Texas A&M University – Corpus Christi
COSC 1435 Introduction to Problem Solving with Computers I
Spring 2013 ~ Section B06/B16

Instructor: Korinne Caruso
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Course Information: COSC 1435.B06 M 3:30 – 4:45 EN 316B
COSC 1435.B16 M 5:00 – 7:00 EN 316B

Course Website: Blackboard
(Let me know if you ever have trouble accessing the course materials)

Course Description:

Catalog: A broad introduction of many computer science topics including: algorithms, problem solving, operating system concepts, computer architecture, and programming languages.

Detailed: A broad introduction of Computer Science. Many important concepts underlying computer science are covered. This includes the algorithmic foundations of computer science and the expression of algorithms as pseudocode. A number of algorithms are examined including sequential search, find greatest, selection sort, and binary search. The time efficiency of algorithms and Big-O classification are discussed. Computer hardware concepts are studied including binary numbers, Boolean logic, gates, and circuits such as compare for equality and addition circuits. The construction of a CPU from basic circuits is examined. The course includes a weekly 2-hour lab that provides experience with the concepts covered in the lectures.

Prerequisites:
MATH 1314 (College Algebra) or placement beyond MATH 1314. You do not need to have any prior programming experience.

Student Learning Outcomes:
Upon successful completion of this course, the student will:

- Understand the algorithmic foundations of Computer Science and be able to express algorithms in pseudocode and flowchart.
- Understand the design of basic searching and sorting algorithms (linear search, binary search, and selection sort).
- Understand the time and space efficiency of algorithms and big-O notation.
- Understand how binary numbers are represented, basic concepts of Boolean logic and logic gates, and understand the equality and addition circuits.
- Design and develop basic computer programs using high level programming language (sequence, selection, and iteration structures).
- Be able to design and implement programs that use arrays and functions.

Required Course Texts and Materials:
- Some way to archive your programs (flash drive, Dropbox/Cloud, etc)
Blackboard access
Free Collabedit account to link with partners and instructor
Unix access
Microphone and camera on computer system for online sessions

**Instructional Methods and Activities:**
The instructional methods and activities for instruction will include:

- Presentation of material and concepts will be provided via Blackboard through the use of instructional power points, videos, Q&A blogs and sample programs.
- Classroom and laboratory discussion using problem solving techniques will occur both through learner directed blackboard access, and programming sessions on [http://collabedit.com/](http://collabedit.com/).
- Collabedit, nano, vi, and other text editors will be used while the UNIX system will be used for compiling. Other compilers can be used but all programs must function properly in UNIX.
- Programming sessions may provide a peer learning approach that allows a team approach to the problem solving experience.
- Programming assignments will review and reinforce topics covered in the blackboard instructional portion and will reflect the same objectives and learning outcomes addressed within the conventional in-class lecture sessions for this semester.

**Student Evaluation:**

- **Exams (50%)** – There will be two in-class exams worth 15% of the final grade each, as well as a comprehensive final exam worth 20% of the final grade. Please note the dates of the exams on the course schedule below and plan accordingly. Exams may only be made up with an approved University excuse and will be different from the in-class version of the exam. If you have a conflict with an exam date, please let me know as soon as you know about the conflict.
- **Programming Assignments/Labs (30%)** - As part of this class, you will have many programming assignments, or labs. These lab assignments are all *individual efforts* unless otherwise specified. There is a two hour lab session associated with this course. This time is used for supplemental instruction and for you to work on your programming assignments. Attendance will be monitored in these labs; however, you may leave early if you complete the lab early. Labs may be submitted late, for a maximum of 80% of the total points, up to 48 hours after the original due date. There will be no resubmissions of labs.
- **Quizzes, Participation, and Attendance (20%)** – You are expected to attend class, participate, and complete the assigned readings. In order to encourage and reward these behaviors, regular quizzes (online and in-class) will be given. You will also participate in group and individual activities on a regular basis that will count towards your final grade. There are no make-ups for missed daily grades and it is your responsibility to consult the course website to determine what was covered during any days you miss and obtain notes from a classmate. Be sure to make use of office hours to meet with me to discuss any issues you have with the material or class assignments.

**Grade Scale:**

- A (90-100%)  
- B (80-89%)  
- C (70-79%)  
- D (60-69%)  
- F (<60%)

**Course Outline:** The following is a rough outline and is subject to change. See the course website for the most up to date information.

- **UNIT 1 (Weeks 1-5): Computer Science, Problem Solving, and Programming Basics**
  - Introduction to Problem Solving and Programming
  - Problem Solving with the Sequential Logic Structure
  - Problem Solving with Decisions
  - Problem Solving with Loops
  - Processing Arrays
- Exam 1 – February 19th, 2014
- UNIT 2 (Weeks 6-10): Fundamentals of Programming and Problem Solving in C++
  - Introduction to Programming and C++
  - Expressions and Interactivity
  - Making Decisions
- Exam 2 – March 26th, 2014
- UNIT 3 (Weeks 11-15): More Problem Solving in C++ and the Computer Science Field
  - Looping and Files
  - Functions
  - Arrays
  - Computer Science Overview
- FINAL EXAM: May 14th, 2014 (4:30 – 7:00pm)

Student Expectations:
- Demonstrate integrity, maturity, and ethical behavior.
- Students are expected to be in attendance, punctual, and prepared for class and labs.
- Assigned readings and quizzes, as discussed in class and usually found in Blackboard, should be completed before coming to the next class. You are expected to read the textbooks. Quizzes will be frequent and will cover the material assigned in the readings.
- Monitor and use your Islander email regularly.
- Students are expected to access Blackboard materials on a daily basis, be in attendance for both face to face sessions and online session (be punctual, and prepared for all labs). Meeting times will not fluctuate but locations may fluctuate from the classroom to the online environment.
- All issues regarding Blackboard, Collabedit and/or Unix or any other issue must be presented to the instructor immediately in order to ensure accessibility to course material and completion of learning objectives.
- Students must take advantage of all university services available to them: Programming Assistance Lab, Supplemental Instruction, tutoring, etc.
- Please ask questions on any material that you do not understand; if I cannot explain it to your satisfaction, please see me during my office hours or labs.

Academic Honesty Policy: You are expected to avoid all forms of academic dishonesty as defined in Catalog. In addition, students are expected to behave in an ethical manner in all class activities. If you feel uncertain about a particular activity, please speak to me BEFORE problems arise. Ethical behavior is a requirement for passing this course. All work submitted for grading must be the student's own work. Plagiarism will result in a score of 0 (zero) for the work or dismissal from the course and the Dean of Students office will be notified. No copying from another student's work of any type is allowed. It is the student's duty to allow no one to copy his or her work. Anyone found cheating and/or copying, in the exams or assignments, in the instructor's opinion, may receive an automatic F for the course.

Electronic Device Policy: Please refrain from the use of electronic devices during our face to face classes, as it is distracting to not only you, but also to your instructor and peers. Silence your phones and put them away so you are not tempted to stray off task. Laptops will be permitted for particular activities as deemed appropriate (note-taking and viewing of power points). Distracting use of electronic devices may be interpreted as unacceptable behavior. Your time in class is precious, as is everyone else’s.

Classroom/Professional Behavior: Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student
Code of Conduct. **Students engaging in unacceptable behavior may be instructed to leave the classroom.** This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

**Students with Disabilities:** 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 Office at (361) 825-5816 or visit CCH 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

**Dropping a Class:** I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. **April 11th** is the last day to drop a class with an automatic grade of “W” this term.

**Academic Advising:** The College of Science and Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. The College's Academic Advising Center is located in CI 366, and can be reached at 825-3721.

**Grade Appeals:** A student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is on the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details on the process, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, consult Texas A&M University-Corpus Christi University Procedure 13.02.99.C2.01 *Student Grade Appeal Procedures* (http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school or the College of Science and Engineering Dean’s Office.