COSC 1435.001 Introduction to Problem Solving with Computers I
Summer 2013 - Section 001

- Meeting Times: TR 12:00 - 2:30 PM (Lecture); TR 2:45 - 4:35 PM (Lab)
- Meeting Place: CI-228 (Lecture); CI-228 (Lab)
- Instructor: Dr. Ajay K Katangur
- Office: CI 340
- Office Hrs: 10:30 - 12:00 PM TR, other times by appointment
- Office Phone: 361-825-2478
- E-mail: ajay dot katangur at tamucc dot edu
- Course Web Page: http://faculty.tamucc.edu/~akatangur/su13/COSC1435

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.

Pre-requisite:
MATH 1314 (College Algebra) or placement beyond MATH 1314. Additionally, I expect you to be able to use a computer for your work. You should be able to do word processing, use email, and use the Internet. You do not need to have any prior programming experience or any prior experience with the UNIX operating system.

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.
- 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.
- Understand the von Neumann model of computer organization.
- 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.

Assessment of Learning Outcomes:
Assessment of objectives will be conducted through exams, laboratory exercises, and programming assignments.

Required Course Text:

Course Requirements:
This is an introductory course. However, this is a difficult course that demands all students attend all classes! Regular completion of all reading, homework, and other outside assignments, are absolutely essential for success in this course.

Grading Policy:
Your course grade will be decided on your performance in the lab assignments, two mid-term exams, and the final exam. The distribution of points is as follows:

1. Lab assignments worth 35%.
2. Two exams worth 40% (exam 1 worth 20% & exam 2 worth 20%).
3. Final exam worth 25%.

Grading scale: A: 100-90, B: 89-80, C: 79-70, D: 69-60, and F: 59-0.
Assignments: Approximately 12 - 14 lab assignments will be given. You must attend all lab classes in CI-228 on every Tuesday and Thursday from 2:45 - 4:35 PM. Partial credit will be given for incomplete lab assignments.

Exams: The first exam will be given on June 18, 2013, and the second exam will be given on July 2, 2013 during the scheduled class time. The final exam will be comprehensive and according to the university schedule, it will be given on July 23, 2013 from 12:00 - 2:30 PM.

Course Organization and Policies:

Course Syllabus: We will meet in lecture on Tuesdays and Thursdays, when new material will be presented. We will follow the text generally, but non-text material may also be included in the lectures. The assignments and exams will be given during the class hours. You are responsible for all the material presented during the lecture. We will meet for the lab on Tuesdays and Thursdays, when new material and lab assignments will be presented.

Exams: Exams will cover all lecture and reading material discussed in the class. Exams must be taken on the hour they are scheduled. In the event, if you cannot attend the class to take the exam due to some emergency or some unavoidable situation (such as serious illness, death in the family, participation in university sports, religious observations, and so on) you must notify me as soon as possible before the exam and also you must validate your absence by providing me a document (e.g., with a letter from your doctor).

Assignments: Assignments will significantly build on the material from the lectures. They will be posted on the course web page or hard copies are handed out in the class during the lecture or lab sessions. Please refer to the handout on programming assignments for complete details on submission requirements. (Details decided per assignment). All the assignments are due at the beginning of the class on the due date. If the student is absent on the assignment due date, it is the student's responsibility to see to it that the assignment is submitted on the designated date. An assignment that is turned in after the class on the due date is considered one day late. There is a penalty for late submissions. 10% penalty for 1 day late, 25% penalty for 2-3 days late, 50% penalty for 4-5 days late, and 100% penalty (i.e. no credit) if submitted after 5 days. If you have not completed your assignment by the due date, you should submit the work you have done for partial credit. No work will be accepted once the graded work has been returned or the solution has been disclosed to the class, except for unusual circumstances which the instructor feels reasonable. Be sure to backup copies of all your programs. Note that any kind of hardware or software failure or machine unavailability in the lab does not merit an extension on the assignment. Diskettes upon which major examinations, assignments, projects or papers submitted may be retained by the instructor as a permanent record of the student's work.

Grading Error: All questions concerning a test score or grading of a returned test or assignment must be resolved within one week. It is always a good idea to keep all of your work until the end of the semester. In case of any recording errors or doubts, you may produce them for correction or verification.

Last date to withdraw: Friday, June 21, 2013 & receive an automatic grade of W.

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 class, 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, will receive an automatic F for the course.

Collaboration: If two or more people collaborate on an assignment assigned it should be notified on the assignment and each student should submit his or her solutions for grading. The grade obtained on such an assignment is the total points obtained for the assignment divided by the square of the number of people who collaborated on the assignment (e.g., if 3 people collaborate on an assignment and the grade for that assignment is 90 out of 100, then each student receives a grade of 90/3^2 = 10). If you do not notify me of such collaboration it will be treated as copied and action will be taken as discussed under the academic honesty policy.

Attendance: You must attend all classes and labs. While in class or lab attendance will not directly affect the grade, you are responsible for any materials covered or handed out or announcements made for the tests and assignments in your absence. Records of your attendance will be maintained and reported to the university. Students found missing classes without the instructor's permission will be automatically withdrawn from the course.

Absence from class: Students are responsible for all materials covered in class and assigned. Should a student be absent from class, it is his/her responsibility to get the notes, etc. for that missed class. More important, should there be assignments, it is the student responsibility to obtain such assignments. No excuse will be accepted for assignments not turned in because the student was absent when it was due.

Other Policies: Cell phones and pagers must be turned off during class. First violation receives a warning. All succeeding violations result in a ten point deduction on the last exam. Any violation during a quiz or exam results in a ten percent deduction off the corresponding paper. No warnings for quizzes or exams.
Student Security Statement: Please read the Student Security Statement.

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 come by and visit us in Driftwood 101.

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 Technology 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 Faculty Center 178, and can be reached at 825-6094.

Grade Appeal Process: As stated in University Rule 13.02.99.C2, Student 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 upon 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, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

Tentative Course Schedule (Subject to change)
We will be using two textbooks this semester, Computer Science: An Overview, 11th Edition by J. Glenn Brookshear and Starting Out with C++: From Control Structures through Objects, 7th Edition by Tony Gaddis. For the schedule that follows, I will use (B) to refer to Computer Science: An Overview and (G) to refer to Starting Out With C++: From Control Structures through Objects.

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<tr>
<th>Date</th>
<th>Topic or Activity</th>
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<tbody>
<tr>
<td>06/04/13:</td>
<td>Syllabus, Chapter 0: Introduction (B), Chapter 1: Data Storage (B), Lab 1</td>
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<tr>
<td>06/06/13:</td>
<td>Chapter 1: Data Storage (B), Lab 2</td>
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<td>06/11/13:</td>
<td>Chapter 5: Algorithms (B), Lab 3</td>
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<td>06/13/13:</td>
<td>Chapter 1: Introduction to Computers and Programming (G), Chapter 2: Introduction to C++ (G), Exam 1 Review, Lab 4</td>
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<td>06/18/13:</td>
<td>Exam 1, Chapter 3: Expressions and Interactivity (G), Lab 5</td>
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<td>06/20/13:</td>
<td>Chapter 4: Making Decisions (G), Lab 6</td>
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<td>06/25/13:</td>
<td>Chapter 4: Making Decisions (G), Chapter 5: Loops and Files (G), Lab 7</td>
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<td>06/27/13:</td>
<td>Chapter 5: Loops and Files (G), Exam 2 Review, Lab 8</td>
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<td>07/02/13:</td>
<td>Exam 2, Chapter 6: Functions (G), Lab 9</td>
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<td>07/04/13:</td>
<td>No Class, Independence Day Holiday</td>
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<td>07/09/13:</td>
<td>Chapter 7: Arrays (G), Lab 10</td>
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<td>07/11/13:</td>
<td>Chapter 7: Arrays (G), Lab 11</td>
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<td>07/16/13:</td>
<td>Chapter 8: Searching and Sorting Arrays (G), Lab 12</td>
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<td>Chapter 8: Searching and Sorting Arrays (G), Chapter 2: Data Manipulation (B), Final Exam Review, Lab 13</td>
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Final Exam on Tuesday, July 23, 2013 from 12:00 - 2:30 PM.
Note: This syllabus represents a general plan for the course. Deviations from this syllabus may be necessary during the semester and changes will be announced in class.