

AUSTIN COMMUNITY COLLEGE
DEPARTMENT OF COMPUTER STUDIES AND ADVANCED TECHNOLOGY

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| Course Syllabus: COSC 1315 – Fundamentals of Programming Synonym 16546 – Fall 2010 |
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Lecture: NRG4 4211 Tuesday, Thursday 12:00 pm – 1:20 pm
Lab: NRG4 4207 Tuesday 1:25 pm – 2:15 pm

Instructor: William A. (Bill) Tucker

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Office: Northridge Campus 4243

Office Hours: Monday 10:00am – 12:00pm
Tuesday 8:00am – 9:30am
Wednesday 11:00am – 12:00pm
Thursday 8:00am – 9:30am, 1:25pm – 2:15pm
Friday 8:00am – 11:30am by appointment

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Course Description: An introduction to computer concepts, logic, and computer programming. Includes designing, coding, debugging, testing, and documenting programs using a high-level programming language.

Pre-requisite: B-Reading and Math.

Approved Text and Teaching Materials:

An Introduction to Programming with C++, 6th edition, Diane Zak, Course Technology, 2011. (ISBN-13: 978-0-538-46652-3, ISBN-10: 0-538-46652-9)

Instructional Methodology: This course will have both lecture and lab each week. If the students are unable to finish the assigned lab work within the lab time, they will need to visit the CIS open labs.

Course Rationale: This is an entry level programming course designed to teach students the basics of programming. The course will include designing, coding, debugging, testing, and documenting programs using a high level programming language. This course is included in the following degree plans:

- Associate of Applied Science – Computer Programming
- Associate of Applied Science – Local Area Network Administration
- Associate of Applied Science – Microcomputer Application Support

Course Objectives / Learning Outcomes:

1. Recognize basic computer hardware architecture constructs such as instructions sets, memory, CPU, external devices, and data representation.
2. Use programming software tools including compilers, linkers, editors, and integrated development environments to create and test programs.
3. Demonstrate problem solving skills by developing algorithms to solve problems incorporating the concept of variables and constants of basic data types in a computer program.
4. Utilize programming constructs which uses input and output devices for acquiring and displaying data including sequential files.
5. Create programming designs which includes step-by-step algorithms and desk checking to validate problem solutions.
6. Incorporate the use of sequential, selection and repetition control structures into the algorithms implemented as computer programs.
7. Demonstrate an understanding of structured design by implementing programs with functions and passing of parameters to solve more complex problems and to promote the concept of efficient use of code.
8. Design and implement programs using arrays.
9. Design and write programs which use data consisting of words and sentences using the string object.

SCANS (Secretary’s Commission on Achieving Necessary Skills):

Refer to <http://www.austincc.edu/cit/courses/scans.pdf> for a complete definition and explanation of SCANS. The following list summarizes the SCANS competencies addressed in this particular course:

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|---|---|---|--|
| <p>RESOURCES 1.1 Manages Time</p> | <p>INTERPERSONAL</p> | <p>INFORMATION 3.1 Acquires and Evaluates Information 3.2 Organizes and Maintains Information 3.3 Uses Computers to Process Information</p> | <p>SYSTEMS 4.1 Understands Systems 4.2 Monitors and Corrects Performance 4.3 Improves and Designs Systems</p> |
| <p>TECHNOLOGY 5.1 Selects Technology 5.2 Applies Technology to Task 5.3 Maintains and Troubleshoots Technology</p> | <p>BASIC SKILLS 6.1 Reading 6.2 Writing 6.3 Arithmetic 6.4 Mathematics 6.5 Listening</p> | <p>THINKING SKILLS 7.1 Creative Thinking 7.2 Decision Making 7.3 Problem Solving 7.4 Mental Visualization 7.5 Knowing How to Learn 7.6 Reasoning</p> | <p>PERSONAL SKILLS 8.1 Responsibility 8.2 Self-Esteem 8.3 Sociability 8.4 Self-Management 8.5 Integrity/Honesty</p> |

Grade Policy:

Grade will be assigned based both on concepts and practical application. Exams, quizzes, and lab projects will be a part of the grade. An overall grade will be assigned on the following grading scale:

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|------------|---|
| 90% - 100% | A |
| 80% - 89% | B |
| 70% - 79% | C |
| 60% - 69% | D |
| 0% - 59% | F |

Each student's grade for this course consists of 3 comprehensive exams (47.5%), a departmental exam (15%), 12 homework assignments (22.5%), and 10 laboratory exercises (15%).

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|-------------------------|----------------|--------------------|
| EXAM 1 | 150 points | 150 points total |
| EXAM 2 | 150 points | 150 points total |
| EXAM 3 | 175 points | 175 points total |
| Departmental Exam | 150 points | 150 points total |
| 14 Homework Assignments | Points vary | 225 points total |
| 10 Laboratory Exercises | 15 points each | 150 points total |
| TOTAL | | 1000 points |

ALL homework assignments are due *at the start of class on the date(s) indicated in the schedule*. Homework assignments may be turned in up to one week after the due date with a late penalty of 20%. Lab assignments are due no later than the start of the next scheduled lab period. Scheduling of computer time outside of regular lab time is the student's responsibility. Availability of computers is **NOT** an excuse for being late with any assignment. The last date to submit assignments for consideration this semester is December 3, 2010.

Exams 1, 2 and 3 consist of both a written exam (80%) and a lab exam (20%). There are **NO** makeup exams given in this course. If a student misses an exam, the next exam will count double. Only one exam may be missed and there will be **NO** make up for EXAM 3 or the departmental exam.

Course/Class Policies:

Academic Integrity

A student is expected to complete his or her own projects and tests. Students are responsible for observing the policy on academic integrity as described in the current ACC Student Handbook, under "Student Discipline Policy, Section C".

The penalty assessed will be in accordance with the current ACC Student Handbook policy. See <http://www.austincc.edu/handbook/policies4.php> for more information.

For this course, the penalty for scholastic dishonesty is a grade of 'F' for the course.

Incomplete

A student may receive a temporary grade of "I" (Incomplete) at the end of the semester only if ALL of the following conditions are satisfied:

1. The student is unable to complete the course during the semester due to circumstances beyond their control.
2. The student must have earned at least half of the grade points needed for a "C" by the end of the semester.
3. The request for the grade must be made in person at the instructor's office and necessary documents completed.
4. To remove an "I", the student must complete the course by two weeks before the end of the following semester. Failure to do so will result in the grade automatically reverting to an "F".

Freedom of Expression Policy

It is expected that faculty and students will respect the views of others when expressed in classroom discussions.

Tutoring

Free tutoring is provided for this course both on line and face-to-face. For online schedules and details please refer to <http://www.austincc.edu/cit>

Attendance / Withdrawal

Students are expected to attend classes and will be held responsible for all material covered in class. Regular attendance helps ensure satisfactory progression towards completion of the course.

It is the student's responsibility to complete a Withdrawal Form in the Admissions Office if they wish to withdraw from this class. The instructor may withdraw students from this class if their absences exceed 10% of the total number of class meetings or if the student fails to attempt 4 graded assignments by the last date to receive credit. The last date to withdraw for this semester is November 18, 2010. It is not the responsibility of the instructor to withdraw the students from their class even though the instructor has the prerogative to do so under the above listed circumstances.

ALERT: New state law for new students. *No more than six course withdrawals throughout your undergraduate education*, regardless of how many colleges you attend. Students who entered college before fall 2007 are not affected. Ask a counselor for details.

Student Files – Privacy

The information that a student stores in his/her student volume in the Computer Studies Labs may be viewed by their instructor for educational and academic reasons.

Students with Disabilities

Each ACC campus offers support services for students with documented physical or psychological disabilities. Students with disabilities must request reasonable accommodations through the Office for Students with Disabilities on the campus where they expect to take the majority of their classes. Students are encouraged to make this request three weeks before the start of the semester. (Refer to the current [ACC Student Handbook](#)).

Communication

The ACC online Blackboard system <http://aconline.austincc.edu> and the ACCmail accounts will be used as the official communication system during this semester. Lecture notes, handouts, changes to course schedule or assignments and your grades will be posted on Blackboard and all email communication will be via the ACCmail accounts. All students are expected to check both Blackboard and their ACCmail accounts on a regular basis. For information on how to log onto Blackboard 8.0 and ACCmail please visit the following sites: <http://irt.austincc.edu/blackboard/stlogin.html> <http://www.austincc.edu/google/>. A brief orientation will be provided during the first class laboratory period.

Use of Electronic Devices

The use of cell phones, pagers and personal electronic devices are not allowed at any time in the class or lab. The use of a laptop computer in class or lab is restricted to instructor approved activities.

User ID and Passwords

Lab:

ID _____ Password _____

Blackboard: <http://aconline.austincc.edu>

Use your ACCeID and password for Blackboard.

ACCmail: For information on how to activate and manage your ACC mail please refer to <http://www.austincc.edu/google/>.

**Fundamentals of Programming
Course Schedule
Tuesday Lab**

| Week Num | Date | Lec/ Lab | Topic | Assignment |
|-----------------|-------------|---------------------|--|--|
| 1 | 8/24 | Lec | Course Introduction Overview of a Computer System | Zak, pgs 1-15 |
| | 8/26 | | Chapter 1: An Introduction to Programming | |
| | 8/24 | Lab | Lab Orientation | |
| 2 | 8/31 | Lec | Chapter 2: Beginning the Problem Solving Process | Zak, pgs 22-46 HW – Chap 1 |
| | 9/2 | | Chapter 3: Variables and Constants | Zak, pgs 51-72 |
| | 8/31 | Lab | Problem Solving - Concepts | IPO Charts |
| 3 | 9/7 | Lec | Chapter 3: (Continued) | HW – Chap 2 Zak, pgs 77-108 |
| | 9/9 | | Chapter 4: Completing the Problem Solving Process | |
| | 9/7 | Lab | Introduction to Dev C++ Compiler | |
| 4 | 9/14 | Lec | Chapter 4 (continued) | Zak, pgs 153-201 HW – Chap 3 (Chapters 1 - 4) |
| | 9/16 | | Review for EXAM I | |
| | 9/14 | Lab | | |
| 5 | 9/21 | Lec | EXAM 1 | HW – Chap 4 Zak, pgs 119-154 |
| | 9/23 | | Chapter 5: The Selection Structure | |
| | 9/21 | Lab | EXAM 1 | |
| 6 | 9/28 | Lec | Chapter 5 (continued) | HW – Chap 5 Zak, pgs 163-199 |
| | 9/30 | | Chapter 6: More on the Selection Structure | |
| | 9/30 | Lab | | |
| 7 | 10/5 | Lec | Chapter 7: The Repetition Structure | Zak, pgs 213-254 HW – Chap 6 |
| | 10/7 | | Chapter 7: (continued) | |
| | 10/5 | Lab | | |
| 8 | 10/12 | Lec | Chapter 8: More on the Repetition Structure | Zak, pgs 264-300 HW – Chap 7 (Chapters 5 - 8) |
| | 10/14 | | Review for EXAM 2 | |
| | 10/12 | Lab | | |
| 9 | 10/19 | Lec | EXAM 2 | HW – Chap 8 Zak, pgs 308-362 |
| | 10/21 | | Chapter 9: Value-Returning Functions | |
| | 10/19 | Lab | EXAM 2 | |
| 10 | 10/26 | Lec | Chapter 9 (continued) | HW – Chap 9 Zak, pgs 370-405 |
| | 10/28 | | Chapter 10: Void Functions | |
| | 10/26 | Lab | | |

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| 11 | 11/2 | Lec | Chapter 10 (continued) | Zak, pgs 547-576 HW – Chap 10 |
| | 11/4 | | Chapter 11: One-Dimensional Arrays | Zak, 419-477 |
| | 11/2 | Lab | | Lab 10-2 |
| 12 | 11/9 | Lec | Chapter 11 (continued) | Zak, pgs 607-659 HW – Chap 11 |
| | 11/11 | | Chapter 12: Two-Dimensional Arrays | |
| | 11/9 | Lab | | Lab 11-2 |
| 13 | 11/16 | Lec | Chapter 13: String Manipulation | Zak, pgs 687-711 HW – Chap 12 |
| | 11/18 | | Chapter 14: Sequential Access Files | Zak, pgs 759-772 |
| | 11/16 | Lab | | Lab 12-2 |
| 14 | 11/23 | Lec | HOLIDAY – NO CLASS | HW – Chap 13 |
| | 11/25 | | | |
| | 11/23 | Lab | | Lab 13-2 |
| 15 | 11/30 | Lec | Review for Final Exams | HW – Chap 14 Chapters 1 - 13 |
| | 12/2 | | Review for Final Exams | |
| | 11/30 | Lab | | Lab 14-2 |
| 16 | 12/7 | Lec | EXAM 3 | |
| | 12/9 | | Departmental EXAM | |
| | 12/7 | Lab | EXAM 3 | |

Note: The instructor has the prerogative to change the course schedule as required. Students are expected to read and study the assigned material, per the course schedule, **BEFORE** each class, **this includes the lab assignments!!**