Introduction to Problem Solving with Computers I: COSC 1435  
School of Engineering & Computing Sciences  
Summer 2015

A. COURSE INFORMATION

Course number/section: 1435.001  
Class meeting time: TR 12:00-02:30PM (Lecture)  
TR 02:45-04:35PM (Lab Section 1435.201)  
Class location: IH-157 (Lecture)  
CI-226 (Lab Section 1435.201)  
Course Website: http://sci.tamucc.edu/~iersoy/ and https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION

Instructor: Mr. Burak Ersoy  
Office location: CI-342  
Office hours: TR 9:00 - 11:30 AM  
Telephone: 825-3711  
e-mail: burak.ersoy@tamucc.edu  
Appointments: Must be scheduled at least week in advance by email

C. COURSE DESCRIPTION

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

Extended Course Description  
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.

D. PREREQUISITES AND COREQUISITES

Prerequisites  
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.
Corequisites
None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

#2) Starting Out with C++: From Control Structures through Objects, 8th Edition by Tony Gaddis, Addison-Wesley (ISBN: 0-13376939-9)

Optional Textbook(s) or Other References
None

Supplies
Some way to archive your documents (Flash drive, Dropbox/Cloud, etc)

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

- 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.

By the end of this course, students should have:

1. An ability to apply knowledge of computing and mathematics appropriate to the program’s student outcomes and to the discipline
2. An ability to analyze a problem, and identify and define the computing requirements
appropriate to its solution
3. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
4. An understanding of professional, ethical, legal, security and social issues and responsibilities
5. An ability to use current techniques, skills, and tools necessary for computing practice
6. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
7. An ability to apply design and development principles in the construction of software systems of varying complexity.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

This course will be a mixture of lectures and discussions. The student is expected to actively participate in all class activities. The student is also expected to do outside work on assignments and reading.

Please note the dates of the exams on the course schedule below and plan accordingly.

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 and submit 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.

You are expected to attend class, participate, and complete the assigned reading. In order to encourage and reward these behaviors, regular quizzes will be given. Know the answers to the “Examples,” “Quick Reviews,” and “Exercises” in the textbooks. Most, but not all, quiz questions will be pulled from this material. There are no make-ups for missed quizzes.

H. MAJOR COURSE REQUIREMENTS AND GRADING

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

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>25</td>
</tr>
<tr>
<td>Programming Assignments (Labs)</td>
<td>40</td>
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<tr>
<td>Quizzes</td>
<td>5</td>
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<tr>
<td>Final Exam</td>
<td>30</td>
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I. **COURSE CONTENT/SCHEDULE**

<table>
<thead>
<tr>
<th>DATE (BY DAY OR WEEK)</th>
<th>TOPIC</th>
<th>CHAPTER(S)</th>
<th>ASSIGNMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>~Introduction to Problem Solving and Programming ~Problem Solving with the Sequential Logic Structure</td>
<td>Sprankle 1, 2, 3, 4, 5</td>
<td>Read Chapter 1, 2, 3, 4, 5 from Sprankle</td>
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<tr>
<td>Week 2</td>
<td>~Problem Solving with Decisions ~Problem Solving with Loops</td>
<td>Sprankle 6, 7</td>
<td>Read Chapter 6, 7 from Sprankle</td>
</tr>
<tr>
<td>Week 3</td>
<td>~Processing Arrays ~Exam 1</td>
<td>Sprankle 8</td>
<td>Read Chapter 8 from Sprankle</td>
</tr>
<tr>
<td>06/18/2015</td>
<td>Exam 1</td>
<td>Sprankle 1, 2, 3, 4, 5, 6, 7, 8</td>
<td>Read Chapter 1, 2 and Appendix J from Gaddis</td>
</tr>
<tr>
<td>Week 4</td>
<td>~Introduction to Computers and Programming ~Binary Numbers ~Introduction to C++</td>
<td>Gaddis 1, 2, Appendix J</td>
<td>Read Chapter 3, 4 from Gaddis</td>
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<tr>
<td>Week 5</td>
<td>~Expressions and Interactivity ~Making Decisions</td>
<td>Gaddis 3, 4</td>
<td>Read Chapter 5(Part 1), 7 from Gaddis</td>
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<tr>
<td>Week 6</td>
<td>~Looping ~Arrays</td>
<td>Gaddis 5(Part 1), 7</td>
<td>Read Chapter 5(Part 2), 6 from Gaddis</td>
</tr>
<tr>
<td>Week 7</td>
<td>~Files ~Functions</td>
<td>Gaddis 5(Part 2), 6</td>
<td></td>
</tr>
<tr>
<td>07/21/2015</td>
<td>Final Exam</td>
<td>Gaddis 1, 2, Appendix J, 3, 4, 5, 6, 7</td>
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Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. **COURSE POLICIES**

**Attendance/Tardiness**

You are expected to be in attendance, punctual, and prepared for class. If you are more than 5 minutes late to class, you will be counted as tardy. Please make sure that you will never be tardy to any of your classes or accept the consequences.
Late Work and Make-up Exams
NO makeup exams, labs, or quizzes will be allowed unless I have agreed prior to the exam, lab, or quiz time and been provided with official supporting documents.

Extra Credit
There is NO EXTRA CREDIT - don't bother asking.

Cell Phone Use
You are required to turn off your cell phone in class and pay attention to class discussions.

Laptop Use
Use of laptops and other electronic devices is restricted to taking notes.

Food in Class
Eating food in class is Not Allowed.

Missed Exam
Missed exams will be graded as ‘0’.

Participation
Class discussions and information provided in class are considered regular course material; it is your responsibility to take appropriate notes. You are expected to attend lectures and actively participate in class discussions.

Others
Read Section L!!!

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• 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.

• **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course.

• **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, 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 Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](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, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

• **Disability Services**
  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 call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 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.

http://disabilityservices.tamucc.edu/

• **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.

• **Academic Advising**
The College of Science & 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. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

L. **OTHER INFORMATION**

• Exams and quizzes are NOT open-book unless instructed otherwise.
• Not all quizzes times will be announced; pop-up quizzes are likely.
• Assigned readings, 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.
• Start working on your assignments early; last day questions that show carelessness will not be responded to.
• Please ask questions on any material that you do not understand; if I do not explain it to your satisfaction, please see me during my office hours.
• Announcements will be made available in class, on course Blackboard page, and/or through Islander email. It is your responsibility to regularly check for announcements.
• It is your responsibility to determine what was covered during any days you miss and obtain notes from a classmate.
• Demonstrate integrity, maturity, and ethical behavior.

GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.