

CSCI/CMPE 1370-02

Engineering Computer Science I

Course Information

Instructor:	Dr. Robert Schweller
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Office Hours:	MTWR 11:00 a.m. - 12:00 noon
Schedule:	Lecture: TR, 9:25 a.m. - 10:40 a.m., EACSB 1.104 Lab: Friday, 10:40 a.m. - 1:10 p.m. EACSB 2.120
Textbook:	C++ Programming: Program Design Including Data Structures. 7 th edition, Malik, D. S., 2014. ISBN-13: 978-1285852751
Course Website:	http://faculty.utrgv.edu/robert.schweller/CS1370

Course Description

CSCI/CMPE 1370 - Engineering Computer Science I. An introduction to computer science and computer engineering. The fundamentals of a high-level programming language will be introduced. Methods of problem solving, techniques of algorithmic development and concepts of procedural and object-oriented programming will be emphasized. Fulfills Computer Literacy Core Requirement. Co-requisite: CSCI/CMPE 1170.

CSCI/CMPE 1170 - Engineering Computer Science I Laboratory: The course includes hands-on instruction and laboratory exercises in developing programs written in a high-level object oriented programming language applying the principles taught in the CSCI 1370 lecture course. Co-requisite: CSCI/CMPE 1370.

Course Topics

This course is an introduction to Computer Science and is taken as the first course for Computer Science majors and minors. This is also the first software course for Computer Engineering majors. It focuses on techniques of problem solving and algorithmic design, and includes lab experiences in design and implementation of these algorithms in C++. Topics in C++ include:

- Data types, variables and assignment
- Interactive input/output statements
- File input/output statements
- Selection and loop statements
- Functions
- Pointers
- One and two dimensional arrays
- Simple sorting and searching algorithms
- User-defined data types
- Structured data types
- Data abstraction and classes
- Characters, strings, and the string class

Course Objectives

Students will learn:

1. How to design and write computer programs to solve basic problems:
 - (a) How to analyze a problem and develop an appropriate algorithm to solve it
 - (b) How to implement algorithms by writing C++ code
 - (c) How to compile and link code into a working program
 - (d) How to use testing and debugging strategies to identify and fix program faults
2. How the programming language, libraries, and development environment each impact the way programs are written.
3. How a program can be written many different ways, and why some are better than others:
 - (a) How different algorithms meet different requirements
 - (b) How to evaluate, use, and modify existing algorithms
4. How to write and document your code so that it is useful to other programmers.

ABET Learning Outcomes

Throughout this course, students will begin to develop the ability to: (A) apply knowledge of computing and mathematics appropriate to the discipline; (B) analyze a problem, and identify and define the computing requirements appropriate to its solution; (C) design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs; (D) function effectively on teams to accomplish a common goal; (E) understand professional, ethical, legal, security and social issues and responsibilities; (I) use current techniques, skills, and tools necessary for computing practice; (J) apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices; (K) apply design and development principles in the construction of software systems of varying complexity.

Course Overview

Exercises: There will be a variety of in-class exercises during this course, including problem solving and small coding problems. They will be completed during class time and turned in at the end of class. You are expected to attend every lecture and take part in these exercises.

Assignments: The assignments will involve writing, compiling, and running your own programs. These assignments will be announced in class and posted in Blackboard. All programs for this course will be built using the Microsoft Visual C++ environment.

Labs: You must be registered for the corresponding CSCI/CMPE 1170 lab section. The lab assignments will be done during the weekly CSCI/CMPE 1170 lab period. If you are enrolled in only one of CSCI/CMPE 1370 or 1170, please contact the instructor.

Exams: The material in this course is naturally cumulative, with each weeks topics building on all the prior material. Therefore, each exam will focus on the material covered since the previous exam, however, the student is expected to understand and apply all previous course material.

Scoring and Grading. CSCI/CMPE 1370 and 1170 are co-requisite courses. The purpose of the lab section is to increase your hands-on experience with the material, and to provide you with another avenue to demonstrate what you have learned. You will receive the same grade for both courses. That grade is

calculated based on the total work performed in both CSCI/CMPE 1370 and 1170.

<u>Grade Breakdown</u>		<u>Final Grade</u>	
1370 Exercises	10%	90%-100%	A
1370 Assignments	20%	80%-89%	B
1370 Exams	40%	70%-79%	C
1170 Labs	30%	60%-69%	D
	—	0%-59%	F
Total possible score (max):	100%		

Note: This breakdown is subject to change. Grades may be curved to reflect the overall performance of the class.

Course Schedule This is a rough course schedule to give you an idea of topics and pacing. The actual course schedule is likely to change and will be kept up to date on the course website.

Week 1-2: Basic program organization and execution, data and variables, user input
Week 3-5: Conditional and iterative execution, simple boolean logic
Week 6-8: User-defined functions and parameters
Week 9-10: Arrays and structured data
Week 11-12: Structured data
Week 13-14: Classes and object-oriented programming
Week 15: Pointers and dynamic memory

Late Work Policy. Labs, exercises and assignments will not be accepted late.

Make-up Policy. No make-up exams will be given except for university sanctioned excused absences. If you need to miss an exam, it is your responsibility to contact me before the exam, or as soon after the exam as possible. Missing an exam without an approved (by the university or me) excuse will result in a zero.

UTRGV Course Policies

Attendance. Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV's attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

Drop Class Policy. According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the 3-peat rule and the 6-drop rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time. The census date is Sept. 13th, which is the last day to drop the class without it appearing on your transcript, and the last date to drop is Nov. 15th.

Computer Use Policy. Please read and be aware of University policies for computer use and data security, which can be found at: http://www.utrgv.edu/is/_files/documents/utrgv-aup.pdf

Scholastic Integrity Policy. As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

Course Evaluation. Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<http://my.utrgv.edu>); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available:

Module 1 Oct. 4 – Oct. 10

Module 2 Nov. 29 – Dec. 5

Full Fall Semester Nov. 15 – Dec. 5

Sexual Harassment, discrimination, and violence. In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

Students with Disabilities. Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive academic accommodations should contact Student Accessibility Services (SAS) as soon as possible to schedule an appointment to initiate services. Accommodations can be arranged through SAS at any time, but are not retroactive. Students who suffer a broken bone, severe injury or undergo surgery during the semester are eligible for temporary services.

- **Brownsville Campus:** Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at ability@utrgv.edu.

- **Edinburg Campus:** Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at ability@utrgv.edu.