CSC1054-1 SP24 - Objects And Elementary Data Structures

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CSC1054

Objects and Elementary Data Structures

Spring 2024

4 units

Point Loma Nazarene University

College of Natural and Social Sciences

PLNU Mission

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Instructor:

Dr. Benjamin Mood

bmood@pointloma.edu (mailto:bmood@pointloma.edu)

619 849 2269

Rohr Science 216

Meeting Times and Locations:

Lecture:

>   MWF **-** LA 101 – 1:30 to 2:25

Labs:

>   R – RS 395 - 3:00 to 4:55pm

Office Hours:

>   M – 11:00am to 12:00pm (office), 12:15pm – 1:15pm (caf)
>
>   T – 12:30pm to 1:30pm (caf), 1:45pm – 2:45pm (office)
>
>   W - 11:00am to 12:00pm (office), 12:15pm – 1:15pm (caf)
>
>   R - 12:30pm to 1:30pm (caf), 1:45pm – 2:45pm (office)
>
>   F - 11:00am to 12:00pm (office), 12:15pm – 1:15pm (caf)

Books:

>   Java Illuminated 5th edition. By Julie Anderson and Herve Franceschi

Course Description:

As a continuation of CSC 1043, this course deals with more advanced computing constructs and ideas, reinforced in weekly labs. Topics include object-oriented design, inheritance, polymorphism, exception handling, and recursion, along with more intentional development and debugging strategies. Linked lists are introduced as a viable option for implementing basic ADT's. Students gain experience in the design of graphical user interfaces, event driven programming, and larger programming projects.   Lecture three hours and laboratory two hours each week. Prerequisite(s): CSC 1043 with a grade of C- or higher.

Learning Outcomes:

Students will be able to write correct and robust software.

Students will analyze the interaction between hardware and software.

Students will be able to apply their technical knowledge to solve problems.

Students will be able to speak about their work with precision, clarity and organization.

Students will be able to write about their work with precision, clarity and organization.

Students will collaborate effectively in teams.

Students will be able to gather relevant information, examine information and form a conclusion based on that information.

Students will be able to understand and create arguments supported by quantitative evidence, and they can clearly communicate those arguments in a variety of formats.

Department Mission:

The Mathematical, Information, and Computer Sciences department at Point Loma Nazarene University is committed to maintaining a curriculum that provides its students with the tools to be productive, the passion to continue learning, and Christian perspectives to provide a basis for making sound value judgments.

Additional Course Information:

Labs: Labs are used to give students a way to practice the concepts studied in lecture. They will be composed of practical and question sections. The practical part of the lab must be demonstrated to Dr. Mood or a lab assistant to show that it works successfully. A completed lab includes the signed off practical sections and answers to the theoretical questions; all code and necessary data files and question answers will be turned in on <u>online</u> on canvas. <u>It should be well commented and well formatted. Code missing comments or with poor formatting will not be given full credit.</u>

Labs, for all sections, are due Thursday at 10am the day the new lab is assigned.

My expectations are that students will use the JGRASP IDE in this class. The purpose of this class is for you to learn everything required for programming. This means it is to your benefit not to have code filled in by a fancy IDE. Code that requires edits to be run by myself or the TAs due to IDE choices will result in point deductions.

Unless you have finished the lab and it is already checked off and submitted on canvas or you have previously received permission, the general expectation is that you will be in the lab during lab time.

A-Advice: The way to excel in this class and all other computer science classes is to read the book if you don't understand something, learn the concepts at an 'A' level, learn to debug well, learn to solve your own code problems, go to office hours, and go to virus lab hours if you have questions. In the future, you will hit a 'wall' if you do not understand the concepts yourself and rely too heavily on lab assistants, classmates, or even Dr. Mood.

Helping each other: It is typical for people to help each other in this class. However, depending on how you help each other, it is entirely possible that you will end up hurting each other's grades on the exams because on the exams I expect you to solve problems on your own. If your help prevents a person from developing their own skills, this is not good. It is normal to see scores of 100% on the labs and then really bad Fs programming exams due to this reason. If your friend is dependent on you to solve the labs, that is not good and you are, frankly, to blame for their F.

Cheating: Unless otherwise noted, talking and working with fellow students to understand concepts is OK. However, copying code from another student (or giving your code to another student) is not acceptable and can result in a staggering penalty of -100% on whatever assignment/exam it was. Although sharing code seems a "nice" to help a friend, the penalty applies to all involved. **Do not share your code with anymore. Do not let someone look at your code.** If you use online resources, you must site the direct URLs in the labs you turn in.

Missed Classes: Homework/Quizzes/Exams missed due to PLNU excused absences (i.e., sports teams, choirs, etc), can be made up. Missed Quizzes/Exams/etc. due to emergencies can be made up once the dean of students informs Dr. Mood that PLNU has approved the reason. Non-emergency

missed exams will result in a zero. It is the student's responsibility to inform the professor of when they will be gone. Missed class activities, which are due to a non-dean of students approved-emergency situation, will result in a zero.

Grading:

Students must pass a written and a programming exam in order to pass this class. Students who fail both programming exams or fail both written exams will receive an 'F' in the class regardless of all other grades.

Labs	25%
Project	5%
Quiz	10%
Written Exam I	15%
Programming Exam I	15%
Written Exam II	15%
Programming Exam II	15%

Grading scale

93 – 100%	A
90 – 92%	A-
87 – 89%	B+
83 – 86%	B
80 – 82%	B-
77 – 79%	C+
73 – 76%	C
70 – 72%	**C-**

67 – 69%   D+

63 – 67%   D

60 – 62%   D-

0   – 59%   F

PLNU Policies

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on State Authorization to view which states allow online (distance education) outside of California.

INCOMPLETES AND LATE ASSIGNMENTS

Late work is not accepted.

SPIRITUAL CARE

PLNU strives to be a place where students grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.

If you have questions, a desire to meet with the chaplain, or if you have prayer requests, you can contact the Office of Student Life and Formation.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU ACADEMIC HONESTY POLICY⊛

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See Academic Policies for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY⊛

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

SEXUAL MISCONDUCT AND DISCRIMINATION

Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. If you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that help and support are available through the Title IX Office at pointloma.edu/Title-IX. Please be aware that under Title IX of the Education Amendments of 1972, it is required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at counselingservices@pointloma.edu or find a list of campus pastors at pointloma.edu/title-ix

Final Exam: Monday 4/29 **at 1:30pm**

The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in th course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for that particular student.

Class Enrollment:

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

CREDIT HOURS

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 3 unit class delivered over 15 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework.

COURSE MODALITY DEFINITIONS

In-Person: Course meetings are face-to-face with no more than 25% online delivery.

Online: Coursework is completed 100% online and asynchronously.

Online Synchronous: Coursework is completed 100% online with required weekly online class meetings.

Hybrid: Courses that meet face-to-face with required online components.

PLNU ATTENDANCE AND PARTICIPATION POLICY⊛

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation.

Tentative Schedule

Monday	Tuesday	Wednesday	Thu	Friday
Jan: 8 ArrayLists	9:	10: ArrayLists	11: ArrayList / 2D Lab	12 Chapter 7.1-7.6
15 (no classes)	16	17 Chapter 7.7-7.9	18 Class lab	19 Chapter 7.10 – 7.11
22 Chapter 7.10 – 7.11	23	24 Chapter 7	25 Class lab 2	26 Chapter 10.1-10.6
29 Chapter 10.1-10.6	30	31 Chapter 10.1-10.6	1 Lab: inheritance	2 Chapter 11.1-11.6
5 Chapter 11.1-11.6	6	7 Chapter 11.1-11.6 More structured files	8 lab: files exceptions **Programming quiz**	9 Chapter 12
12 Chapter 12	13	14 Chapter 12	15 GUI lab 1 (layouts + painting)	16 Chapter 12
19 Chapter 12	20	21 Review	22	23 **Written Exam I**

GUI lab 2
(components)

		29	
26	27	28	29	1
Review		NDSS	**Programming Exam I**	Chapter 12 (keyboard or mouse)

4 (spring break)	**5**	**6**	**7**	**8 (spring break)**
11	12	13	14	15
Chapter 12		Chapter 12	GUI lab 3 (mouse and timer)	Chapter 12

18	19	20	21	22
Chapter 12		GIT	Project start (GIT)	Chapter 13

		27	28	29
25	26	27	**EASTER**	**EASTER**
Chapter 13		Chapter 13 / 8.6 / 15		

1	2	3	4	5
EASTER		Chapter 13 / 8.6 / 15	Lab Recursion	Chapter 14.1

8	9	10	11	12
Chapter 14.2		Chapter 14 or 8.6	Lab Linked Lists	Stacks/ Queues

Project due at
11:59pm on GIT

15 Stacks/ Queues	16	17 Queues	18 Lab Queue/Stacks/Linked Lists	19 TBD
22 TBD	23 **Lab due this day at midnight.**	24 Review	25 **Written Exam II**	26 Review
29 **Programming Exam II**	30	1	2	3

Course Summary:

Date	Details	Due
Thu Jan 18, 2024	📝 **Lab 1 (https://canvas.pointloma.edu/courses/72184/assignments/1012255)**	due by 3pm
Thu Jan 25, 2024	📝 **Lab 2 (https://canvas.pointloma.edu/courses/72184/assignments/1013658)**	due by 3pm
Thu Feb 1, 2024	📝 **Lab 3 (https://canvas.pointloma.edu/courses/72184/assignments/1014726)**	due by 3pm
Thu Feb 8, 2024	📝 **Lab 4 (https://canvas.pointloma.edu/courses/72184/assignments/1015420)**	due by 3pm
	📝 **Programming Quiz (turn-in)**	due by [...]pm

Date	Details	Due
	(https://canvas.pointloma.edu/courses/72184/assignments/1012280)	
	🚀 **Programming Quiz** (https://canvas.pointloma.edu/courses/72184/assignments/1017213)	due by 4:58pm
	🚀 **Programming Quiz** (https://canvas.pointloma.edu/courses/72184/assignments/1017213) (1 student)	due by 5pm
Thu Feb 15, 2024	📝 **Lab 5** (https://canvas.pointloma.edu/courses/72184/assignments/1016943)	due by 3pm
Thu Feb 22, 2024	📝 **Lab 6** (https://canvas.pointloma.edu/courses/72184/assignments/1019385)	due by 3pm
Fri Feb 23, 2024	📝 **Written Midterm** (https://canvas.pointloma.edu/courses/72184/assignments/1012282)	due by 2:25pm
Thu Feb 29, 2024	🚀 **Programming Midterm** (https://canvas.pointloma.edu/courses/72184/assignments/1024048) (1 student)	due by 3:23pm
	📝 **Programming Midterm** (https://canvas.pointloma.edu/courses/72184/assignments/1012281)	due by 4:55pm
	🚀 **Programming Midterm** (https://canvas.pointloma.edu/courses/72184/assignments/1024048)	due by 4:55pm
	📝 **Programming Midterm Turn-in** (https://canvas.pointloma.edu/courses/72184/assignments/1024047)	due by 4:57pm
Thu Mar 14, 2024	📝 **lab 7** (https://canvas.pointloma.edu/courses/72184/assignments/1021749)	due by 3pm
Thu Mar 21, 2024	📝 **lab 8** (https://canvas.pointloma.edu/courses/72184/assignments/1025756)	due by 3pm
Mon Apr 8, 2024	📝 **Project** (https://canvas.pointloma.edu/courses/72184/assignments/1012285)	due by 11:59pm
Thu Apr 11, 2024	📝 **lab 9** (https://canvas.pointloma.edu/courses/72184/assignments/1028875)	due by...

Date	Details	Due
Thu Apr 18, 2024	📝 **lab10** **(https://canvas.pointloma.edu/courses/72184/assignments/1030744)**	due by 3pm
Wed Apr 24, 2024	📝 **lab 11** **(https://canvas.pointloma.edu/courses/72184/assignments/1033610)**	due by 2:50pm
Thu Apr 25, 2024	📝 **Written Final** **(https://canvas.pointloma.edu/courses/72184/assignments/1012283)**	due by 4:55pm
Mon Apr 29, 2024	🚀 **Programming Final** **(https://canvas.pointloma.edu/courses/72184/assignments/1039437)**	due by 4pm
	📝 **Programming Final Turn in place** **(https://canvas.pointloma.edu/courses/72184/assignments/1039438)**	due by 4pm
	🚀 **Programming Final** **(https://canvas.pointloma.edu/courses/72184/assignments/1039437)** (1 student)	due by 5pm
	📝 **Programming Final** **(https://canvas.pointloma.edu/courses/72184/assignments/1012284)**	due by 11:59pm
	🚀 **Honorlock Test** **(https://canvas.pointloma.edu/courses/72184/assignments/1016947)**	