

South Plains College
Common Course Syllabus: COSC 1437

Department: Mathematics, Engineering, and Computer Science

Discipline: Computer Science

Course Number: COSC 1437

Course Title: Programming Fundamentals II

Available Formats: hybrid

Campuses: Levelland

Course Description: This course focuses on the object-oriented programming paradigm, emphasizing the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering processes. Students will apply techniques for testing and debugging software. (This course is included in the Field of Study Curriculum for Computer Science.)

Prerequisite: Successful completion with a grade of 'C' or better in COSC 1436

Credit: 4 **Lecture:** 3 **Lab:** 3

Textbook: Starting Out with C++: From Control Structures through Objects, 9th Edition, Tony Gaddis. 2018. ISBN 978-0-13-449837-9. You must have a paper or digital copy of this book. You do NOT need to buy an online access card with this book.

Supplies: You must have access to a laptop or desktop where you can write programs. Microsoft Visual C++ Community 2022 is installed on our lab computers. You may install this software on a home computer for no charge. Be sure to register (for free) so it doesn't expire in 30 days. Install download from:

<https://visualstudio.microsoft.com/downloads/>

You will need a **USB flash drive** to store your projects. You must bring this drive to class every day. It is recommended that you back up your files on this drive to a home computer or other media.

This course partially satisfies a Core Curriculum Requirement: None

Core Curriculum Objectives addressed:

- **Communications skills**—to include effective written, oral and visual communication
- **Critical thinking skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Empirical and quantitative competency skills**—to manipulate and analyze numerical data or observable facts resulting in informed conclusions

Student Learning Outcomes: Upon completion of this course and receiving a passing grade, the student will be able to:

1. Describe the fundamentals of computing infrastructure components: hardware, application software, operating systems, and data communications systems.
2. Delineate and discuss societal issues related to computing, including the guiding principles of professional and ethical behavior.
3. Demonstrate the ability to create and use documents, spreadsheets, presentations and databases in order to communicate and store information as well as to support problem solving.
4. Describe the need and ways to maintain security in a computing environment.

Student Learning Outcomes Assessment: A pre- and post-test questions will be used to determine the extent of improvement that the students have gained during the semester

Course Evaluation: There will be departmental final exam questions given by all instructors.

Attendance/Student Engagement Policy: Attendance and engagement are the most critical activities for success in this course. The instructor maintains records of the student's attendance and submission of assignments throughout the semester. The student is expected to attend at least eighty percent (80%) of the **total** class meetings **and** submit at least eighty percent (80%) of the **total** class assignments to have the best chance of success. If the student fails to meet these minimum requirements, the instructor may remove the student from the class with an X, upon their discretion, to help the student from harming their GPA. If the student cannot receive an X, the instructor will assign an F.

Plagiarism violations include, but are not limited to, the following:

1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail-order term paper mill;
2. Cutting and pasting together information from books, articles, other papers, or online sites without providing proper documentation;
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.

Cheating violations include, but are not limited to, the following:

1. Obtaining an examination by stealing or collusion;
2. Discovering the content of an examination before it is given;
3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment;
4. Entering an office or building to obtain an unfair advantage;
5. Taking an examination for another;
6. Altering grade records;
7. Copying another's work during an examination or on a homework assignment;
8. Rewriting another student's work in Peer Editing so that the writing is no longer the original student's;
9. Taking pictures of a test, test answers, or someone else's paper.

Student Code of Conduct Policy: Any successful learning experience requires mutual respect from the student and the instructor. Neither the instructor nor the student should be subject to others' rude, disruptive, intimidating, aggressive, or demeaning behavior. Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

South Plains College policies concerning diversity, disabilities, non-discrimination, Title IX Pregnancy Accommodations, and Campus Concealed Carry Statements can be found here:

<https://www.southplainscollege.edu/syllabusstatements/>.

South Plains College policies, return to campus plan, and protocols regarding COVID-19 can be found here:

<https://www.southplainscollege.edu/emergency/covid19-faq.php>.

SPC Bookstore Price Match Guarantee Policy: If you find a lower price on a textbook, the South Plains College bookstore will match that price. The difference will be given to the student on a bookstore gift certificate! The gift certificate can be spent on anything in the store.

If students have already purchased textbooks and then find a better price later, the South Plains College bookstore will price match through the first week of the semester. The student must have a copy of the receipt and the book has to be in stock at the competition at the time of the price match.

The South Plains College bookstore will happily price match BN.com & books on Amazon noted as *ships from and sold by Amazon.com*. Online marketplaces such as *Other Sellers* on Amazon, Amazon's Warehouse Deals, *fulfilled by Amazon*, BN.com Marketplace, and peer-to-peer pricing are not eligible. They will price match the exact textbook, in the same edition and format, including all accompanying materials, like workbooks and CDs.

A textbook is only eligible for price match if it is in stock on a competitor's website at the time of the price match request. Additional membership discounts and offers cannot be applied to the student's refund.

Price matching is only available on in-store purchases. Digital books, access codes sold via publisher sites, rentals, and special orders are not eligible. Only one price match per title per customer is allowed.

Note: The instructor reserves the right to modify the course syllabus and policies, as well as notify students of any changes, at any point during the semester.

SPC Tutors

Tutoring is FREE for all currently enrolled students. Make an appointment or drop in for help at any SPC location or online! Visit the link below to learn more about how to book an appointment, view the tutoring schedule, get to know the tutors, and view tutoring locations.

<http://www.southplainscollege.edu/exploreprograms/artsandsciences/teacheredtutoring.php>

Tutor.com

You also have 180 FREE minutes of tutoring with tutor.com each week, and your hours reset every Monday morning. Log into Blackboard, click on the "Course Resources" link on the left-hand side to access "Tutor.com."

Instructor Course Information: Fall 2023

Time : T/Th 9:30 AM - 12:00 PM (Tuesdays Face to Face, Thursdays Online)
Course Title: Programming Fundamentals 2
Instructor: Don Pathirage, Ph.D.
Room: Levelland Math Building 125B
Phone: 806-716-2666 (email preferred)
Email: dpathirage@southplainscollege.edu

Office Hours:

Mon (F2F)	Tues (F2F)	Weds (Online)	Thurs (Online)	Friday (Online)
12:00PM-1:00PM	12:00PM-1:00PM 3:45PM -5:00PM	12:00PM-1:00PM	12:00PM-1:00PM 3:45PM-5:00PM	12:00PM-1:30PM Or by appointment

Academic Conduct: You may discuss the lab and programming assignments with your classmates, but you must code, debug, and execute the projects on your own. Copying another student's work or allowing your work to be copied is considered plagiarism and a failing grade for that assignment will be given to all parties involved. Cell phones **MUST** be turned off and put away during class and testing periods. Calculators will **NOT** be allowed during exams.

Assignment Policy: Current assignments and due dates will be announced in the class. **Students are expected to read the current chapter before coming to class.** During the scheduled lab, there will be lab exercises to complete and/or programming problems to start. (Programming problems will be finished on your own time). All assignments will be given a Due Date.

Lab exercises must be turned in by the due date; no late assignments will be accepted. **Lab attendance is required, and students are expected to stay for the full lab time. Your work schedule or any other schedules must not overlap with the class schedule.**

Grading Policy: There will be 3 major exams and a comprehensive final. No student will be exempt from the final. Your lab grade will be calculated from homework grades, in-class lab assignments, and programming assignments. Your final grade will be computed as follows:

Major Exams (3): 50%
Final Exam: 20%
Lab Grade: 30%

Please note that the numeric grade scale spans from 100 to 0 and the letter grades will translate to: 100-90 = A, 89 – 80 = B, 79 -70 = C, 69 – 60 = D, 59 – 0 = F. All tests will count towards the final grade, i.e. no exam grades will be "dropped". Only students that miss an exam due to a college-approved absence are eligible to take the makeup exam. If you miss an exam, it is your responsibility to contact me as soon as possible using email. If permission is granted for a makeup exam, I want it to be taken before the next class meeting. Missing an exam is a serious matter and it is up to the student to take the proper action, otherwise, a zero will be assigned as the exam grade.

Additional Course Objectives:

- To develop the ability to correctly analyze a variety of problems and generate appropriate algorithmic solutions.
- To introduce pointers and recursion.
- To introduce the concepts of object-oriented programming.
- To introduce data structures and abstract data types.
- To introduce C++ classes, member functions, and class operators.
- To gain further experience with the C++ programming language.

COSC1437 Fall 2023 Course Outline

This proposed schedule may change as the semester progresses! Always refer to announcements for exact dates.

Week	Topics
1 Aug 28 - Sep 01	Review of C++ basic data types, control structures, arrays Chapter 9: Pointers, Addresses
2 Sep 04 - Sep 08	<i>Mon 09/05 Labor Day Holiday.</i> Chapter 9: Dynamic Memory Allocation
3 Sep 11 - Sep 15	Chapter 10: The string Class Chapter 13 Introduction to Classes, member functions
4 Sep 18 - Sep 22	Chapter 13 constructors, destructors Chapter 14: More About Classes, friends of classes
5 Sep 25 - Sep 29	Exam 1: (in-person - Room M125) (Chapters 9, 10 & 13) Chapter 14: copy constructors, and operator overloading
6 Oct 02 - Oct 06	Chapter 15: Inheritance. Base and derived classes.
7 Oct 09 - Oct 13	Chapter 15: polymorphism and virtual functions
8 Oct 16 - Oct 20	Chapter 16 Exceptions Chapter 16 Templates
9 Oct 23 - Oct 27	Chapter 17: STL, Vector Chapter 18 Linked Lists ADT
10 Oct 30 - Nov 03	Exam 2: (in-person - Room M125) (Chapters 14, 15 & 16) Chapter 18 Templated class, variations for linked lists
11 Nov 06 - Nov 10	Chapter 18: STL list Container Chapter 19 Stacks
12 Nov 13 - Nov 17	Chapter 19 Queues, STL containers Chapter 20: Recursion <i>Thurs 11/19 Last Drop Day</i>
13 Nov 20 - Nov 24	Exam 3 (Chapters 17, 18, & 19) <i>Wed 11/23 – 11/25 Thanksgiving Holiday</i>
14 Nov 27 - Dec 01	<i>Thurs 12/01 Last Drop Day</i> Chapter 20: Problem-solving with recursion
15 Dec 04 - Dec 08	Chapter 21 Binary Trees Chapter 21 Other structures.
16 Dec 11 - Dec 08	Final Exams: (in-person - Room M125) (Chapters 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21) December 15 - 8:00 a.m.-10:00 a.m.

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