

Austin Community College
Department of Computer Studies and Advanced Technology
COSC 1336 - Programming Fundamentals I

*This course is for Computer Science majors

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Course Description

Introduces the fundamental concepts of structured programming. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging. This course assumes computer literacy.

Prerequisite skills:

This course requires the same math skills necessary for College Algebra. Students should either have taken or be currently enrolled in College Algebra or a course that requires College Algebra. Students should be TSI complete in reading.

Textbook / Materials

Required Textbook: Starting Out with Python Tony Gaddis

Publisher: Pearson

ISBN 13: 9780133862256

Important note: In my class, MyProgrammingLab is an optional activity. Thus, a used 3rd edition will work just as well. If you are planning to use MyProgrammingLab you must purchase a new textbook with the code.

Course Topics

This course will cover the following programming topics with Python as the programming language:

1. The problem solving process.
2. Decisions and Boolean Logic
3. Repetition Control Structure - understand how loops work and how they are used
4. Simple and Value Returning Functions and Modules - understand how values are returned from functions and how to integrate a program using modules

5. Files and Exceptions - learn about writing to external files and reading from files. In addition, learn to handle errors in the program without crashing.
6. Lists and Tuples - learn how to manipulate and create Lists and Tuples.
7. Learn how to manipulate strings
8. Dictionaries and Sets
9. An introduction to classes and objects

Instructional Methodology

This is a distance-learning course taught in the ONL format. ONL courses require students to have access to a computer with an Internet connection and an ACC email address to access and **complete the coursework online**. Students may use computers from home or work, or they may use the [ACC Computer Studies Open Labs](#). In this course, assignments will be disseminated online and students will submit the assignments through Blackboard. As the assignment is graded, I will enter the grade in the Blackboard grade book. Students can access the grade book and view their grades online. Grades will **not** be sent through email for reasons of confidentiality. Students will also participate in the online discussion board in Blackboard. This will count towards your class participation points. In order to log into Blackboard you will need your ACCeID. [Click here for more information](#) about ACCeID if you have not activated your eID yet.

[Click here to log into Blackboard](#) AFTER you have your ACCeID. Please bookmark the Blackboard login link in your browser as you will be visiting it often during this course.

While the individual module assessments are done on your own computer, all the Module Mastery Assessments will be taken in the computer studies open labs – please **DO NOT** go to the testing center to take these assessments. You can view the open lab hours, room and phone numbers by [clicking here](#). *Please see the **course FAQ document** for more information.*

Note: If a student is living outside the Central Texas area and is unable to travel to Austin to take the Mastery Assessments, he/she MUST make arrangements through the Distance Learning offices to take the exams remotely. In such a case, students are advised to contact the Distance Learning office at 512.223.8026 or by email at dl@austincc.edu

Course Rationale

This is an entry-level programming course for Computer Science and Computer Information Technology majors. Designed to teach students the basic concepts of computer programming, the course will include designing, coding, debugging, testing, and documenting programs using a high level programming language. The course is intended to prepare

students for a programming-oriented academic path. This course is included in several degree plans including:

- Associate of Applied Science – Computer Programming
- Associate of Applied Science – Web Programming
- Associate of Applied Science – Game and Visualization Programming
- Associate of Applied Science – Information Technology Application
- Associate of Applied Science – Software Testing
- Associate of Science – Computer Science

Course Objectives / Learning Outcomes

1. Demonstrate problem solving skills by developing and implementing algorithms to solve problems.
2. Derive problem specifications from problem statements.
3. Develop algorithms to meet stated specifications.
4. Create code to provide a solution to problem statements ranging from simple to complex.
5. Test and debug programs to meet specifications and standards.
6. Create programs that contain clear and concise program documentation.
7. Implement programs that use data types and demonstrate an understanding of numbering systems.
8. Incorporate both basic and advanced control structures appropriately into algorithms.
9. Demonstrate an understanding of structured design by implementing programs with functions, including both pass-by-value and pass-by-reference parameters.
10. Implement programs using classes and object, including Python strings and file streams.
11. Implement algorithms using both one-dimensional and two-dimensional arrays.
12. Demonstrate an understanding of array searching and sorting algorithms by desk-checking and/or modifying algorithm implementations.

Grade Policies

The class grade will be based on the student's performance on the tests, completion of projects and exercises, and class participation. The entire course is set up as a series of Competency Modules. Each competency module consists of:

1. A lab project
2. A module assessment

- 3. A hands-on assessment
- 4. A module learning log/journal

Students will only be allowed to proceed to the next module if they have completed and submitted all the deliverables of the current module. Grades will be weighted as follows for a total of 100%. Besides other grades, **students must score a 70% on each test** in order to pass the course.

Orientation and Syllabus Quiz	5%
Learning Logs [5]	5%
Lab Projects [5]	30%
Module Assessments [5]	20%
Tests [3]	35%
Attendance / Participation.....	5%

There **may** be extra credit work assigned during the semester. This work will be announced to the class through Blackboard. Extra credit cannot be applied towards a missed class assignment or project and will be available only to students who have turned in all the assignments, projects, and assessments.

The following cumulative percentage score will be used to assign the final letter grade:

90% or higher	A
80% - 89%	B
70% - 79%	C
60% - 69%	D**
<60%	F

** A grade of D does not count as a valid prerequisite grade or a transfer grade

For lab projects turned in late, the following late policy will apply:

- a) 1 calendar day late..... 20% off
- b) 2 - 5 calendar days late..... 50% off
- c) More than 5 calendar days late..... 100% off

There will be NO extensions granted on tests.

Course Policies

Academic Dishonesty: Plagiarism and cheating are serious offenses and may be punished by failure on exam, paper or project; and/or failure in course. ACC considers cheating to be a serious offense. The first incident will earn you a grade of 0 or F for that particular lab or exam. A second offense will result in an F in the course. ***The burden of proof rests on ALL parties involved.*** Penalties for academic dishonesty will be assessed as per college and department policies. You may view the ACC

policy on academic dishonesty at <http://www.austincc.edu/current/needtoknow/policies.php#conduct>

Posting of Grades: Final course grades will not be posted. The final course grade is mailed to the student by the ACC Admissions and Records office. Students may also log into their ACC Online account after the end of the semester and look at their grade. A final letter grade will also be posted to the Blackboard grade book in the last week of class.

Incomplete: An Incomplete may not be used as a shelter from a potentially low grade in the class. A student may qualify for an **“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 documented extenuating circumstances.
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 stipulations of the Incomplete contract signed with the instructor no later than two weeks prior to the end of the next semester. Failure to do so will result in the grade automatically reverting to an “F”.

Withdrawal: The withdrawal deadline is 5 PM on April 24. The census reporting date is February 1. If you withdraw before February 1, it does not show as a W on your transcript. Please see the college calendar for other important dates and deadlines at <http://www.austincc.edu/calendars/important-dates-and-deadlines>

Alert: State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. All course withdrawals automatically count toward the limit unless:

- The student withdraws from all courses;
- The student or course is exempt from the rule; or
- The student receives an exception authorized by college officials.

Students who reach their withdrawal limit must remain on the class roll unless they request and receive approval for a withdrawal exception. Please visit with an admissions counselor for more details.

Freedom of Expression Policy: Each student is strongly encouraged to participate in classroom discussions. In an online class, discussions take place through the Blackboard discussion board. In any classroom situation that includes discussion and critical thinking, there are bound to be many differing viewpoints. These differences enhance the learning experience and create an atmosphere where students and instructor alike will be encouraged to think and learn. On sensitive and volatile topics,

students may sometimes disagree not only with each other but also with the instructor. It is expected that faculty and students will respect the views of others when expressed in classroom discussions.

Attendance: Attendance in an online class consists of making contact with the instructor, posting to the discussion board, and remaining engaged in the class by submitting items as they are due. Attendance also comprises a timely response to emails sent by the instructor.

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 Accessibility Services on the campus where they expect to take the majority of their classes. Students are encouraged to do this prior to the start of the semester.

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

Communication: The ACC online Blackboard system <http://aconline.austincc.edu> or **equivalent** 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 and ACCmail please visit the following sites: <http://irt.austincc.edu/blackboard/StudentSupport.php> and <http://www.austincc.edu/google/>.

Safety Statement: Each student is expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies while on ACC campus. Emergency posters and Campus Safety Plans are posted in each classroom and lab. Additional information about safety procedures and how to sign up to be notified in case of an emergency can be found at <http://www.austincc.edu/emergency/>. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be immediately dismissed from the day's activity, may be withdrawn from the class, and / or may be barred from attending future activities.

Tutoring: Free tutoring is provided for this course. For schedules and details please see <http://cis.austincc.edu/cis-tutoring-schedules>

SCANS Competencies

Competencies have been identified that are relevant to the level of instruction in the community college environment. These competencies reflect the knowledge and skills employees need to succeed in any occupation. This course will expose the student to the concepts and application of the following competencies:

- Students select relevant goal-related activities, rank them in order of importance, allocate time to these activities, and understand, prepare and follow schedules.
- Students acquire and evaluate information.
- Students organize and maintain information.
- Students interpret and communicate information.
- Students use computers to process information.
- Students know how social, organizational and technological systems work and operate effectively with them.
- Students suggest modifications to existing systems and develop new or alternative systems to improve performance.
- Students understand overall intent and proper procedure for setup and operation of equipment.
- Students locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.
- Students communicate thoughts, ideas, information, and messages in writing; create documents such as letters, directions, manuals, reports, graphs, and flow charts.
- Students perform basic computations; use basic numerical concepts such as whole numbers, etc.
- Students approach practical problems by choosing appropriately from a variety of mathematical techniques.
- Students receive, attend to, interpret, and respond to verbal messages and other cues.
- Students specify goals and constraints, generate alternatives, consider risks, and evaluate and choose the best alternative.
- Students recognize problems and devise and implement plans of action.
- Students organize and process symbols, pictures, graphs, objects, and other information.
- Students use efficient learning techniques to acquire and apply new knowledge and skills.
- Students discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.
- Students exert a high level of effort and persevere towards goal attainment.
- Students believe in own self-worth and maintain a positive view of self.

- Students demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
- Students assess self accurately, set personal goals, monitor progress, and exhibit self-control.
- Students choose ethical courses of action.