CS 1428 - Foundations of Computer Science I  
Spring 2020 (post-extended Spring Break)

Catalog Description:
Introductory course for computer science majors, minors and others desiring technical introduction to computer science. Contains overview of history and structure of the digital computer, including binary data representation. Problem solving, algorithm development, structured programming, good coding style, and control structures of C++ are emphasized. Prerequisite or corequisite: MATH 1315

Course Objectives:
- Understand the history and structure of the digital computer.
- Explain the organization of the classical von Neumann machine and its major functional units.
- Understand binary data representation in the modern computer, including the representation of non-numeric data.
- Understand that fixed-length number representations affect accuracy and precision.
- Identify the necessary properties of good algorithms.
- Discuss the importance of algorithms in the problem-solving process.
- Understand the software development process, good coding style, and algorithm development.
- Use pseudo-code or a programming language to implement, test, and debug algorithms for solving simple problems.
- Introduce the syntax of the C++ programming language.
- Understand how to use an if or if-else construct to implement a branch in an algorithm.
- Understand how to use a for loop for definite iteration.
- Understand how to use a while or do-while loop for indefinite iteration.
- Apply the techniques of structured (functional) decomposition to break a program into smaller pieces.
- Describe the mechanics of parameter passing with emphasis on the difference between pass by value and pass by reference.
- Manipulate data in arrays.
- Create a new data type by using a structure.
- Analyze and explain the behavior of simple programs involving the fundamental programming constructs covered by this unit.
- Modify and expand short programs that use standard conditional and iterative control structures and functions.
- Describe strategies that are useful in debugging.
- Design, implement, test, and debug a program that uses each of the following fundamental programming constructs: basic computation, simple I/O, standard conditional and iterative structures, and the definition of functions.
- Students will be able to use a Windows-based editor and compiler environment.

Upon completion of the course, the student will be familiar with the basic structure of a digital computer model, data representation, the software process, good coding style, algorithm development and will be able to program using the elementary control structures of C++.

“Do you know the difference between education and experience?

Education is when you read the fine print.
Experience is what you get when you don't.”

— Pete Seeger
TIME: Section 251 09:00 a.m. - 09:50 a.m. MWF ZOOM meeting
Section 252 10:00 a.m. - 10:50 a.m. MWF ZOOM meeting

INSTRUCTOR: Becky Reichenau
OFFICE: Comal 210A

CS DEPT: Comal 211
E-MAIL: br02@txstate.edu
(You can expect a reply to your e-mail if you provide the correct reply e-mail address; however, do not depend on responses at night or over the weekend.)

WEB PAGE: https://userweb.cs.txstate.edu/~br02/ (We will only be using TRACS to submit programming assignments.)

OFFICE HRS: (tentative)
MTWRF 01:00 p.m.-02:00 p.m. (available via ZOOM)

NOTE: My graders will also be available via ZOOM during their designated office hour(s).

TEXTBOOK: Gaddis, Tony Starting Out with C++: From Control Structures through Objects, 9th Edition

SUPPORT MATERIALS:
• Instructor’s Web Site: https://userweb.cs.txstate.edu/~br02/
  (Access to detailed support files and assignments will be provided the first day of class.)

GRADING POLICY*: Quizzes/Daily Assignments 10% **
  Lab 15% ***
  Programs 20% ***
  2 Major Exams:
    Exam I 10%
    Exam II 20%
  Final Exam (comprehensive over programming concepts) 25%

**Content quizzes over recently covered material are not typically announced in advance. Expect one every day, and you will always be prepared. Content quizzes are typically given at the beginning of class. Students who arrive late will not be given additional time to complete a content quiz administered that day. Recall that content quizzes cannot be made up.

Major exams will be announced at least one week in advance. They are typically scheduled during the equivalent of the sixth and eleventh weeks of a long semester; however, the actual dates may be adjusted to benefit the students especially during this COVID-19 crisis.

FINAL EXAM SCHEDULE:

C.S.1428.251 (MWF 9:00 a.m.) 08:00 a.m. - 10:30 a.m. Friday, May 8, ZOOM delivery
C.S.1428.252 (MWF 10:00 a.m.) 11:00 a.m. - 01:30 p.m. Friday, May 8, ZOOM delivery

Final exams will be administered only on the day and at the time indicated in the university exam schedule.

GRADING SCALE:

Determination of letter grade in the course:

  semester average >= 89.5   A
  79.5 <= semester average < 89.5  B
  69.5 <= semester average < 79.5  C
  59.5 <= semester average < 69.5  D
  semester average < 59.5   F or U (unearned failure)
Programs are very important to this course. Before online delivery, both paper and electronic copies of programming assignments were required. Programming assignments given after online delivery begins will be graded based solely on the electronic version submitted to TRACS. Programs that contain compilation errors or produce incorrect output will automatically receive a 30% penalty. To receive any credit for a programming assignment, the source code (along with appropriate support files) must be submitted electronically and be simultaneously available to the grader on the date the programming assignment is due.

**Alert:** Time permitting programs will be run through an Internet service designed for detecting plagiarism in software code.

**LATE POLICY:** Assignments must be submitted by the date/time established in TRACS.

Course material will be delivered via ZOOM beginning Monday, March 30, through the end of the spring 2020 semester. My ZOOM meetings will not be recorded, so you are expected to ‘attend’ during the time for which you are currently registered. In order to join ZOOM meetings, you will be required to authenticate using your Texas State NetID. The device you use should be camera/mic ready if possible. I will be able to determine those who join the meeting and how long you are in attendance via ZOOM.

Future assignments/quizzes, etc. will either be submitted during a ZOOM session (something like our past daily attendance quizzes) or uploaded to TRACS. Instructions for each will specify how your work should be submitted. To receive credit, all submitted assignments/quizzes, etc. must be submitted during the designated time frame, or **NO credit will be assigned**.

**ALLOW FOR NATURAL DISASTERS!** Wireless connections might ‘drop’. Files provided during a ZOOM session may not download if you are using a phone to join the meeting. These types of issues will not excuse missed deadlines.

If you have official (an original, not a copy) documentation for missing a class meeting, an alternate scenario might be possible; however, do not depend on that option since, in most cases, you will have to be in attendance in order to complete the assignment/quiz for a particular meeting. You are required to discuss special circumstances with your instructor within 24 hours of the occurrence in order to receive consideration.

**GRADE DISCUSSION** must be handled within one week of the day the grade (or grades) in question are posted. Your instructor will notify the class when grades have been updated on her web site.

**KEEP all** graded lecture assignments (especially the electronic copies) until you have received a grade in the course you are willing to live with. This will help argue your case in the event of a grade discrepancy. You will need proof of your work in both a graded paper form (prior to COVID-19) and an electronic form when applicable. *(Without the ability to access an applicable electronic version from my office at the time of your grade dispute, the grade on record stands as is.)*

**ACADEMIC OFFENSES:**
All assignments submitted for a grade should reflect the work of the individual student unless otherwise established in writing by your instructor. Violations will be dealt with according to Academic Procedures and Policies as outlined in the Texas State Student Handbook. Go to [http://www.dos.txstate.edu/handbook.html](http://www.dos.txstate.edu/handbook.html), and click on Academic Honor Code to review Academic Offenses and the Penalties for Academic Dishonesty that those procedures listed may have been updated without my express knowledge. This is particularly important during online delivery. **No credit will be assigned** if it is determined that an individual is violating the Texas State Honor Code by consulting with another or obtaining information from an outside source.

**Note:** Recall that if time permits, programs will be run through an Internet service designed for detecting plagiarism in software code.

**ATTENDANCE POLICY:** Attendance is highly recommended. You will be held responsible for material covered in the ZOOM meetings. Some of the material covered in the meetings may not be readily available elsewhere. You are responsible for obtaining assignments and notes from fellow classmates for any meetings missed. I recommend that you obtain the names and phone numbers of several classmates in case you are forced to miss a meeting.

If you choose to attend a ZOOM meeting, plan on staying the entire time unless you inform the instructor in advance that you will be leaving the meeting early.
E-MAIL notifications related to this class will be regularly sent to your Texas State e-mail account. If you do not check it on a regular basis, forward your Texas State e-mail to an e-mail account that you do check on a regular basis.

ABSENCE POLICY: If you are absent at the time of a content quiz or major exam, a grade of zero will be recorded. There are NO make-ups for content quizzes or major exams. Attendance quizzes cannot be made up. You must be in attendance to receive credit for those.

DROP POLICY: (Refer to the Academic Calendar).
- Automatic “W” deadline and last day to drop a class ends 11:59 p.m. Friday, April 3.
- Last opportunity to withdraw from the University ends 11:59 p.m. Thursday, April 23.
- Students who withdraw from the University after the automatic “W” date will be assigned a "W" or an "F" based on class performance up to that point in the semester. A "W" will be assigned only if the class average is passing on the day the withdrawal procedure is officially completed.

Note: Contact the Registrar’s Office as to the proper procedure to complete the drop/withdrawal process successfully. If you decide to withdraw from the University after the automatic “W” date previously mentioned, be sure to check with your instructor prior to completing the withdrawal procedure in order to verify whether you will be assigned a “W”, “F” or “U”. Contact the Registrar if you have any further questions.

It is your responsibility to make sure the drop/withdrawal process is complete. Do not come to me later and say that you "thought" you had dropped but the process did not "go through" expecting me to change a grade of ‘F’ or ‘U’ to a ‘W’. Be sure to check your revised schedule to make sure the course dropped is no longer listed.

ADA Compliance: Students with special needs as documented by the Office of Disability Services who require accommodations should identify themselves to the instructor as soon as possible but no later than the 12th class meeting in a long session and no later than the 4th class meeting during a regular summer session. Students with special needs who have not already done so will be required to contact the Office of Disability Services in order to establish accommodations. Every effort will be made to secure the necessary accommodations to facilitate students with special needs/disabilities in order to enhance their performance in the classroom.

UNCLAIMED WORK: Except for final exams and the final programming project, any graded in-class work, programs, quizzes, and regular exams that are not picked up on or before the last day of class will be shredded before the beginning of the next academic session. Therefore, if you want to claim any of the above, you will need notify your instructor on or before the last day of class.