Texas A&M University – Corpus Christi
COSC 1435: Introduction to Problem Solving with Computers I
Spring 2015 ~ Section 003/203

Instructor: Rita Sperry, PhD
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Course Information: COSC 1435.003  TR 2:00-3:15pm  CI 127
                  COSC 1435.203  T 3:30-5:20pm  CI 226

Course Website: http://www.tamucc.edu/wiki/RitaSperry and Blackboard
(Let me know if you ever have trouble accessing the course materials)

Course Description

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

Detailed: A broad introduction to 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. No prior programming experience required.

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

- Understand the algorithmic foundations of Computer Science.
- Understand the design of basic searching and sorting algorithms, such as linear search, binary search, and selection sort.
- Be able to identify and describe the steps of the programming process, including designing, creating, testing, and debugging activities.
- Understand the essential components of programming languages, including variables, constants, data types, key words, operators, and punctuation.
- Design and develop basic computer programs using a high level programming language to receive input and format output to the screen and/or files.
- Design and develop programs that include sequence, decision, and iteration structures.
- Be able to design and implement programs that use functions and arrays.
- Be able to recognize and use elements of good programming style.
Required Course Text and Materials:
- Starting Out with C++: From Control Structures through Objects, 8th Edition by Tony Gaddis, Addison-Wesley (ISBN: 0-13-376939-9) (7th edition should be fine!)
- Some way to archive your programs (flash drive, Dropbox/Cloud, etc)

Recommended Reading:

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 (Days 1-5): Computer Science, Problem Solving, and Programming Basics
  - Introduction to Computer Science and Problem Solving
  - Introduction to Programming and C++
  - Expressions and Interactivity & Files
  - Exam 1 – Thursday, February 19
- UNIT 2 (Days 6-10): Fundamentals of Programming and Problem Solving in C++
  - Making Decisions
  - Loops
  - Exam 2 – Thursday, April 2
- UNIT 3 (Days 11-14): More Problem Solving in C++
  - Defining and Calling Functions
  - Arrays
- FINAL EXAM: Tuesday, May 12 (1:45-4:15pm)

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 may 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%) – You will have several programming assignments, or labs, for this class. These lab assignments are all individual efforts unless otherwise specified. There is a two-hour lab session associated with this course. This time is 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, with a penalty of 10 points within the first 24 hours, and 5 points for each 24-hour period thereafter, up until a week after the original due date. The last day to submit ANY work for this course is May 5.
- Quizzes, Participation, and Attendance (20%) – You are expected to attend class and lab, participate, and complete the assigned readings. In order to encourage and reward these behaviors, in-class quizzes may 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%)

Extra Credit: There will be NO extra credit offered for this course, especially at the end of the semester. The time to worry about your grades is during the semester.

Late Work: If you are worried about your ability to submit an assignment on time, please contact me at least 24 hours prior to the due date to discuss your situation. (Requests for extra time within 24 hours of the due date will probably be denied.)

Academic Honesty Policy: You are expected to avoid all forms of academic dishonesty as defined in the University 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.

Electronic Device Policy: Please refrain from the inappropriate use of electronic devices during class, 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.

Student Expectations:
- Students are expected to be in attendance, punctual, and prepared for class and labs.
- Assigned readings should be completed before coming to the next class. You are expected to read the textbook. Quizzes and activities will be frequent and will cover the material assigned in the readings.
- 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.
- Monitor and use your Islander email regularly.
- Demonstrate integrity, maturity, and ethical behavior.

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 and Veterans: 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.
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 350, and can be reached at 825-3928.

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 10th is the last day to drop a class with an automatic grade of “W” this term.

Statement of Academic Continuity: In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

Grade Appeal Process: 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.