Syllabus

Catalog Description
Study of algorithm design, analysis tools, and techniques for selected problems, including sorting, searching, graphs, branch and bound strategies, dynamic programming, algebraic methods, string matching, and sets. An introduction to order notation, timing routines, and complexity classes.

Official Course Syllabus
For additional details including course description, the purpose of the course, student learning objectives, credit hour statement, and content, see the official course syllabus here: Course Syllabus

Materials
- Discord (either on Web / Windows / Android / Apple); Invite Link: https://discord.gg/WMshSVD56m
- Java IDE and Interpreter, Recommended: Visual Studio Code (for Java)

Grading
All conditions must be met to earn the designated grade.

<table>
<thead>
<tr>
<th>Grade</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>≥ 90%</td>
<td>≥ 80%</td>
<td>≥ 70%</td>
<td>≥ 60%</td>
<td></td>
</tr>
<tr>
<td>Check-Ins</td>
<td>Complete</td>
<td>Complete</td>
<td>≤ 1 incomplete</td>
<td>≤ 2 incomplete</td>
<td></td>
</tr>
<tr>
<td>HW</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>≤ 1 incomplete</td>
<td></td>
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</tbody>
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- Percent Grades for Exams, HW Assignments, Check-Ins, and Explorations are computed by total points earned across all assignments total possible points across all assignments

- The Final Course Grade uses 50% for Exams, 30% for Homework, 10% for Check-Ins, and 10% for Explorations. This can be computed using the formula:
  
  Course Grade = .5 × Exam + .3 × HW + .1 × CheckIns + .1 × Explorations

- Homework and CheckIns may be turned in late until the beginning of dead week to avoid receiving an incomplete. However, the points earned will be subject to the late assignment policy.
- See the attendance policy, as excessive absences may adversely affect your grade.
Course Requirements

Exams
Short answer, fill-in-the-blank, true/false, programs, and problems. See the course schedule for dates. **All dates are tentative except for the final exam date.**

Individual Homework Assignments
There will be frequent (almost weekly) homework assignments to give you practice with the various topics covered in the class. These should be representative of your own work.

Explorations
Explorations with accompanying reports will be assigned. These are group projects and only one program/report must be turned in per group. You are encouraged to look at outside courses when working on explorations.

Check-Ins
These are frequent (almost weekly) low-stakes assignments to practice course concepts. You are free to work with others. However, everyone must turn in their own work and everyone should be able to explain their solution if called upon. To earn full credit you must have correct answers and adequate explanations.

Attendance
Attendance and constructive class participation are expected. Class attendance is mandatory and will be taken regularly. There are no excused or unexcused absences since you are allotted 4 personal days in the course. An absence may be recorded in the event of leaving early, arriving late, or lack of participation (such as excessive phone use during class). The table below details the overall change in your course grade due to absences:

<table>
<thead>
<tr>
<th>Total Absences</th>
<th>0 – 4</th>
<th>5 – 8</th>
<th>&gt; 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Change</td>
<td>None</td>
<td>Loss of one letter grade</td>
<td>Automatic Failure</td>
</tr>
</tbody>
</table>

AI Policy
Academic integrity is a core value of this course, and any form of academic dishonesty, including using artificial intelligence (AI) to cheat, will not be tolerated. Cheating with AI includes, but is not limited to, using AI-generated content for exams, using AI chatbots to communicate with others during exams, or using AI tools to generate responses to exam and/or homework questions. Any student caught engaging in academic dishonesty using AI will face serious consequences, including but not limited to, failing the course and being reported to the appropriate academic authorities.
Ground Rules

HW (and Exam) Rules
Individual assignments and exams must reflect your work and your work alone. These problems also take considerable time to develop. The problems are designed for you to demonstrate your mastery of the material. For these reasons, no instances of cheating will be tolerated. Violations of academic integrity violations include (but are not limited to):

- Copying from another student and sharing your work with another student
- Copying from an online source such as Chegg, Course Hero, AI, etc.
- Posting materials online

Any violation will be reported to the dean of students and a grade of 0 on the assignment or exam. Severe instances will earn an automatic F in the course.

Late Assignment Policy
Any assignment turned in after the due date and time may receive a 25% penalty per day for up to 2 days. After 2 days, the assignment automatically receives a grade of 0. You may ask for an extension before an assignment is due if extenuating circumstances occur.
University Required Items

Student Learning Outcomes
This course will provide students an opportunity to do the following:

1. To develop the concept of an algorithm, and thereby distinguish between solvable and unsolvable problems.

2. To present various complexity-levels of algorithms and illustrate the concept with examples of algorithms that run in polynomial time as well as some that require exponential time.

3. To apply formal analysis techniques, based on algorithm time and space requirements, to algorithms involving iteration and recursion.

4. To develop the use of mathematical techniques, such as recurrence relations, as tools for analyzing the complexity of algorithms.

5. To study, implement, and analyze the performance of algorithms for sorting, generalized searching, string matching, pattern matching, and data compression.

6. To develop and implement branch-and-bound algorithms for solving selected NP-complete problems, and present efficient heuristic methods for finding sub-optimal but practical solutions to such problems.

7. To discuss emerging trends in algorithm developments, including parallel and distributed processing.

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.

- Students majoring in the Department of Computer Science may access program learning outcomes at http://www.sfasu.edu/academics/colleges/sciences-math/computer-science/about/accreditations

Computer Laboratory Usage
Students utilizing equipment in university computing laboratories are expected to read and abide by all posted policies for the laboratories. Please note that no children and no pets are permitted in university computing laboratories.

Software Policy
Disciplinary action will be taken against individuals who perform unauthorized duplication of software or who are involved in the unauthorized use of duplicated software. Such action may make it impossible for you to successfully complete this course.
Drop Policy
The official university add/drop policy is located https://www.sfasu.edu/docs/hops/04-103.pdf. If you have questions concerning registration, add/drop, or the withdrawal 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.

Academic Integrity
The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.
Withheld Grades Semester Grades Policy
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 coursework 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 to compute the grade point average. For additional information, go to https://www.sfasu.edu/docs/hops/02-206.pdf.

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 Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Student Wellness and Well-Being
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA 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:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041
The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

**Crisis Resources:**
- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
- Crisis Text Line: Text HELLO to 741-741

**Asynchronous Minutes**
The students are required to devote 150 minutes outside the instructional hours, where you will be asked to conduct independent study based on online resources (not covered in class) related to the course, and the material will be asked in the HW assignments(s), labs, or exams.