

Thomas L. Brown
http://faculty.tamuc.edu/tombrown/cs151.html
conference hours: 3:00 Mon - Thur + appts

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CSci 151: Introduction to Computer Science and Programming

Catalog Description:

This is a lecture and laboratory course offered to introduce computer science and programming. Topics include information and data representation, hardware, programming methodology, algorithm design, abstract data types, programming languages, operating systems, applications, and communications.

Audience:

Students planning to enroll for this course should have mastered computer essentials including interaction with a graphical user interface, text editor, and web browser. If the use of a personal computer is preferred over university laboratory computers, it is expected that the student can download, install and configure software.

Student Learning Outcomes*:

1. Show how computer hardware represents information.
2. Describe the computer circuitry that harnesses the electrical flow.
3. Explain how computing components may be combined to build computer systems.
4. Apply general problem-solving strategies to the development of computer algorithms.
5. Write computer programs to express and implement algorithms to solve problems.
6. Identify and explain the application of abstract data types such as stacks, queues, lists, trees and graphs.
7. Apply the object-oriented methodology to computer problem solving.
8. Explain the role of an operating system in managing and interacting with computer system components including main and secondary memory.
9. Utilize information system software to organize, manipulate, and secure data.
10. Describe ways computer networks are used to communicate and share resources and facilitate Web processing.

* measured by exam, quiz, and lab assignment results

References and Materials:

Dale, Nell and John Lewis. Computer Science Illuminated, 4ed. Sudbury, MA: Jones and Bartlett Publishers, 2011. (ISBN 978-0-7637-7646-6). (to conserve funds consider an eBook or alternative textbook source);

A usb flash drive to store files and documents is recommended.

Measurement and Evaluation:

Grades will be based upon points earned on quizzes, exams, and laboratory assignments. There will be 100 possible points to earn on quizzes, 100 on the final exam, and 100 for lab assignments. A point total in the range of 270 to 300 will earn the grade of "A", 240-269 a "B", 210-239 a "C" etc. College policy should be followed to obtain a grade of "X" (Incomplete). Unless circumstances warrant, the student is expected to withdraw instead of delaying completion of the course by obtaining an "X".

CLASS POLICY, RULES, & PROCEDURES

1. **Assigned Readings:** The student is expected to read assignments to prepare for scheduled discussions of the material. The student is also expected to access online course materials to obtain assignments and related materials.
2. **Attendance:** The student is expected to attend all classes. Regular and punctual attendance should ensure that expectations are understood, and give feedback to monitor and assess progress. If an absence is anticipated, the student should notify the instructor in advance. If absent, the student is responsible for obtaining assignments and related materials. Accruing four or more unexcused absences may result in an administrative drop.
3. **Participation:** The student is expected to take part in class discussions and group activities, implement and test software examples, and assist other class members with technical issues.
4. **Exams, quizzes, and lab assignments:**
The student is expected to complete each graded activity by the scheduled date and time. Should one of these activities be missed, the next grade will also be counted for its predecessor. These activities are based upon learning objectives to achieve by scheduled dates.
5. **Intellectual Honesty:** By departmental policy, the discovery of plagiarism (example: copying from another's lab or homework solution) will result in a grade of "F" on a particular lab or other individually graded activity. A subsequent breach of this policy mandates a grade of "F" for the course.
6. **Conduct:** "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (Student Handbook). Based upon university policy, any form of smoking or tobacco use is prohibited in or near the classroom.
7. **Special Accommodations:** Students in need of accommodations for disabilities should contact the Director of Disability Resources and Services, Student Disability Resources and Services office in Gee Library, Room 132, phone 903.886.5150 or 5835.

Week	Study Topic/Activity	Chapter
1	Orientation and introduction to computer systems and programming concepts;	*
2	Computing Systems, Computing as a tool and a discipline) Programming fundamentals	1 *
3	Binary values and number systems Code setup and testing	2 *
4	Data representation Input/Output Quiz 1	3 *
5	Gates and circuits Data types and identifiers	4 *
6	Computing components Operators and expressions	5 *
7	Pseudocode Control structures--selection(if..else...)	6 *
8	Problem solving and algorithms Control structures--selection(if..else...) Quiz 2	7 *
9	Abstract data types and subprograms Control structures--repetition(while, for)	8 *
10	Object-oriented design and High-Level languages Predefined functions	9 *
11	Operating systems Functions(subprograms) Quiz 3 (during lab hour)	10 *
12	File Systems and directories Arrays	11 *
13	Information systems Array Applications	12 *
14	Networks(selected topics) Thanksgiving holiday (27 Nov)	15
15	The web(selected topics) Quiz 4 (during lab hour) review	16
16	Final Exam: review exercises, quizzes, program examples, labs, chapters; 9-12,15-16	

*Note: supplemental study material (C++ tutorials)