CSCI 604 [001351] Section 1
Advanced Data Structures
Fall 2024 SYLLABUS

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E-MAIL: aanda@stcloudstate.edu (please use "CSCI604: " in the Subject
field)
Web Site: http://web.stcloudstate.edu/aanda/cs331.html
Instructor Schedule: http://web.stcloudstate.edu/aanda/Wkly-sched-f24.pdf
(and by appointment)
Student Office Hours: https://minnstate.zoom.us/j/91845917984
        Invitation: Student Office Hours Zoom invitation text
{I sometimes won't be available for an office hour - this will usually be
because I'm attending a meeting}

Resource Links:

- D2L Brightspace
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- SCSU Student Resources for Online Learning
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- SCSU Zoom Resources
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- SCSU Student Information for Attending Classes Off-Campus
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- SCSU: The Write Place
-
- SCSU Information Technology Services
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- SCSU Medical Clinic
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- SCSU Counseling and Psychological Services
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- SCSU Library
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- SCSU Student Code of Conduct
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Additional SCSU student resources, curated and compiled by the Academic
Affairs office, are presented in:
Fall 2023 Student Instructional Resource and Support Guide

CLASS TIME AND LOCATION:
    Class: T Th: 9:30 - 10:45 in WSB 119

REQUIRED TEXT: * Data Abstraction & Problem Solving with C++,
                Carrano, Pearson, 6th, 7th, or 8th ed.

SUPPLEMENTARY TEXTS: * File Structures: An Object-Oriented Approach with C++, M.J. Folk, B. Zoellick, G. Riccardi, Addison Wesley Longman, 1998.
 [A PDF copy of this text (which is out-of-print) accessible is on our course D2L page in Materials/Content/Primary Textbook: FZR. (Please use this copy only for this course)]

                    * Applied Data Structures with C++, Peter Smith, Jones and Bartlett, 2004.
                    * your CSCI 201 textbook

COURSE DESCRIPTION: (for CSCI 604)
    Advanced techniques for data representation and manipulation and their analysis.
    Implementation of algorithms that use these techniques.

COURSE DESCRIPTION:(for CSCI 331)
    Problem solving strategies and concepts applied in the context of issues
    associated with the design and implementation of software systems using
    a combination of current software packages/environments. Subjects
    addressed include file processing, data modeling and mapping to storage
    structures, data base systems, and software design and implementation.

STUDENT LEARNING GOALS: (for CSCI 331)
    1. gain knowledge updating sequential files as related to data base systems.
    2. gain knowledge about programs and software systems involving trees, blocking/deblocking, sort/merge, updating sequential files, and b-trees.

II Student Outcomes (Sos) for the Computer Science Program:
    Students will be able to:
        1. apply structured principles and good practices to the task of developing software systems.
        4. communicate both technical and non-technical aspects of their work in formal and informal situations.
        5. apply formal methods to the process of constructing a system and an appreciation of the need to study and develop such methods.
        7. analyze various aspects of the process used when designing a system and employ established frameworks to evaluate the completed work.

TOPICS (not necessarily in order of coverage):
    * Sequential file processing
    * Indexed Files
    * Hashed Files
    * Tree Structured Files
    * Secondary storage media
    * Introduction to database
    * Software Design Processes and Principles
    * Software Development Processes and Principles
    * and more...
    * (I will expect students to learn the complexities {BigO()} of the
        operations on the data structures we discuss and to be able
        to select, based on those complexities, the most appropriate ADT
        considering the nature of the data and how it will be accessed.)

SLOs:

None stated in the current [CSCI 604 SCSU course description](#)

PREREQUISITES:
    [Prereq.: CSCI 591 or equivalent (A course in data structures using C++)]
    We also assume that you have an operational facility with Unix, hardware,
and OS theory.
    We do not have time for an extensive recapitulation of topics covered in
the prerequisite courses.

ACADEMIC HONESTY:
    You are expected to do your own homework. If you copy someone else's
    work or allow someone else to copy your work, you are being academically
    dishonest and will be subject to severe disciplinary action which may
    include any or all of: no credit for the work in question, a failing
grade
    for the course, notification to the university that you have violated
your
    Code of Conduct. Use of recording devices during exams is prohibited.
    If you must quote or paraphrase another source, citation is essential,
    otherwise plagiarism has been committed. You are expected to be familiar
    with your rights and obligations as outlined in the "Code of Conduct"

[http://www.stcloudstate.edu/studenthandbook/documents/2013_14_codeofconduct.pdf] See also:
    [http://www.stcloudstate.edu/studenthandbook/code/prohibited.asp]

[http://www.stcloudstate.edu/studenthandbook/code/rights_responsibilities.asp]

STUDYING IN GROUPS:
    I encourage you to study with someone else in the class, but when you
    prepare the final documents to turn in be sure that it is your own work
and that you understand it.
        If you represent someone else's work as your own (without citing them
as a source), or allow someone else to turn your work in as
    theirs (without citing you as a source), you will have committed academic
dishonesty and will receive an F.

DECORUM: Conduct yourself so as not to distract others. In particular
    * Silence all cell phones, watch alarms, and similar devices.
    * Do not engage in distracting activities like reading a newspaper
      or sleeping. [the snoring can be so distracting... :^)]
    * Arrive for class on time, and be ready to begin.
      If you must be late, be quiet.
    * If you are early, sit toward the middle of a row.
    * Do not start packing up before class ends.

ATTENDANCE:
    You are responsible for knowing what happens at each class meeting.

EXAMS:
    * There will be a midterm exam and a **comprehensive** final exam.
    * Exams will be based on the notes; that is, on the presentations in
class
                as well as on the assigned readings and assignments.

* Calculators will be neither necessary nor allowed.
    * For each exam, a new review sheet (8.5"x11' front & back) will be
allowed;
        ** Make a prior photocopy of your review sheet as it will be collected
with the exam.
        ** Two review sheets will be allowed on the final exam.
        ** Only material from lecture notes (slides and written in lecture),
instructor provided supplements,
                        or the course textbooks are allowed on each review
sheet.
        ** Each review sheet must be a unique hand-written original copy.
        ** Any answers to questions from exams for this course given in
previous semesters which appear on your
                        review sheet are considered to be examples of academic
dishonesty.
    * Make-up exams will be given in only in extreme (or university
sanctioned) circumstances and only with prior notification to the instructor.

GRADING:
        Your grade will be determined by the contributions of your scores
        on assignments, quizzes, intermediate and final exams, term papers
and their presentations.
        Makeup of tests, quizzes, and exams are by prior arrangement only.
                (Exception handling: If you have received undergraduate credit
for CSCI 331 (you were a SCSU CSCI undergrad),
                    instead of taking the exams, you will write and present
additional term papers on significantly different topics, and pass a Quiz on
the other presented term papers)

APPROXIMATE POINTS:
        Term Paper   35%
        Midterm Exam(s)   25%
        Final Exam   40%

FINAL EXAM: Tuesday, December 10, 09:55 - 12:10 as a D2L Quiz.
(Take this final exam in the assigned classroom using your laptop if you are
able to.)

CAVEAT:
    I reserve the right to amend the contents of this syllabus with
    notification.
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