CSCI 2302-001: Computer Science Principles
Department of Computer Science, STEM Building 312, (936) 468-2508
Summer 2023

INSTRUCTOR INFORMATION:
Mr. Korey Kahler
kahlerke@sfasu.edu
312J STEM Building
(936) 468-1717

CLASSROOM INFORMATION:
STEM 316 or Zoom Livestream MTWR 10:30 a.m. – 12:35 p.m.

COURSE DESCRIPTION:
Problem solving and algorithm design, program structures, data types, software development methods, and programming style.

PREREQUISITE:
Must have a C or better in CSCI 1302.

OFFICE HOURS:
Monday: 9:30am – 10:30am
Tuesday: 9:30am – 10:30am
Wednesday: 9:30am – 10:30am
Thursday: 9:30am – 10:30am
Friday: By appointment

For questions or concerns, contact the instructor through email. Zoom appointments also available. In person appointments are available at request.

RECOMMENDED MATERIALS:

SUGGESTED MATERIALS:
• USB Flash Memory Drive (64MB minimum)

EXAMINATIONS: (80% of the course grade)
3 Class Examinations (20 % each) (See the class schedule for the dates and exam coverage.)
Comprehensive Final Examination (20 %) (See the class schedule for the time and date)

*Note: 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.
ASSIGNMENTS AND QUIZZES: (20% of the course grade)
There will be a total of 10-15 assignments and 10-15 quizzes of unequal weight.

STUDENT LEARNING OUTCOMES:

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.

COURSE CONTENT:

Computer Terminal or Microcomputer Skills Review ........................................................................................................ 1

Use of operating system and editor command languages

Problem Solving and Algorithm Design .......................................................................................................................... 10

Strategies for problem solving—problem decomposition, solution by analogy
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, information hiding
Coding—use of structured control statements and modern programming style 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
## COURSE SCHEDULE:

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<th>Seq Number</th>
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<td>1302 Content, D2L, Server Accounts</td>
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<td>2</td>
<td>Unix Environment/Multidimensional Arrays</td>
<td>Unix Command Line, Chapter 8</td>
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<tr>
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<td>Exception Handling and Text I/O</td>
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<td>19</td>
<td><strong>Final Exam</strong></td>
<td>Comprehensive</td>
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### Other Class Information and Policies

**Attendance:** Seating Assignments will be made and roll will be taken regularly. Attendance 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 smoking, no chewing of tobacco, no eating or drinking, no bare feet, and no cell phone use during class. Cell phones and other electronic communication devices must be turned off during class. Possession of a cell phone or other electronic communication device during an exam will result in an examination grade of zero. Please keep your feet off of the seat backs and seats. Inappropriate student behavior and offensive language in class, computer science facility or other related activity will not be tolerated. Do not sleep in class, I will wake you up. Only students officially registered for the course and approved assistants may attend class.

**Mental Health and Wellness:** SFASU values students’ mental health and the role it plays in academic and overall student success. SFASU provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

- **On-campus Resources:**
  - **SFASU Counseling Services**
    - Website: [www.sfasu.edu/counselingservices](http://www.sfasu.edu/counselingservices)
    - Location: 3rd Floor Rusk Building
    - Phone: 936-468-2401
  - **SFASU Human Services Counseling Clinic**
    - Website: [www.sfasu.edu/humanservices/139.asp](http://www.sfasu.edu/humanservices/139.asp)
    - Location: Human Services Room 202
    - Phone: 936-468-1041
  - **Crisis Resources:**
    - Burke 24-hour crisis line 1(800) 392-8343
    - Suicide Prevention Lifeline 1(800) 273-TALK (8255)
    - Crisis Text Line: Text HELLO to 741-741

**Examination Policy:** All class examinations are considered to be a major part of the course work upon which a large part of the course grade depends. There are NO make-up exams! Class examinations will be announced at least two classes prior to the examination. 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. Once the first person has left the room on the day of an examination, no one else will be permitted to begin the exam. Please note that being in possession of a cell phone or other electronic communication device during an exam will result in an examination grade of zero.

**Assignment Policy:** All assignments are due at the announced time on the specified due date. Assignments will be accepted up to 12 hours late. (50% off) 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. You should turn in your homework assignments done neatly, clearly, and to the best of your ability. Follow all the instructions given. You will lose points for failure to follow instructions. Any work turned in to my box should be done during the last five class days of the semester. You should turn in your homework assignments done neatly, clearly, and to the best of your ability. Follow all the instructions given. You will lose points for failure to follow instructions. Any work turned in to my box should be dated and timed by the CSC department staff. Please ask nicely. Do not slide any work under my door or under the door to the Computer Science Offices.

**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.

**Academic Integrity:** Please review the University policy on Academic Integrity. 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. Please read the complete policy at [http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf](http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf)

**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.

**Program Learning Outcomes:** Program learning outcomes define the knowledge, skills, and abilities students are expected to demonstrate upon completion of an academic program. These learning outcomes are regularly assessed to determine student learning and to evaluate overall program effectiveness. You may access the program learning outcomes for your major and particular courses at [http://www.sfasu.edu/academics/colleges/sciences-math/computer-science/about/accreditations](http://www.sfasu.edu/academics/colleges/sciences-math/computer-science/about/accreditations)

**Withheld Grades Semester Grades Policy (A-54):** Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, 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. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.
**Students with Disabilities:** 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 http://www.sfasu.edu/disabilityservices/.

**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, policy D-34.1). 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.