

INTRODUCTION TO PROGRAM DESIGN AND CONCEPTS

Fall 2017 – CSCE-121-{525, 526, 527, 528}
Texas A&M University

Instructor: Mr. Michael R. Nowak	Office : HRBB-322B
Email : m.n@tamu.edu	Office Hours: TR 14:30-15:30
Phone : (979) 320-9838	

Meeting Times:

Lecture		
	TR 17:30-18:45	ETB-2005
Labs		
Section 525	TR 15:55-16:45	RDMC-111H
Section 526	TR 19:05-19:55	RDMC-111J
Section 527	TR 12:45-13:35	RDMC-111A
Section 528	TR 19:05-19:55	RDMC-111J

Important Dates:

Exam 1 Thu, 5 Oct 17:30-18:45
Exam 2 Thu, 9 Nov 17:30-18:45
Comprehensive final exam Wed, 13 Dec 15:30-17:30

Teaching Assistants: TBA.

Peer Teachers: See engineering.tamu.edu/cse/academics/peer-teachers/current-peer-teachers or go to HRBB 129, Peer Teacher Central. In addition to the peer teacher(s) for your section, you may also consult other peer teachers if they are not busy.

Catalog Description: Computation to enhance problem solving abilities; computational thinking; understanding how people communicate with computers, how computing affects society; design and implementation of algorithms; data types, program control, iteration, functions, classes, and exceptions; understanding abstraction, modularity, code reuse, debugging, maintenance, and other aspects of software development; development and execution of programs.

Prerequisites: Prior programming experience (high school or college).

Required Textbooks:

- Vahid, F. & Lysecky, R. (2015). *Programming in C++* (Texas A&M University-College Station CSCE 121 Nowak Fall 2017 ed.). Zyante Inc.
 - This is an **online** textbook, accessible at zybooks.com. You are required to have access to your own copy linked to this class, so make sure that when you subscribe at learn.zybooks.com, you use the class code **TAMUCSCE121NowakFall2017** .

- Stroustrup, B. (2014). *Programming: principles and practice using C++* (2nd ed.). Addison-Wesley. ISBN 978-0321992789

Optional Textbooks:

- Lippman, S. B., Lajoie, J., and Moo, B. (2012). *C++ Primer* (5th ed.). Addison-Wesley. ISBN 978-0321714114
- Stroustrup, B. (2014). *The C++ Programming Language* (4th ed.). Addison-Wesley. ISBN 978-0-321-56384-2

Learning Objectives: At the end of the course, a successful student should be able to:

1. understand computer program structure, design and development;
2. use primitive data types and control structures in computer programs;
3. understand and apply vectors, strings, and structs;
4. declare and use functions in computer programs;
5. understand object-oriented programming concepts: objects, classes, inheritance, polymorphism, and encapsulation;
6. design and create simple graphic user interfaces;
7. understand and apply file I/O in computer programs;
8. understand and use basic algorithms for searching, sorting, lists, trees and maps;
9. write simple computer programs in a high-level programming language; and,
10. complete a team design project using knowledge and principles from the course

Learning objectives 1 through 10 will be assessed using homeworks, quizzes, and exams. Objective 11 will be assessed by evaluating student group programming assignments and their collective responses to posed questions.

Assignments & Grading:

Course grades will be assigned according to this scale:

% Total	>= 90.00	89.99 – 80.00	79.99 – 70.00	69.99 – 60.00	<= 59.99
Letter Grade:	A	B	C	D	F

Method of evaluation:

One-hour exams (2)(15% each)	30%
Comprehensive final exam	20%
Homework assignments	30%
Team labwork assignments	7%
Assigned zybook activities	7%
Attendance and class participation	6%

One-hour exams (2), comprehensive final exam

Two one-hour exams (each contributing 15% towards your overall grade) and a comprehensive final exam (comprising 20% of your overall grade) will be given this semester.

Homework assignments

Homework will be a combination of programming assignments and written-responses to posed questions. These assignments are to be completed individually and will be accepted past the submission deadline at the expense of an applied late-penalty.

Team labwork assignments

Weekly labworks will be assigned for completion during the lab sessions. These assignments will be completed in teams; your grade for each labwork will be that received on the team submission multiplied by your attendance to lab for the assignment date (i.e., 1 when present; otherwise 0). In order to receive full-credit for this section, 85% of the labworks must be completed; otherwise, the fraction of submissions to this extent will be allocated. Labworks will not be accepted past the submission deadline.

If you have excused absences that have prompted you to miss more than 15% of the lab assignments, we will address what to do at that point; though you will be required to produce all documentation for all excused absences at that time.

Assigned zybook activities

Participation and challenge activities are the two kinds of graded interaction that you will encounter throughout the Zybook material. The former will account for 4% of your overall course grade, while the latter 3%.

You will be required to complete these activities for a respective Zybook section *by noon on its read-by deadline*; we will not assign credit for an activity that is completed past that date.

In order to receive full-credit for this section, 85% of the assigned participation activities and 85% of the assigned challenge activities must be completed.

Attendance and class participation

Each attendance/participation item (pop quizzes, lab quizzes, etc.) will be given a best value, essentially the "weight" of that assignment. Your overall grade for attendance/participation will be the sum of the individual grades over 85% the sum of the base grades; the maximum score you can receive for this category will thus be 85% the sum of the base grades.

There will be no make ups for these items, and a zero will be recorded for all that are missing. In order to accommodate illness and other potential excused absences, we will calculate your score out of 85% the sum of the base grade.

If you have excused absences that have prompted you to miss more than 15% of the total sum of the base grades, we will address what to do at that point; though you will be required to produce all documentation for all excused absences at that time.

Extra credit

You will have the opportunity to earn up to 1.5 percentage points added on to your final grade through extra credit offerings; details will be announced on the course website.

Note: borderline grades will not be boosted if extra credit is not submitted.

Teams: Teams will be established during the second week of lab. You will be responsible for forming a team comprised of 2-3 individuals (including yourself) from your lab section, and will work with this group throughout the semester on the labworks. If issues arise within your group, please contact your instructor at their onset; this will allow us to resolve the issues promptly through relevant intervention.

Course Resources:***Course website***

michaelrnowak.com/teach/fl17.csce121

The course website will be the go-to resource for all course material, including: lecture slides, homeworks, labworks, etc.

E-campus

e-campus.tamu.edu

We will be using this environment primarily for grade dissemination; some assignments may also be submitted here.

Piazza

piazza.com/class/j6g60yevdnuun

All questions will be fielded through Piazza. The primary benefit of using Piazza is that, for many questions, everyone can see the answer and other students can answer as well. We will endorse good student responses. You will need to register (through the link above) using your tamu email.

Vocareum

vocareum.com

You will submit most of your programming assignments to Vocareum for auto-grading and plagiarism detection; we will create accounts for you, and you will receive email instructions on connecting.

Gradescope

gradescope.com

You will submit some of the course assignments to Gradescope; we will create accounts for you, and you will receive email instructions from on connecting.

Course Policy:

- Missed exams will be rescheduled without penalty for an excused absence, or with a 36% penalty if the absence is not excused. In cases where the advance notification of an absence is not feasible (e.g. accident, emergency, etc.) the student must provide notification by the end of the second working day after the absence.
 - In accordance with Student Rule 7, Attendance, specifically section 7.1.6-Illness or Injury that is too severe or contagious for the student to attend class, I require documentation in the form of a medical confirmation note from the medical doctor overseeing your care.
 - Kindly note that section 7.1.6.2 specifies that it is within the purview of, and at the sole discretion of, the instructor whether an absence is excused for short-term illness or injury.
- We have weekly homework, labworks, and zybook activities. You will also be given weekly attendance/participation item(s) (pop quizzes, lab quizzes, etc. based on assigned readings and/or previous lecture content).
- Late labworks and zybook activities will never be accepted; there will be no make-ups for missed attendance/participation items.

- Homework not submitted on-line before the deadline will be considered late. When a homework assignment is submitted late, your unadjusted grade will be multiplied by 0.9999^m , where m is the number of minutes late.
- Nearly perfect solutions may be considered as an official solution of that homework and will be uploaded to the course web site, and the student gets a bonus mark.
- All homework solution programming codes must be submitted electronically (through Vocareum).
- You may discuss homework problems with other students, but you must write up your homework independently. You are not allowed to search the Web for solutions; we will use a software plagiarism detector to ensure academic integrity.
- All exams (one-hour exams and the comprehensive final) are closed book, and you are not allowed to use any electronic devices such as mobiles and tablets.
- Policy set forth in the 'Assignments & Grading' section of this document are hereby acknowledged and affirmed by this statement.

Class Policy:

- Regular attendance in both the lecture and lab sections is essential and expected (ref: student-rules.tamu.edu/rule07). A student who incurs an excessive number of absences may be withdrawn from the class at the instructor's discretion.
- Students are responsible for all missed work, regardless of the reason for absence.
 - Missing one class could easily lead to a disastrous domino effect.
 - If you have to miss a lecture, I strongly recommend you study the material you missed before you return to class. Therefore, you should photocopy and read notes from someone who was in class and re-read the relevant sections from the lecture in the textbook(s).
 - After you have done this, you may contact me if you need clarification on any materials; remember, it is the absentees responsibility initiate reception of all missing notes and material from the instructor.
- Be courteous when using mobile devices. Make sure your cell phone is turned fully off, or completely silent.
- If you must use a laptop in class, then turn off the sound and do type quietly on your laptop keyboards.

Academic Integrity:

Scholastic Dishonesty

Scholastic dishonesty will not be tolerated. While working together on homeworks and labworks is encouraged, the final product submitted for grade must be the individual work of the person turning it in. In other words, it is all right to discuss and to assist each other concerning programming strategy or technique or for one student to help another debug code which will not work; but each student is expected to write his or her own programs from beginning to end. In this regard, if code from two or more students is essentially identical, and it is determined to the satisfaction of the instructor that the code is not the product of the individual, all students involved are subject to the Texas A&M University Honor System Rules, including a course grade of F* (with the * denoting academic dishonesty) if this is the first offense, plus additional penalties as determined by the Aggie Honor System Office if this is not the first offense.

It is imperative that each student clearly understand those rules and the serious consequences that can result from adjudication of an Honor Code Violation. In particular, every student should understand that complicity helping or attempting to help another student commit an act of academic dishonesty also constitutes academic dishonesty and carries the same punishment as cheating. In other words, if you provide your solution to another student, who turns it in for credit, you are both subject to the same consequences.

Plagiarism

Plagiarism is the presentation of the work of someone else without giving him or her due credit. You can copy the words of others as long as you clearly identify them as such. In fact, documented use of program libraries is encouraged. Submitted work will be examined for plagiarism using computer software designed for that purpose. Examinations are meant to measure the knowledge or skill of each individual, so giving or receiving unauthorized assistance during tests and quizzes is cheating. It is assumed that college students know what is honest and what is not.

Aggie Honor Code

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code (An Aggie does not lie, cheat, or steal or tolerate those who do.) to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

Students are to affirm their compliance to the Aggie Honor Code by including the following statement (typed or hand-written) on any work submitted for a grade in this course: *On my honor, as an Aggie, I have neither given nor received any unauthorized aid on any portion of the academic work included in this assignment.* This statement is to be followed by the students name and signature.

Any submissions failing to confirm the students compliance to the Aggie Honor Code through the inclusion of this statement will not be graded; in such cases, a zero-value score will be allocated for that assignment. For additional information please visit aggiehonor.tamu.edu.

Americans with Disabilities Act Statement: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit disability.tamu.edu.

Tentative Schedule:

Week no.	Topic
1	Data representation; objects, types, and values
2	Expressions and statements
3	Type safety; type conversions; compound types: references, pointers, vectors; errors and exceptions
4	Software development process; testing; problem solving
5	Input/output streams; file input/output
6	Introduction to functions: design, code organization, argument passing, etc.
7	Function overloading; ad-hoc polymorphism; recursive functions
8	Functions and exceptions; introduction to classes: design, code organization, data members, methods, etc.
9	Dynamic memory; classes with data members allocated on the freestore
10	Arrays and linked lists
11	Inheritance; inclusion polymorphism
12	An introduction to object-oriented programming
13	An introduction to event-driven programming; graphical user interfaces
14	An introduction to generic-programming; parametric polymorphism
15	Standard template library

** Tentative implies that this may indeed change...*