CSC 202.001: Computer Science Principles  
Spring 2020

Anne Marie Eubanks  
Department of Computer Science  
College of Sciences and Mathematics  
312P Ed and Gwen Cole STEM Building (#11 on campus map)  
eubanksanne@sfasu.edu  
936-468-2508

Office Hours - Office 312P and Online  
Monday: 10:00 a.m. – 10:50 a.m. & 2:20 p.m. – 3:30 p.m.  
Tuesday: 10:50 a.m. – 11:50 a.m. & 1:50 p.m. – 2:30 p.m.  
Wednesday: 10:00 a.m. – 10:50 a.m. & 2:20 p.m. – 3:30 p.m.  
Thursday: 10:50 a.m. – 11:50 a.m. & 1:50 p.m. – 2:30 p.m.  
Friday: 10:00 a.m. – 10:50 a.m.

The office hours above are just a starting point. I am often online and I am frequently available outside these hours. Please feel free to Page any time you see me online. You may also email me at any time.  
I will gladly make appointments for other times (either online or in person).

Class meeting time and place:  CSC 202.001  
9:00 a.m. – 9:50 a.m. Monday, Wednesday, and Friday  
Ed and Gwen Cole STEM Building (# 11 on the campus map)  
Room 417

Prerequisites:  CSC 102  
Grade Reminder: Must have a C or better in each prerequisite course.

Credit Hours:  3  
CSC 202 “Computer Programming Principles” (3 credits) typically meets twice each week or three times each week for a total of 150 minutes for 15 weeks, and also meets for a 2-hour final examination. Students have significant weekly reading assignments. Students are expected to complete 8 - 9 homework assignments, 8 - 17 laboratory or programming assignments, and 2-3 periodic exams in addition to the final exam. Students are expected to prepare for any in-class assignments or quizzes over the material covered in class or in the reading material. These activities average at a minimum 6 hours of work each week to prepare outside of classroom hours.
Catalog Description
Problem solving and algorithm design, program structures, data types, software
development methods, and programming style.

Purpose Of Course
To introduce a disciplined approach to problem solving methods and algorithm
development; to introduce procedural and data abstraction; to teach program
design, coding, debugging, testing, and documentation using good programming
style; to teach a block-structured high-level programming language; and to provide
a foundation for further studies in computer science.

Educational Objectives
Upon successful completion of the course, students should be able to:

1. Apply a disciplined approach to problem solving and algorithm design.
2. Use the following: strategies for problem solving, techniques for analyzing
   problems and defining requirements, tools for representing algorithms, and
   methods for verifying and validating algorithms and programs.
3. Write programs in a modern block-structured procedural programming language.
4. Design and, by means of the programming language being learned, implement
   imperative solutions to moderately complex problems.
5. Demonstrate through artifact creation and testing, a solid knowledge of and an
   ability to properly use these programming features and facilities: data types,
   fundamental data structures (arrays, records, and arrays of records) control
   structures, procedures, functions, parameters, text files, and binary files.
6. Demonstrate through artifact creation, familiarity with abstract data types, pointers,
   and recursion.
7. Use operating system tools (command system, editor, compiler, linker, and loader)
   in single and multiuser environments.
8. Write cooperatively on software development projects.

Content

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<tr>
<td>Computer Terminal or Microcomputer Skills Review ......................................................1</td>
</tr>
<tr>
<td>Use of operating system and editor command languages</td>
</tr>
<tr>
<td>Problem Solving and Algorithm Design ........................................................................10</td>
</tr>
<tr>
<td>Strategies for problem solving--problem decomposition, solution by analogy</td>
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</table>
Problem analysis and requirements definition—understanding the problem, describing the output requirements, identifying the input data
Algorithm representation—pseudocode and graphical techniques including structure charts and flowcharting
Algorithm verification—desk checking with and without test data

Program Structures........................................................................................................................................10
  Control structures—sequential, iterative, and selective
  Subprograms—procedures and functions, parameters, scope of identifiers, subprogram nesting, and introduction to recursion

Data Types, Operations, and Storage .................................................................................................14
  Standard scalar types—integer, real, boolean, character
  Structured types—arrays, character strings, records, arrays of records
  Standard user-defined types—subrange, enumerated
  Introduction to abstract data types
  Files—text files for data, source programs, and operating system commands; binary files for data, object programs, and load modules

Program Development—Methods and Style.........................................................................................7
  Design—procedural abstraction, data abstraction, top-down design and stepwise refinement, modular design, block structure, information hiding
  Coding—use of structured control statements and modern programming style including proper indentation and choice of appropriate descriptive identifiers
  Program debugging and verification—generation of test data, debugging techniques including manual and built-in tracing as well as use of stubs and drivers, top-down versus bottom-up testing External and internal program documentation techniques

Exams (Plus Final) ......................................................................................................................................3

TOTAL 45

References
  Online PDF version: http://linuxcommand.org/tlc.php


  Online PDF version: https://sophia.javeriana.edu.co/~cbustaca/docencia/POO-2016-01/documentos/Thinking_in_Java_4th_edition.pdf

Computer Science Program Accreditations
The Bachelor of Science degree with a major in Computer Science is accredited by the Computing
Accreditation Commission (CAC) of ABET, Inc., http://www.abet.org., the recognized accreditor of college and university programs in applied science, computing, engineering and technology. ABET accreditation demonstrates a program's commitment to providing its students with a quality education.

**Required Materials (to be brought to class every day):**
  
- USB Flash Memory Drive

**Course Requirements:**
This course will be making use of the SFASU D2L Learning Management System. Students are encouraged to complete the D2L Student Tutorials. This is a face-to-face class and student success is dependent upon being present at every class meeting.

**End of Course Grade:** There are a total of 1,000 possible points in the course. End of course letter grades will be based on the number of points earned.

<table>
<thead>
<tr>
<th>Points Earned</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>900 - 1,000</td>
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<td>C</td>
</tr>
<tr>
<td>600 - 699</td>
<td>D</td>
</tr>
<tr>
<td>0 - 600</td>
<td>F</td>
</tr>
</tbody>
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Missing the final Exam F

Examinations are worth 70% of the course grade. See class calendar in D2L for the dates, tentative dates listed (except for the Final).
- Exam 1: February 7, 2020 - worth 100 points (10 % of course grade)
- Exam 2: March 6, 2020 - worth 150 points (15 % of course grade)
- Exam 3: April 8, 2020 - worth 200 points (20 % of course grade)
- Comprehensive Final Examination worth 250 points (25 % of course grade)
  - NO Exemptions
  - Wednesday, May 6, 2020 8:00 a.m. – 10:30 a.m.
  - http://www.sfasu.edu/registrar/194.asp

All class examinations are considered to be a major part of the course work upon which a large part of the course grade depends. Class examinations will be announced at the start of the semester. If you have a conflict with another university event, you must contact me well in advance of the examination. In case of an extreme emergency, contact me before the scheduled examination. Failure to do so will result in an examination grade of zero. There are no exemptions for the final examination and no changes in taking the final examination. All students must take the final exam. A zero on the final exam will result in an F in the course. Check the final examination time. If the final examination time is a problem, you need to drop this
course or switch to another section. Once a student leaves the room on the day of an examination, they will not be permitted to return. Once the first person has left the room on the day of an examination, no one else will be permitted to begin the exam. Possession of a cell phone or other electronic communication device during an exam will result in an examination grade of zero.

Emphasis: There are no exemptions for the final examination and no changes in taking the final examination. All students must take the final exam. A zero on the final exam will result in an F in the course. Check the final examination time. If the final examination time is a problem, you need to switch to another section of this course.


Assignments and Quizzes:
Assignments and quizzes are worth 30% of the course grade. Periodic in class and online quizzes will be given. Assignments/quizzes will be of unequal weight. Not all assignments/quizzes will be graded.

All assignments are due at the announced time on the specified due date. If you have a conflict, please contact me in advance. Please Note: You will be given assignments and quizzes during the last five class days of the semester. No Make ups.
Programs must be submitted in D2L in the Dropbox.

Specific exam dates and assignment due dates will be available on the Calendar tool in the D2L management system. Once registered, students can access D2L via d2l.sfasu.edu using their mySFA username and password.

Help Support Resources:

AARC Tutors: The AARC tutors are in in 206 Ed and Gwen Cole STEM Building.
Monday - Thursday: 4:00 p.m. – 8:00 p.m.
You may use this time to get help from the tutors, or to use the lab computers.

You may access this and more information at http://library.sfasu.edu/aarc/walk-in-tables/.

Open Lab - in 206 Ed and Gwen Cole STEM Building
Monday – Thursday 9:00 a.m. – 5:00 p.m.
Friday 9:00 a.m. – 3:00 p.m.
You may use the lab computers during this time.

The Library Linc is open:
Monday – Thursday: 7:00 a.m. - 1:00 a.m.
Friday: 7:00 a.m. to 6:00 p.m.
Saturday: 10:00 a.m. – 8:00 p.m.
Sunday: 12:00 p.m. - 1:00 a.m.
Course Calendar/Timeline:

<table>
<thead>
<tr>
<th>General Topic</th>
<th>Approximate % of course devoted to topic</th>
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<tbody>
<tr>
<td>Basic Concepts of Computer Systems</td>
<td>7</td>
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<tr>
<td>Systems Software</td>
<td>13</td>
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<tr>
<td>Problem Solving Concepts</td>
<td>20</td>
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<tr>
<td>Program Development</td>
<td>40</td>
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<tr>
<td>Software Engineering Principles</td>
<td>7</td>
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<tr>
<td>Ethics and Careers</td>
<td>5</td>
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<tr>
<td>Exams (plus final)</td>
<td>8</td>
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</tbody>
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A more detailed listing of the topics that the course will cover and approximate amount of time to be devoted to each is available at [http://www.sfasu.edu/sites/default/files/2019-05/CSC102_2019.pdf](http://www.sfasu.edu/sites/default/files/2019-05/CSC102_2019.pdf).

**Tentative Timeline:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Review</td>
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<tr>
<td>2</td>
<td>Multidimensional Arrays</td>
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<tr>
<td>3</td>
<td>Multidimensional Arrays</td>
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<tr>
<td></td>
<td>Objects/Classes</td>
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<td></td>
<td>Exam I</td>
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<tr>
<td>4</td>
<td>Objects/Classes</td>
</tr>
<tr>
<td></td>
<td>Exam I</td>
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<tr>
<td>5</td>
<td>Object-Oriented Thinking</td>
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<tr>
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<tr>
<td></td>
<td>Inheritance and Polymorphism</td>
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<tr>
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<tr>
<td>8</td>
<td>Exam II</td>
</tr>
<tr>
<td>9</td>
<td>Spring Break</td>
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<tr>
<td>10</td>
<td>Abstract Classes and Interfaces</td>
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<td>11</td>
<td>Generics</td>
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<td>12</td>
<td>Exception Handling</td>
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<td>13</td>
<td>Exam III</td>
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<td>14</td>
<td>Binary IO</td>
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<td>15</td>
<td>Recursion</td>
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<tr>
<td>16</td>
<td>Threads</td>
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<tr>
<td></td>
<td>Review</td>
</tr>
<tr>
<td>17</td>
<td>Final Exam</td>
</tr>
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</table>
Grading Policy:

**End of Course Grade:** There are a total of 1,000 possible points in the course. End of course letter grades will be based on the number of points earned.

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<td>Missing the final Exam</td>
<td>F</td>
</tr>
</tbody>
</table>

**D2L (Desire2Learn):** This course will use the D2L Management System. The course login page may be accessed via your mySFA account or by linking directly to [https://d2l.sfasu.edu/](https://d2l.sfasu.edu/). Distance Education student support can be found at the SFA Online website: [https://www.sfaonline.info/](https://www.sfaonline.info/).

This course is incorporated into students’ grade point average (GPA) as listed in the Course Grades [http://www.sfasu.edu/policies/course-grades-5.5.pdf](http://www.sfasu.edu/policies/course-grades-5.5.pdf).

A student who wishes to appeal the final grade must follow the procedure listed in the Final Course Grade Appeals by Students, [http://www.sfasu.edu/policies/final-course-grade-appeals-by-students-6.3.pdf](http://www.sfasu.edu/policies/final-course-grade-appeals-by-students-6.3.pdf).

**Attendance:** Student success is dependent upon being present at every class meeting. Seating Assignments will be made and roll will be taken regularly. Attendance and participation may be taken into consideration for your final grade. **IF YOU ARE ABSENT FROM CLASS PLEASE MAKE SURE TO GET NOTES FROM A CLASSMATE.** Please remember there is no eating or drinking allowed in our classrooms/labs. Only students officially registered for the course and approved assistants may attend class.

**Participation:** Participation in the course is essential and may be taken into consideration for your final grade.

**Acceptable Student Behavior:** Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, [http://www.sfasu.edu/policies/student-code-of-conduct-10.4.pdf](http://www.sfasu.edu/policies/student-code-of-conduct-10.4.pdf)). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the iCare Early Alert Program. This program provides students with
recommendations for resources or other assistance that is available to help SFA students succeed.

**Tobacco Products and Vaping Products**: Effective August 22, 2016, Stephen F. Austin State University is a tobacco and vape free campus. The use of all tobacco and vape products (including but not limited to cigarettes, cigars, pipes, smokeless tobacco, e-cigarettes, vaporizers, vape pens, hookahs, blunts, pipes, snuff, and any other tobacco or vape related product) is prohibited on all property that is owned, leased, occupied, or controlled by Stephen F. Austin State University. Additionally, the sale or free sampling of tobacco or vape products is prohibited on university property. This policy applies to all employees, students, university affiliates, contractors, and visitors ([http://www.sfasu.edu/policies/smoking-vaping-and-use-of-tobacco-products-13.21.pdf](http://www.sfasu.edu/policies/smoking-vaping-and-use-of-tobacco-products-13.21.pdf)).

The university shall offer and promote tobacco prevention and education programming on campus as well as provide applicable resources to help individuals who want to quit using tobacco products ([http://www.sfasu.edu/tobacco-vape-free.asp](http://www.sfasu.edu/tobacco-vape-free.asp)).

**Campus Carry at SFA**: During the 84th Texas Legislative Session, Senate Bill 11 (SB11) was passed allowing persons with a License to Carry (LTC) a handgun, under Texas Government Code Section 411.2031 and other applicable laws, to carry their handgun in a concealed manner on public university campuses.

The law allows universities to establish policy restricting certain areas/events of the campus where concealed carry will not be allowed as well as establish storage requirements in residence halls.

Under SFA Policy 13.9, Firearms, Explosives, and Ammunition, the university has designated the following locations as locations where the carrying of a concealed handgun is prohibited:

- Early Childhood Research Center - Entire premise including fenced grounds
- Human Services Building (other than the Telecommunications area) - Entire Premise
- Student Health Clinic - Entire premise
- 3rd Floor of the Rusk Building - 1st and 2nd floors are not excluded from concealed carry
- Any location where a high school, collegiate, or professional sporting event takes place and where club or intramural athletic competition is taking place
- Nonpublic, secure portions of the University Police Department
- Occasional, reasonable, temporary restrictions by the president for five (5) days

If you observe a visible weapon, please contact the University Police Department. Call 911 from an on-campus phone or 936-468-2608 from a cell phone.

**Academic Integrity:** Please review the University policy on Academic Integrity. Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

*Definition of Academic Dishonesty:*
Academic dishonesty includes both cheating and plagiarism.

**Cheating** includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism.

**Plagiarism** is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit.


If in my judgment an instance of academic dishonesty on an exam has occurred, a grade of zero will be assigned and a minimum of one (1) letter grade will be lost in the course grade. A *Report of Academic Dishonesty* will be filed. This report will be kept on file with the Chair of the Department of Computer Science and with the Dean of the College of Sciences and Mathematics. Please note that being in possession of a cell phone or other electronic device during an exam will result in an examination grade of zero. A student found cheating on an examination may not drop the course.

If in my judgment a student is found cheating on any part of a homework assignment or quiz, the student will receive negative points equal to the value of the entire homework/quiz. A negative grade will not be replaced by any possible bonus assignment. I consider the person who did the work (homework, quiz, test) and the person copying the work as both cheating. A *Report of Academic Dishonesty* will be filed. Do your own work. Do not share your work with others. A course grade of F may be assigned depending on the situation.

**All instances of academic dishonesty will be reported to Office of the Dean of the student’s major and to the Chair of the Department of Computer Science.** This report shall be made part of the student’s record and shall remain on file with the Dean’s office for at least four years. Instances of academic dishonesty may also be reported to the University Committee on Academic Integrity. Please read the complete policy at [http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf](http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf).
A student who wishes to appeal decisions related to academic dishonesty should follow procedures outlined in Academic Appeals by Students.

**University Drop Policy:** The official university add/drop policy is located at: [http://www.sfasu.edu/policies/add_drop.asp](http://www.sfasu.edu/policies/add_drop.asp) If you have questions concerning registration, add/drop or the withdraw process, contact the Registrar at (936) 468-2501 or E-mail: REGISTRAR@SFASU.EDU The Registrar is located on the 2nd floor of the Rusk building.

**Withheld Grades, Semester Grades Policy:** At the discretion of the instructor of record and with the approval of the academic unit head, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F, except as allowed through policy [i.e., Active Military Service (6.14)]. If students register for the same course in future semesters, the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average ([http://www.sfasu.edu/policies/course-grades-5.5.pdf](http://www.sfasu.edu/policies/course-grades-5.5.pdf)).

**Special Accommodation Request:** Students with special accommodation have the responsibility to immediately initiate a meeting with the instructor to discuss how the special accommodations will be provided. Students who are aware of these special needs at the beginning of the semester must inform the instructor in person about any event which requires special accommodations.

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Computer Account Policy:** All assignments that require the use of the University Computer must be done under the computer account that is assigned to you in this class. You should NOT do other class assignments in this account, and you should NOT do assignments from this class in other accounts. Failure to abide by the above statements will mean that you will receive a grade of F in this course.

**Software Policy:** Disciplinary action will be taken against individuals who perform unauthorized duplication of computer software or who are involved in the unauthorized use of duplicated software. This action may make it impossible for you to complete this course.
**Computing Laboratory Usage:** Students who utilize equipment in university computing laboratories are expected to read and abide by all posted policies for the laboratories. Please note that no children are permitted in university computing laboratories.

**Identification:** Valid SFA student I.D. cards with CID (not SSN) must be presented on each exam day. (No I.D...No exam...Grade of zero)