# CS 1428 - Foundations of Computer Science I
## Summer II 2017

**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 .**751**  02:00 – 03:40 p.m.  M-F    DERR 234

**INSTRUCTOR:** Becky Reichenau
**OFFICE:**  Comal 210A

**CS DEPT:**  Comal 211                                      **CS Department Phone:** 245-3409
**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:**  http://www.cs.txstate.edu/~br02/  (We will *only* be using TRACS to submit programming assignments.)

**OFFICE HRS:**  (tentative)
             **M-Th**      03:45 p.m.-53:00 p.m.

             **Others by appointment.**
             (Appointments need not be made during regularly scheduled office hours.)

             **NOTE:** There are many additional places to obtain assistance. For example, tutors are available in MCS 593, CS Dept lab assistants are available in MCS 590, and your lab instructors will hold office hours in their respective offices.

**TEXTBOOK:**  Gaddis, Tony    **Starting Out with C++: From Control Structures through Objects, 8th Edition**
 (*as needed*)  Addison-Wesley,  ISBN - 0133769399

**SUPPORT MATERIALS:**
- **Instructor's Web Site:** http://www.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%

*Note:* You are **required** to show your Texas State student (photo) ID to your instructor on exam days. A driver's license is not adequate. Exam scores will be recorded as zeros until your Texas State student ID is presented.

**Quizzes over recently covered material are not typically announced in advance.  Expect one every day, and you will never be caught unprepared. Quizzes will typically be given at the beginning of class. Students who arrive late will not be given additional time to complete a quiz that was administered that day. Quizzes *cannot* be made up without official documentation.

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.

**No cell phones, recording/storage retrieval devices, or calculators are allowed during quizzes or exams. A grade of zero will be recorded when any such device is determined to be in a student's possession during a quiz or major exam. Students are required to remove all head coverings during quizzes or exams.**

**FINAL EXAM SCHEDULE:**    C.S.1428.**751**   05:00 p.m. - 07:30 p.m.  Thursday, August 10

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

**GRADING SCALE:**

       **Determination of letter grade in the course * :**

| | |
|---|---|
| semester average >= 89 | **A** |
| 79 <= semester average < 89 | **B** |
| 69 <= semester average < 79 | **C** |
| 59 <= semester average < 69 | **D** |
| semester average < 59 | **F** |

**\*The final grade for the course cannot be higher than the student's highest test score.**

**\*\*\***Programs are very important to this course. Therefore, *ALL* programs *MUST* be turned in to pass the course. A *'good faith'* effort must be demonstrated for each program turned in or a grade of 'F' will be assigned *in the course*. *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* as well as in *paper* form. If both the paper and the electronic copy are not available to the grader on the date the programming assignment is due, a grade of *zero* will be assigned. The electronic copies *must* match the paper copies, or a grade of *zero* will be assigned.

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

**LATE POLICY:** Assignments should be placed on the central desk *AT THE BEGINNING* of class on the day they are due. This does not mean fifteen minutes or ten minutes or even *five* minutes into the lecture. This means *at the beginning*. Regardless of the deadline set, there will always be people who want it extended.

Now that the deadline *for full credit* has been established, *please respect this deadline, and plan accordingly.*

ANY assignments submitted after the time class is *scheduled* to begin are considered *late*. Such assignments may be turned in any time *BEFORE* class is dismissed on the *due date* but will receive a **20%** penalty *unless* accompanied by *official* (**an original**, *not* **a copy**) documentation. *Only* assignments turned in while class is in session in DERR 234 will be accepted unless the assignment is accompanied by *official* (**an original**, *not* **a copy**) documentation.

Turning in work **early** is discouraged; however, if it is necessary to do so, bring the assignment, **with a note of explanation attached**, to the secretary of the Computer Science Department in Comal #211. **Each time you turn in an assignment to Comal #211, whether it is early or** *excused* **late,** *remember to have the secretary initial each assignment plus note the date and time that each assignment was turned in, or NO credit will be assigned*. (**This policy is** *NOT* **designed for students who fail to attend the lecture and the work of repeat 'offenders' will no longer be accepted early.**) *Three strikes (***early** *and/or excused* **late***), and you're out!*

**Each time you turn in an assignment to Comal #211 whether it is early or** *excused* **late, it is** *highly* **recommended that you send an e-mail to your instructor as well.**

**NO CREDIT WILL BE GIVEN TO ASSIGNMENTS PLACED UNDER MY OFFICE DOOR OR TO THOSE ATTACHED OUTSIDE MY OFFICE DOOR VIA TAPE, TACKS, ETC.**

**NO OTHER "LATE" ASSIGNMENTS WILL BE ACCEPTED!!! NO EXCEPTIONS!**
**ALLOW FOR NATURAL DISASTERS!** The computer system used may 'go down', the printer queues may be 'backed up' on the day an assignment is due, the bus was late, flash drives may have been left 'somewhere', etc. These types of events do *NOT* excuse late work.

**GRADE DISPUTES** must be handled *in my office* and *must* be discussed within *two days* of the return of the graded homework during regularly scheduled class time. (This means within *two days* from the date the assignment is *returned*. It does *NOT* mean two days from the date *you* decide to pick up the returned assignment.) You may *show* me a problem related to your grade at the front desk in the classroom *after* a lecture; however, for complete discussion and possible resolution, you *must* come by the office where all records are readily available. *Come prepared with the graded assignment in hand, and be able to access the electronic version of your work from my office*. **Note: The final programing project is** *not* **returned.**

*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 an electronic and a graded paper form. *(Without the ability to access the electronic copy of your work 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,** and click on **Academic Honor Code** to review **Academic Offenses** and the **Penalties for Academic Dishonesty** that those procedures listed below may have been updated without my express knowledge.

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

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

If you choose to attend class, plan on staying the *entire* time *unless* you inform the instructor *in advance* that you will be leaving early.

Except where permission is specifically granted, *all* electronic devices, including computers, cell phones, pagers, etc. should be kept *out of sight* and turned *off*; or, in the case of cell phones, *on vibrate* during lecture. Watching someone constantly reading/sending e-mail, checking a Facebook account, tweeting, texting or checking their phone for messages is distracting at best, so don't do it! If you are expecting a 'contact' that falls under the 'emergency' category, set your phone, pager, etc. to *vibrate*, and let your instructor know *in advance* that you might have to leave the classroom in order to deal with a possible 'situation.'

**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 *quiz*, a grade of zero will be recorded unless *official documentation* (**an *original*, *not* a copy**) is provided for the absence and is approved by your instructor. Then a make-up *quiz* can be scheduled. There will be *NO* make-up *exams*.

**DROP POLICY: (Refer to the Academic Calendar).**
- Automatic "W" deadline and last day to drop a class ends **11:59 p.m. Friday, July 28.**
- Last opportunity to *withdraw* from the University ends **11:59 p.m. Thursday, August 3.**
- 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 follow in order to successfully complete the drop/withdrawal process. 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' 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:** With the exception of final exams, 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 next academic session begins. Therefore, if you want to claim any of the above, you will need to do so during semester office hours ***on or before*** the last day of class.