

CS 1337 Course Syllabus

COURSE INFORMATION:

Course Number: CS 1337.005
Course Title: Programming Fundamentals
Course Term: Spring 2024
Schedule: M W 4 – 5.15 PM
Location: ECSW 1.355

INSTRUCTOR CONTACT INFORMATION:

Email Address: Srimathi.Srinivasan@utdallas.edu
Office Location: ECSN 2.924
Office Hours: Mondays, Wednesdays : 11.30 AM – 12.30 PM in person/Teams
Tuesdays : 11.30 AM – 12.30 PM in Teams
[Click here to enter my Office room](#)

GRADER CONTACT INFORMATION:

TA:
TA email:
Office hours:
Location:

Email: When you send a mail to me or TA, please **specify 1337.005 in the subject of the email.**

COURSE PREREQUISITES:

Prerequisite: CS 1436 with a grade of C or better or equivalent.

COURSE DESCRIPTION:

Review of control structures and data types with emphasis on structured data types. Applies the object-oriented programming paradigm, focusing on the definition and use of classes along with the fundamentals of object-oriented design. Includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering. The programming language of choice is C/C++. Students will also be registered for an exam section.

CLASS PARTICIPATION:

*Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. **Regular attendance is highly recommended.*** Three consecutive absences or more than five absences lead to a letter grade drop. Seven absences lead to an F. However, **two attendances will be excused/dropped** when computing the final grade to cover the common issues like car-trouble, oversleep, mild sickness. However, if you provide a doctor's medical certificate your absence will be excused. No other reasons will be accepted for an absence excuse.

CLASS MATERIALS:

The instructor may provide class materials including the syllabus, slides, and sample programs will be shared though **UTD box folders** registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments except to implement an approved Office of Student Accessibility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

STUDENT LEARNING OBJECTIVES/OUTCOMES:

After successful completion of this course, the student should have an:

1. Ability to implement simple searching and sorting algorithms.
2. Ability to implement pointers and perform simple memory management.
3. Ability to implement structured data types.
4. Ability to define and implement a class.
5. Ability to use fundamentals of object-oriented design.

Notes: This course is the middle one in the UTDCS programming sequence. Goal is to build your coding expertise in these courses so that you can apply your skills to complete assignments/projects in all the future courses, without much handholding.

CS 1436 Programming Fundamentals (C++)

CS 1337 Computer Science I (C++)

CS 2336 Computer Science II (Java)

Course Learning Outcome	Homework	Exams
1. Ability to use single and multi-dimension arrays	IC1, HW1	1
2. Ability to implement simple searching and sorting algorithms.	HW2	1
3. Ability to implement pointers and perform simple memory management	HW3,4,5	1
4. Ability to implement structured data types.	HW6,7	1
5. Ability to define and implement a class.	HW9,10	2
6. Ability to use fundamentals of object-oriented design.	HW11,12, Project	2

REQUIRED TEXTBOOKS AND MATERIALS:

Required Textbook:

Starting out with C++. From control structures through objects, Ninth Edition, by Tony Gaddis, Pearson Education, Inc. ISBN: 978-0-13-449837-9.

ZyBooks:

Zylabs is mandatory and it will cost \$40. Labs, in class activities, assignments and practice problems will be posted in Zylabs and you will post the solutions there. It is an auto grader tool. The feedback on your code will however be provided to you by the graders.

1. Click any zyBooks assignment link in your learning management system
(Do not go to the zyBooks website and create a new account)

2. Subscribe

A subscription is **\$40**. Students may begin subscribing on Jul 24, 2023 and the cutoff to subscribe is Dec 09, 2023. Subscriptions will last until Jan 12, 2024.

Software Options:

- Windows: Code::Blocks IDE from codeblocks.org/downloads/binaries - codeblocks-20.03mingw-setup.exe (mingw is important – it is the compiler!) - very easy to install!
- Mac: use pre-installed XCode
- Web based: Online GDB compiler onlinegdb.com/online_c++_compiler (includes debugging!)
- There are several other popular ones out there, including Visual Studio - incredibuild.com/blog/best-c-ides has a good list!

Additional optional resources:

C++ language tutorial www.cplusplus.com/files/tutorial.pdf

C++ reference: www.cppreference.com

C++ tutorial www.learncpp.com

I will use code blocks. codeblocks-17.12mingw-setup.exe can be downloaded from <http://www.codeblocks.org/downloads/26>

Important Dates and Times	• First day of class: Wednesday, January 17th, 2024 • Exam 1: Monday, March 4th, 2024 @ Testing center • Exam 2: Monday, April 29th, 2024 @ Testing center
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Please register for the exams at UTD testing center as early as possible.

[Testing Center - The University of Texas at Dallas \(utdallas.edu\)](http://utdallas.edu)

Tentative Course Calendar

Week	Dates	Class Activity/Notes	Read ...
1	Jan 17 th	Review of syllabus	
2	Jan 22 nd , 24 th	Review of 1436 materials	Ch 1-7
3	Jan 29 th , Jan 31 st	Search and Sorting	Ch 8
4	Feb 5 th , 7 th	Pointers	Ch 9
5	Feb 12 th , 14 th	C Strings	Ch 10
6	Feb 19 th , 21 st	Structured Data	Ch 11
7	Feb 26 th , 28 th	Review, Introduction to classes	
8	March 4th, 6th	Exam 1: Monday, March 4th Introduction to classes	4 – 5.15 PM (90 mins) - During the class hours in testing center
9	March 11th, 13th	Spring Break	
10	March 18 th , 20 th	Classes: Operator Overloading	Ch 14
11	March 25 th , 27 th	Classes: Copy constructor & = operator	Ch 14
12	April 1 st , 3 rd	Inheritance, Polymorphism, and Pure Virtual Functions	Ch 15
13	April 8 th , 10 th	Object Oriented Design	
14	April 15 th , 17 th	Object Oriented Design	
15	April 22 nd , 24 th	Recursion	Ch 19
16	April 29th, May 1st	Exam 2: Monday, April 29th In class Assignment	4 – 5.15 PM (90 mins) - During the class hours in testing center

Letter grades will be assigned as follows:

97-100	A+	94-97	A	90-94	A-
87-90	B+	84-87	B	80-84	B-
77-80	C+	74-77	C	70-74	C-
67-70	D+	64-67	D	60-64	D-
Below 60	F				

GRADING POLICY:

Grading Criteria	In class participation: 15% Exam 1: 20%, Exam 2: 20%, Programming Assignments: 30%, Project 10%, Attendance 5% Historically students who skip programming assignments, or do not put much effort into their programming assignments, or get a lot of help from classmates, mentors, or others, do not perform well on exam questions testing the material covered by the assignment.
Programming Assignments	Programming assignments are given every week. Weekly Assignments will be assigned on Wednesdays and are due by next Tuesday at midnight. They will have equal weightage – all of them together will contribute 35% to the final weighted grade. This high weightage indicates the importance of assignments in this course! The complexity level of each assignment will vary – each assignment may take several hours to complete. You are expected to start working on them as soon as they are posted so that you have "enough" time to work through the glitches, get the necessary help & still manage to submit on time. Do not expect me or the TA to rescue you at the 11th hour! Late submissions will not be accepted. If you cannot complete an assignment due to medical condition, send the Doctor note to the professor. You will be given a few additional days to complete the assignment. Each week's assignment may vary from multiple small programs to one large program OR somewhere in-between. You are expected to spend several hours at a computer every week. The right way to approach the programming assignments is to start on them right away & get help when you get stuck (you can approach the instructor, TA, or tutors at CS mentor center for help). Do not waste lots of hours trying to fix one specific issue. In simple words, your approach will determine whether programming assignments provide an enjoyable learning experience or end up like a painful activity that ruins your self-confidence. You can develop & test your program using any C++ IDE, but you need to pass all the official testcases in Zylabs to complete. Assignments are auto graded through Zylabs & the scores will appear automatically in elearning. Your program should be as generic as possible – it should be able to handle all possible valid input values and output meaningful results. As time permits, TA will manually review your code in Zylabs and give feedback. All submissions are subject to random manual inspection as well - you should NOT use any concepts that are not yet covered in the course yet. You should NOT write code just to pass the

	specified testcases either. Your assignment score may be reduced to 0 for such violations. We are all here to learn! Sophisticated tools are available in Zylabs and beyond to detect plagiarism. Suspicious cases will be referred to UTD administration directly - Review http://utdallas.edu/conduct/integrity & http://utdallas.edu/conduct/manage-dishonesty for details.
In class Exercises	There will be 1 or 2 activities every week (relatively simple compared to Assignments - should not take more than 1 hour each) to ensure that you are keeping up with the class content. You also need to complete an in-class activity in every class - bring your laptop to every class - all of them will contribute equally & together they will account for 20% of your final grade. Activities ensure that you are keeping up with the course - they cannot be made up after the deadline! In other words, late submissions will NOT be accepted, however one lowest score will be dropped when computing the final grade, to cover the common issues like car-trouble, oversleeping, etc. If you cannot complete an activity due to medical condition, send the Doctor note to the professor. You will be given additional time to complete. Exercises may be given in lectures with or without previous notification. There is no make-up for these. It must be submitted by next day 11.59PM of the lecture day.
Make-up Exams	Make-up examinations will be administered only for well-documented emergencies. A student must make every attempt possible, via email, to notify the instructor that he/she will miss a scheduled exam prior to the scheduled date and time or immediately thereafter. If notification is not received in a timely manner, no make-up will be given.
Project	There will be one final project. You will implement the project using Object Oriented Design concepts. More details will be provided in the middle of the semester.
Extra Credit	Practice problems may be assigned to get extra credits of 5 points.
Late Work	Late submissions will not be accepted for Programming assignments or in class activities as the solutions will be discussed in class the next day. However, if a student is stressed out, one day late submission will be allowed, but you need to get a permission at least one day before the submission day.
Class Attendance	Three consecutive absences or more than five absences lead to a letter grade drop. Seven absences lead to an F. However, two attendances will be excused/dropped when computing the final grade to cover the common issues like car-trouble, oversleep, mild sickness.
Classroom Citizenship	The instructor encourages students to take active part in class discussions. No question is too simple/stupid to be asked. So, do not hesitate. Use of smart phones and headphones/earphones is strictly prohibited. Laptops need to be closed, until I request to open for an in-class activity.
UT Dallas Syllabus Policies and Procedures	The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for these policies.

Assignments will be graded on a 100-point basis, utilizing the following criteria:

		Max Score
Pseudocode	High level explanation of steps at the top of program/each function	10%
Source Code	Overall design of the program	40%
Source Code	Assigning meaningful names for variables and functions	10%
	Formatting and coding style	10%
Execution	Test cases	30%
Total		100%

What you need to do to be successful in this course:

Ask for help at any time. If you do not understand something or are having trouble implementing a concept. The sooner you ask that question, the sooner you will get an answer. That answer will allow you to move forward. I want you to succeed; don't be afraid to ask questions.

- The instructor is available to help during office hours.
- Be proactive.
 - Don't wait till the day an assignment is due to seek help. Please note that I do not have office hours every day. If you wait till close to the assignment due date to seek my help, it is possible that I won't have any office hours that day or there may be many students who will be competing for my time when you come to my office hours. **You may not email your code to the instructor or grader expecting us to find your errors.**
 - You can also ask help at CSMC <https://csmc.utdallas.edu/>
 - Don't wait till the end of the semester to seek help. If you have gotten far behind in your coursework or have done significant damage to your course average, I may not be able to help.

Take responsibility for your education.

- Read your assigned reading before the lecture before course meetings. You are expected to have an understanding of the assigned textbook material before meetings
- Attend every meeting and pay close attention.
- Dedicate 9-10 hours per week outside of class meetings to CS 1337 for reading, watching recordings, practicing writing code, assignments, exercises and studying for exams.
- I will give challenging assignments to push you toward learning general concepts, developing critical thinking and core programming skills. Part of being a professional is learning how to teach yourself. I am going to guide you through the topics of the semester, but a significant portion of what you take with you to the next class will be things that you have learned on your own.
- The more programs you practice with outside of lecture the better you will do in this course. I will also show you samples of programs and of the use of programming constructs / patterns. I will introduce you to program development methodologies. However, you learn to program by doing – coding, testing, and fixing (debugging).

Practice time management skills. Good time management is necessary for this class.

- Start your assignment immediately. All assignments are designed to be worked on over a period of days. I expect that you will work on the assignment a little at a time rather than waiting until a day or two before it is due. Those that procrastinate will find this class to be much harder than it should be and will face the risk of below average grades.
- I expect everyone to devote at least an hour a day to this class. Doing this will help you to divide tasks up into chunks and work a little at a time on an assignment rather than waiting until a day or two before it is due. You will have a very difficult time succeeding in this class if you schedule to finish every assignment at the last minute.

Attend every class. You are paying for an education. Don't waste your money by skipping class. I will give you everything you need to complete projects and do well on the tests. You have to be there to get the information.

Make mistakes! This is how you learn. Don't be discouraged when something goes wrong. Programming takes lots of practice and mistakes will always happen. Study the mistakes you made so that you can learn from them for the future.

What each student should expect in this course:

A problem solving class. This class is not a programming class. Computer science is all about problem solving. The content of this class is to teach you how to solve problems using a computer. In order to solve those problems, you will need to learn a foreign language (C++) and write solutions that the computer can interpret.

An open environment dedicated to learning. I want students to feel free to voice their opinions. Oftentimes as we code in class, I will ask students what they would do in a certain situation. I want each student to feel as if he/she can speak freely and also be open for other students to discuss that idea, even if that means that some students will disagree.

Exams focused on application. Many of the questions I ask on an exam require you to apply your knowledge to answer the question. This may involve finding errors in code or determining output of a code segment. I expect you to apply the knowledge you have learned to the situations on the test. Questions on the test are designed to make sure that you understand what you are doing rather than repeating an example from your notes or the textbook.

A simulated professional experience. The projects in this class require you to exercise strategies found in "the real world". Your logic for a project may force you to learn new techniques that haven't yet been discussed in class. You will have to perform code maintenance and improve the efficiency of previously written code. These things offer a small taste of how life might be once you graduate and are given large sums of money by a company seeking your skills.

A deep understanding of C++ and object-oriented programming. My goal is for you to know all the topics of CS 1337. You should have peace of mind moving on in your program because you will be fully prepared to tackle what the next course in the sequence will throw at you.

Academic Integrity:

All assignments, exercises and exams are to be individual efforts. You are not to collaborate with other students. Prior to the assignment due date, you are not to: discuss assignment solutions with other students, distribute your code to others, or publish your code. Copying of programming assignments, exercises, or exams, in whole or in part, from other students will be considered an act of scholastic dishonesty. Copying assignments from previous semesters will be considered an act of scholastic dishonesty.

For programming assignments, you may use source code provided by the instructor. You are not to

view, copy, or distribute code from any other sources, including code from other students, code from assignments submitted in past semesters, or code from the Internet. Plagiarism detection software will be employed to detect copying of code.

Grading Concerns:

If you think there is a mistake in the grading of your assignment or exercise and would like to request that it be regraded, **you must notify both the grader and the instructor (email the grader and copy the instructor)** of this by email within **one week** after the date the grade is posted in the grade book on eLearning. Your request for any regrade must describe in detail what you perceive as the problem with the grading. Keep in mind that a regrade may result in an increase or in a reduction of the original grade.

Most deductions are made because students did not fully read the assignment instructions, did not adequately test their programs, or did not follow the style guidelines provided. You may not change the problem to suit your purposes. Most assignments restrict the use of programming constructs and library functions not covered in lecture, others require that you use constructs or functions. To get the maximum credit you must read the directions carefully and test your programs thoroughly.

COMET CREED:

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT DALLAS SYLLABUS POLICIES AND PROCEDURES:

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.