CS 159 – C Programming (Applications for Engineers)
Fall 2023 Syllabus

Course Staff

Instructor:	Instructor Office Location:	Instructor Office Hours:
GO TO *START HERE* CONTENT MODULE ON BRIGHTSPACE	**Building:** HAAS **Room:** Southeast corner of Third Street and University Street	GO TO *START HERE* CONTENT MODULE ON BRIGHTSPACE

Please visit during instructor office hours for any administrative concerns regarding the course.

- If you have a concern then it is expected that you make the effort to visit office hours of your instructor.

TA Office Hours

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Course Motivation and Objectives

CS 159 introduces the tools of software development that have become essential for innovative and creative problem solving in science and engineering. Educators and employers agree that it is important for future technical professionals to be able to function as part of a technical team and develop the ability to efficiently communicate complex concepts. CS 159 will require students to work in assigned teams for lab assignments. Educational research informs us that structured collaboration leads to increased learning gains for all students participating in an introductory programming course. **Collaboration is a requirement of the course.** You will be assigned to your teams by your instructor.

CS 159 explores the concepts of programming using a language and development environment that are new to most students. The primary objective of the course is to help students recognize how programming concepts are common to various languages to which you are exposed in your undergraduate education and how those concepts can be used to solve a problem.

Course Prerequisites and Preparation

CS 159 is an introductory programming course without official prerequisite but does assume mathematical and physical science knowledge typical of a first-year engineering student.

The University expects students to invest 6-9 hours per week in preparation, in addition to time spent in class, for a three credit hour course. Previous students in CS 159 have reported that their keys to success included; attending lecture, active participation in lab, preparation and regular review of course materials, and planning to start and complete all assignments well in advance of the due date.

Course Required Materials

- Computer Science, A Structured Programming Approach Using C, Forouzan and Gilberg, THIRD EDITION, ISBN: 0-534-49132-4
  - An e-book alternative is available (Cengage Unlimited): https://www.cengage.com/shop/isbn/9781337907651
- Programming Applications for Engineers Course Packet (Fall 2023 edition)
  - Physical copy available only in local bookstores. See Brightspace for a link to purchase an electronic version.
- Vocareum License, instructions will be provided on Brightspace to complete purchase.

Learning Resources

- All relevant class information, updates, and announcements will be available on the Brightspace site https://purdue.brightspace.com/.

Supplemental Instruction

There are Supplemental Instruction (SI) student sessions available for this course. These student groups are open to anyone enrolled in this course who would like to stay current with the course material and understand it better. Participation in these sessions is voluntary, but for the maximum benefit you should participate regularly. The schedule for the study sessions can be found on-line: http://www.purdue.edu/si.

Students who attend these interactive sessions will find themselves working with peers as they compare notes, demonstrate and discuss relevant problems and important concepts, and share study and test-taking strategies.

- Students are asked to have their lecture notes, textbook, and be prepared to participate with others during these sessions.
- SI leaders are undergraduate students who have previously been very successful in the course and model their strategies for success to current students.
- Every session will cover new material and no two sessions will repeat the same content.

Important Dates - GO TO *START HERE* CONTENT MODULE ON BRIGHTSPACE

Midterm Exam #1	Midterm Exam #2	Final Exam	Academic Calendar
Date: Time: Location:	Date: Time: Location:	Date: Time: Location:	**Last Day to Drop:** Monday November 27

- The final exam **may** be on Saturday December 16, 2023. Requests for alternative exam offerings will not be considered for reasons other than those outlined by the regulations of the university. **Please make your end of semester travel arrangements accordingly.**

Grading

Assignment	Points
Homework	70
Lab Tasks	60
Lab Quizzes	65
Midterm Exams	200
Final Exam	150
Lecture Quizzes	55
Total Possible:	600

Grades

Grade	Points Required
A	510
B	450
C	390
D	330

The instructor reserves the right to lower the minimum score required for each letter grade. If any change is made it will not be announced until **after the final exam**.

- At no time during the semester will it be speculated if this will be done or how much any given cutoff will be lowered. You should have no expectation that all cutoffs if moved will be moved by an equal amount.
- The use of plus (+) and minus (−) additions to a grade will be considered for those few individuals who are very close to, but fall short of, one of the posted minimum scores.

Attendance

You are expected to attend every lab this semester. To be eligible to retain points earned on a lab programming assignment and related lab quiz you must be in your assigned lab within 5 minutes of the start of your lab session. Your lab instructor will provide the steps necessary to register your attendance. Labs are collaborative programming assignments and it is an unfair expectation that your lab partners or teaching assistant incorporate a student arriving late, or who is absent, into the team effort. **Students late or absent to more than two lab sessions will fail the course.**

You are expected to attend every lecture this semester. Seats will be assigned in the lecture hall and attendance taken to ensure that only those students officially enrolled and physically present in each section are eligible to earn points for lecture quiz participation.

Emergency Absences and Make-Up Work

Only **documented and serious hardships** will be considered for any missed work. If you have documentation of what you consider to be such a hardship then you must contact the instructor in a timely manner **during office hours when you are able to resume participating in class**. Any student who knows in advance of an absence must make a request for consideration one week prior to the absence.

- University policies on absence and absence reporting are available from the Office of the Dean of Students: https://www.purdue.edu/advocacy/students/absences.html
- Make-up requests for **reasons of illness MUST be accompanied by documentation from a medical professional** stating the dates you were under their care and the date you were cleared to return to school/work.

Assignments

Exams (two evening midterms 100 points each, one final exam worth 150 points)

Exams will be **individual** assessments of your knowledge. Exams will consist of multiple-choice problems covering programming concepts, best programming practices, previous programming assignments, and the interpretation of code.

Old exams are provided in the course notes packet for your preparation. Please read the cover page of this section for more information on how old exams can be a useful part of your comprehensive preparation process.

	Homework Assignment	Due at 11pm on
Homework Assignments (7 total, 10 points each) The homework assignments are **individual** efforts designed to give you the opportunity to solve programming problems on your own **without the assistance of other students**. Most assignments will be posted on Brightspace 10-12 days before they are due. Please review the course policies as they relate to **academic integrity** found later in this document.	1	September 4
	2	September 18
	3	October 2
	4	October 16
	5	October 30
	6	November 13
	7	December 1

Lab Tasks (12 total, 5 points each):

Lab assignments are to be completed **collaboratively** in your assigned lab groups and each of these lab programming assignments will be due 30 minutes prior to the next time your lab section meets (see schedules later in this document).

- Collaborative groups are expected to communicate who will submit the assignment, when the assignment will be submitted, and how progress will be confirmed with all participating group members.
- Setting expectations for every member of the group will improve the likelihood that a complete assignment will be submitted.
- Lab partners failing to participate and contribute to the satisfaction of all group members will not receive credit for the lab assignment.
- Lab teams will be reassigned after lab #4 and lab #8 during the semester. Enrollment and participation changes may warrant additional changes.

Lab Quizzes (13 total, 5 points each)

At the end of each lab meeting there will be an **individual** assessment of your knowledge related to the topics introduced in lecture and implemented in the most recent lectures and assignments. Knowledge of course standards and good programming practices will be evaluated throughout the semester.

- The best way to prepare for quizzes is to watch lecture recordings and to actively participate with your team during the process of solving the lab, including contributing to both the written problems and the development of the programming problem solution.
- Lab quizzes can only be completed from your official lab location. No resources are permitted for use during the quiz.

Weekly Lab Schedule

Week of	Lab Assignment	Week of	Lab Assignment
August 21	Lab #0	October 16	Lab #8
August 28	Lab #1	October 23	Lab #9
September 4	Lab #2	October 30	Lab #10
September 11	Lab #3	November 6	Lab #11
September 18	Lab #4	November 13	Lab #12
September 25	Lab #5	November 20	THANKSGIVING BREAK
October 2	Lab #6	November 27	Lab Quiz #13
October 9	Lab #7	December 4	OPEN*

* Lab will not meet this week unless warranted by an interruption to the schedule by extenuating circumstances.

Lecture Quizzes (55 points possible)

At every meeting of lecture, starting with the second week of the term, a lecture quiz will take place. Quizzes may occur at the start, in the middle, and/or at the end of lecture. **It is a requirement to be in your assigned seat to retain any credit earned on a lecture quiz.**

The ability to access Hotseat (openhotseat.org) with your Purdue credentials is **required** to participate in lecture quizzes. You should bring your selected device to every lecture. Should your device fail, or if you forget your device, you may submit a written quiz using the form available from your instructor after lecture. You may only utilize this method once during the semester. **Only the form provided will be accepted and must be submitted at the end of the current lecture for which it is being used.**

- Please review the **academic integrity policies** regarding the misrepresentation of identity or location as it relates to participating in a lecture quiz for another student.

Lecture Schedule

Week of	Tuesday	Thursday	Week of	Tuesday	Thursday
August 21	Introduction	Chapter 2	October 16	Chapter 6	
August 28	Chapter 2		October 23	Chapter 6	
September 4	Chapter 3		October 30	Chapter 8	
September 11	Chapter 3	Chapter 4	November 6	Chapter 8	
September 18	Chapter 4		November 13	Chapter 9	Chapter 10
September 25	Chapter 4	Chapter 5	November 20	NO LECTURE*	THANKSGIVING
October 2	Chapter 5		November 27	Chapter 8	
October 9	FALL BREAK	Chapter 5	December 4	Chapter 11	NO LECTURE*

*NO LECTURE – November 21 and December 7 are canceled to compensate for evening midterm examinations.

Grading Expectations and Policies

Our expectation of your lab instructor is that they grade your assignment in a **timely manner and provides you with adequate feedback** for improvement. If you feel this is not the case please address your concern to your instructor. Typically, your grader should complete grading programming assignments 4-6 days after each is due.

To request a re-grade on any assignment you must deliver your **request in writing to the office hours of your instructor**. You have five days to appeal any grade from the day the score of the assignment is posted to Brightspace. After that period the grades are frozen and no further appeal will be considered. A re-grade is not a second chance to complete an assignment, neither is it a means to challenge assignment requirements, course policies, or programming and documentation standards.

A re-grade request must include the following:

1. A physical copy of the original graded assignment (if applicable).
2. An attached description of why you believe reevaluation of your effort is warranted.

Important Assignment Guidelines

All assignments must comply with **the programming and documentation standards of the course.** Programs that execute **and** meet minimum assignment requirements but are not logically correct or complete may be considered for partial credit. **To receive full credit, your program must (1) produce correct results, (2) be well-designed, (3) make efficient use of the limited resources of the computer, (4) follow assignment requirements, and (5) adhere to course programming and documentation standards.**

An assignment that is not submitted as expected cannot be considered for a grade. Only work submitted correctly prior to the assignment deadline can be considered for grading. **Late work is not accepted.**

Demand for resources and course staff will increase as an assignment deadline nears. Waiting until the last minute to work on your programming assignments is discouraged! Course policy is **NOT to extend** deadlines unless official course resources are unavailable for an extended period near the deadline of an assignment. You are responsible for understanding how to use the technology and tools utilized within the course.

Establish a goal to submit every programming assignment early, this practice will allow sufficient time to seek assistance should you experience any difficulties solving or submitting an assignment.

Academic Integrity

The issue of academic integrity is taken seriously within CS 159. The consequences for violating course policies are significant both within the course and by the disciplinary arm of the Office of the Dean of Students.

You are encouraged to discuss any CS 159 topic including high-level ideas about how to approach a programming assignment. However, under **no circumstances will exchange of, or shared access to, code via written or electronic means be permitted** between teams for collaborative assignments or individuals for individual assignments.

It is considered dishonest either to read another solution or to provide anyone with access to your work (or that of another student). Be mindful when working through code with others on individual assignments as this is discouraged. The work you submit must be your own original effort and not the result of unacceptable, even if unintentional, collaboration.

Why enforce academic integrity? Academic integrity violations amount to theft. Theft of the work and time from the individual who developed the solution and theft of the instructor's time to conduct an inquiry into such matters. Ultimately, it amounts to **theft from every student** who has come to Purdue University, made a significant financial investment in their education, and has the expectation that their degree will be valued by employers and other academic institutions upon completion.

When is it no longer acceptable to discuss an assignment with another student or someone not from my group?

- Discussions with peers are most appropriate during the early phases of solution development. Once you begin to design and implement (write code or develop specific logic) your solution you should be referencing course staff members **exclusively** for assistance.
- Working closely with another student on a homework assignment may result in highly similar work due to collaboration. Collaboration may not have been the intended approach to solving the problem but the end result of working closely with others for extended periods of time.

Every student is responsible for protecting their own work. Do not make the assumption that roommates, neighbors, significant others, or other **"trusted"** individuals would not take advantage of knowing your password, having access to your computer, or taking a picture of your work when left on an unattended machine. **You are responsible for such events that leave your work unprotected.**

> Many free on-line compilers, collaborative editors, and file depositories will store your work and may leave it publicly visible unless you pay for upgraded services. Please understand the policies of any such service before you make use of them. See the note above regarding your responsibility to protect your work.

Do not make the mistake of thinking that **superficial changes in a program** (such as altering comments, changing variable names, interchanging statements, or additional white spaces) will avoid detection. If you are unable to complete the work yourself, it is unlikely that you will succeed in disguising the work of another as your own. We are adamant that **violations in any form will not be tolerated**. Even the most trivial assignment is better left without submission than if you violate course integrity policies to complete it.

> As easy as it is to share an electronic copy of a file, to gain access to a file through account sharing, sharing a hard copy of your work, or seeking assistance from strangers on the Internet, it is as just as easy to analyze and detect such sharing as it results in similar efforts being submitted.
>
> Internet forums, including premium services that advertise assistance in college courses, are monitored by course staff members. Any relevant code found is included with student submissions to test for similarity. Searching for and using solutions to assignments, requesting assistance on assignments, and the posting of assignments in a venue such as these is a violation of course academic integrity policies and potentially violates University copyright.

Assume that every final submission you make during the semester will be analyzed by at least one software similarity service. These services will measure the percentage of similarity between your solution and those submitted by others in the course. Additionally, these services indicate the percentage and number of lines matched among submissions. **You will be solving problems this semester that have no single solution and your solution is expected to be uniquely yours.** Concerns regarding any of our policies should be addressed during office hours prior to the deadline of an assignment.

Minimum consequences for violating course policies will include:

- First offense, a **zero for the assignment**, a **reduction of one letter grade at the end of the semester**, AND a r**eferral to the Office of the Dean of Students** for disciplinary action.
- Second offense, a zero for the assignment, a **failing grade for the course**, AND a referral to the Office of the Dean of Students for disciplinary action.

Notable exceptions to the first offense minimum consequences:

- Any violation on an exam will result in a failing grade for the course and a Dean of Students referral.
- Acts such as a misrepresentation of identity or location will result in a failing grade for the course and a Dean of Students referral.
- Posting to, requesting from, or accessing solutions found on unapproved sources, particularly those found on-line, will result in a failing grade for the course and a Dean of Students referral.

Collaborative Learning/Teaming/Participating as a Member of a Technical Team

Here are our expectations of you and your group:

1. **Make time to meet with your group regularly.** There are 168 hours in a week, finding some common time for a group to meet should not be difficult. It is acceptable for part of the group to meet some of the time if everyone cannot participate in every meeting. Ultimately, each individual is responsible for planning and documenting their contribution to the group effort accordingly.
   ◦ Reflect on the roles and responsibilities you had on each lab programming assignment. Recognize when you are not being utilized in a way that contributes to a better understanding of course content.

2. **Allow everyone an opportunity to express their ideas** on how to approach an assignment. One benefit of collaborative teaming is that everyone brings a different set of skills to the group and the resulting effort often is a stronger one than if it was completed individually.
   ◦ When a group member becomes unresponsive to requests to meet or fails to update the other members of the group then those contributing members must prepare to continue without the unresponsive member.

3. **All group members must be satisfied with the final submission.** It is not acceptable for a group to submit an assignment that is not approved by all group members. "It is good enough" may be true for you but it is unfair for the others in the group who aspire for the highest grade possible.
   ◦ Likewise, each group member must be satisfied with your contribution to the group effort.

4. **Each group member must fully understand the entire assignment submitted.** Do not start your group meetings by trying to delegate the tasks to the different group members. Everyone must understand and contribute to every aspect of the assignment and its development.
   ◦ Assignments are an opportunity for you to demonstrate your knowledge of the programming concepts being utilized. Use assignments to serve as a measure of what you do and do not know and how to direct your future efforts in the course.

5. **Designate who will turn in the assignment, when it will be turned in, and how successful submission will be communicated with the rest of the group.** Set a goal to submit the assignment well in advance of the due date to avoid any last minute problems.

6. **You will work with the group assigned.** Please contact us with concerns you may have with your group. Take a professional approach with your group experience as similar to what you may experience at an internship or co-op experience.
   ◦ Groups will be re-assigned after every four labs.
   ◦ Future group assignments may take into consideration lecture attendance and assignment completion as an indicator of your interest in participating in the course. Active students in the course should not be burdened with partners who are not willing to stay current with course content.

Nondiscrimination Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Students with Disabilities

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to inform your instructor to discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

Students with an existing letter of accommodation are to refer that letter to their instructor and follow up with an e-mail to initiate a conversation regarding how your accommodations may be implemented in the course.

Emergency Preparation

In the event of a major campus emergency, course requirements, deadlines, and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances.

- In case of a campus emergency, check Brightspace for announcements. Follow all official university issued instructions. See https://www.purdue.edu/ehps/emergency_preparedness/ for more information.

Mental Health/Wellness/Basic Needs Statement

Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.

If you need support and information about options and resources, please contact the Office of the Dean of Students. Call 765-494-1747. There is no appointment needed and Student Support Services is available to serve students 8 a.m.-5 p.m. Monday through Friday.

Disclaimer

- **The instructors reserve the right to revise the syllabus and will provide notice through a variety of sources such as lecture recordings, Brightspace announcements, and e-mail.**