion of course objectives. If failing to have such items on hand affects the student's participation in class, s/he should anticipate that reality impacting her/his participation score and, potentially, final grade. To access online materials that may be available, log on to <http://canvas.biola.edu>.

In addition, the Biola Library's website at <http://library.biola.edu> provides access to thousands of electronic books and journal articles for your research.

LEARNING TASKS (Assignments) & ASSESSMENT (Grading)

Description and Weighting of Assignments:

Task 1: Weekly Reading and Progress Report (15 assignments)

Weighting: 10%

Possible Points: 4 points each.

Description: The student needs to incorporate information such as the amount of time he/she spent for the reading, attendance, and the overall progress in reading, programming, and other assignments since last Wednesday into the cumulative progress report.

Assessment: The student need to **(i)** finish the reading on time (1 point), **(ii)** attend the class this week (1 point), **(iii)** gain a good understanding of 80% or more of the contents **or** have spent at least three hours in the reading (1 point), and **(iv)** put down 1~2 paragraphs of reflection.

Task 2: Weekly Programming Assignments (about 10 assignments)

Due Date: Mondays of the weeks

Weighting: 40%

Possible Points: 6 points each.

Description: There will be around 10 weekly programming assignments, which form the backbone of the course. They require the student to incrementally develop programming skills based on the concepts of data structures and object-oriented programming learned in the class.

- Peer discussion is most encouraged, but any copy-and-paste code from other people's programs is absolutely prohibited and will lead to serious discipline actions.
- Peer discussion based on the code shown on the screen and paper could be very helpful for debugging purpose and explanation of ideas. But you should **never pass around your code as electronic files** to others except for the TA and the instructor.
- You should make sure that **you are able to reconstruct your code from scratch without any outside help** when you submit a programming assignment as your own work.

Assessment: The student needs to email the source code files (all related .cpp and .h files) together with a self-evaluation report to the TA. We'll grade each programming assignment in a 0-6 scale based on the following rubric.

1. Source code is completed but the code fails to compile successfully.
2. Source code can compile and do something required, but has serious bugs or miss a couple of key features.
3. Source code can compile and do most of the features required, but has many minor bugs or miss a key required feature.
4. Source code can compile and do all the features required, nearly fully functional, only a couple of minor bugs.
5. Source code can compile and do all the features required, fully functional, no bugs.
6. **In addition to the points received above, get one more point if the source code is well indented and commented to make it visually very readable.**

Task 3: Exams (Midterm and final exams)

Due Date: Midterm and Final exam week

Weighting: 40%

Possible Points: Up to 50 points each.

Description: The exams have both **(i)** the written component, which mainly tests the conceptual understanding of data structures, and **(ii)** the programming component, which tests skills in object-oriented programming.

Assessment: The written component will be graded based on the answers provided while the programming component will be graded based on the same rubric provided for the weekly programming assignments.

Task 4: Faith and Learning Reflection Reports (3 assignments)

Weighting: 10%

Description: There will be assignments on faith and learning and the students needed to submit essays as they gain more exposure to programming and have the opportunities to reflect on issues of faith and learning in computer science.

Assessment: The essays will be graded according to the rubrics given for each reflection assignments.

CLASS INFORMATION

1. Class Attendance and Attendance Policy:

Attendance You are expected to attend the class regularly since we will examine details of C++ programs using the computers in the lab. Missing the class may seriously hamper your understanding of many key concepts and programming skills critically needed in your programming assignments. Class attendance is counted toward points for the weekly progress report.

2. Turning in Assignments:

Assignments are expected to be electronically submitted under the Canvas system. Due dates are all on Mondays. The submission link under Canvas may remain open for 2 more days after the due date.

3. Late Policy:

1 point will be deducted for late submission within 2 days of the due date while the submission link is still open. **You will receive no points after the submission on canvas is closed** unless it is something like a serious health issue with statements from the doctor as proof.

4. General Requirements for Written and Oral Projects:

Biola University desires to maintain the highest standards with respect to the composition of all (written /oral/performed/etc.) work. As such, any student (paper/project/presentation/etc.) exhibiting (a statement about your philosophy and/or policy regarding mechanical errors, etc.)

Students deficient in writing skills may seek assistance at the Biola Writing Center which is located on the middle level of the Biola Library. All written work within the (your Department Name) should follow the (Style Manual, if appropriate).

5. Professional Courtesy (A statement such as the following may be used, adapted, or not included.)

Students are expected to uphold the highest standards of courtesy and professionalism to the professor, classroom guests, and fellow collegians. This includes the employment of institutional and academic titles when addressing faculty, administrators, and other university personnel or classroom guests. Classroom dress, proper grooming, behaviors, and hygiene should be such that they are not distracting or offensive to classmates or dishonoring to the Lord Jesus Christ and this institution.

6. Respect for Divergent Viewpoints (Although not a required syllabus component at this time, it is highly recommended that you consider including some statement such as the following)

In Christian higher educational institutions, it can be assumed that each believer-learner is at a different place of personal maturity and educational preparedness. For these reasons, it is requested and expected that each student exhibit mutual respect, even when divergent viewpoints are expressed in the classroom. Such respect, even when it results in a student's frustrated silence, does not require or imply agreement with or acceptance of any such perspectives.

7. Technology Use and Classroom Etiquette (Although not a required syllabus component at this time, it is highly recommended that you consider including some statement such as the following example)

Students should refrain from behaviors that negatively affect the teaching environment or its facilities. This includes any potentially distracting action that could inhibit the primary purposes of the classroom— namely, learning and personal transformation. Students should conduct themselves as professionals who give, and are worthy of, a high level of respect. Material presented in the classroom represents the intellectual property of the professor and of others who may have contributed to the professor's perspectives. Class meetings may not be recorded by audio and/or video without the express consent of the professor.

The use of items like laptops, pagers, cell/mobile phones, mp3 players, and all other electronic or digital devices are matters that are strictly governed in academic environments such as this. Neither the professor nor one's classmates should expect to endure buzzing, vibrating, ringing, singing, or other intended/not intended but nevertheless distracting noises from your device(s). With the exception of laptops (which are to be used solely and strictly for educational purposes directly related to what is happening moment by moment in this class) and other similar note-taking devices, students are expected to take the initiative and choose either not to bring such devices or to fully power down each of these items prior to the beginning of class and to keep them off until class is dismissed. Students who fail or forget to turn off communication devices and who receive such communications should expect to be reproved by the professor during

class. Incidents like these are frowned upon and cannot be tolerated for the integrity of the learning atmosphere.

In addition, it is expected that students not participate in distracting activities such as e-mailing, web-surfing, instant messaging, and computer gaming during class. The professor is alert to such disturbances and if/when such activities are discovered, the student should expect to be confronted and asked to leave for the remainder of the immediate class session (morning/afternoon, or until a break, etc.), and then counted absent for that time period while not in class. Appropriate deductions will be taken for any missed class participation or required course work due during that period of time. Simply put, under no circumstances will the professor excuse a student's inappropriate behavior, academic apathy, or general indifference to subject matter that this institution considers necessary for effective vocational preparation—nor will the professor allow other students interested in being equipped to endure a disinterested, distracting university student. **The professor uses the most powerful language possible about these matters due to the egregious nature of these distractions. If the spirit or the letter of these guidelines is violated by students, the professor reserves the right to completely restrict the use of all electronic and battery-powered devices, including laptops/computers, during class, however unfortunate that would be.**

8. Computation of Final Grade:

Weekly Progress Report	10 %
Weekly Programming Assignments	40%
Exams	40 %
Faith and Learning Reflection	10%
Total	100%

9. 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

2. Method of Instruction:

The following methods of instruction will be included in this course:

1. Lecture
2. Written Reports
3. Programming Assignments
4. Use of the Internet
5. Reading

3. Posting of Grades:

Grades for individual assignments will be posted under Biola's Blackboard system. To access the records online, log on to <http://canvas.biola.edu/> to make sure the records are accurate.

4. Report Delay:

In virtually every case that students do not meet the course requirements and when required course tasks are not submitted to the professor, such students should anticipate receiving a failing grade. In rare and unusual situations (e.g., serious illness of the student or illness or death in a student's immediate family), the student may formally request a report delay (RD) through the Vice Provost's Office. Details can be found in the student handbook.

<http://studentlife.biola.edu/campus-life/student-handbook/absences>

5. Course Calendar

While the course calendar is intended to provide you with an overview of the semester's schedule, the professor reserves the right to make adjustments to the schedule to responsively meet the needs of this class.

Tentative Schedule

- ✧ Aug.26- Sept. 10 Introduction to programming in C++
- ✧ September 11-20 Conditional statements
- ✧ September 21-30 Loops
- ✧ October 01-10 Functions
- ✧ October 11-20 Review & Midterm
- ✧ October 20-31 Arrays

- ✧ November 01-10 Searching & sorting with arrays
- ✧ November 11-20 Pointers
- ✧ November 21-31 Structures & classes
- ✧ December 01-10 Object-oriented programming & Review
- ✧ December 11-20 Final