CSCI 411 511 Database Theory and Design

Spring 2026

Instructor information

Instructor	Email	Office Location
Bhaskar Ghosh	bhaskar.ghosh@stcloudstate.edu	Centennial Hall 366V

In-Person Student Support	Online Support by Appointment	Zoom Link
MWF | 9am - 10am |11am - 12pm	MW 2pm-4pm	https://minnstate.zoom.us/j/3114214555

General information

Class Times

MWF 10am to 10:50am – CH 4

Description

Principles of database systems, theory of relational databases, design techniques, concurrency control and recovery, object-oriented systems.

Outcomes

- Develop database applications using programming languages and application program interfaces.
- Develop indexing and optimization strategies appropriate to the requirements.
- Evaluate and optimize query execution plans.
- Manage spatial data within a database and apply spatial indexing techniques.

Course materials

Required materials

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: STCLOUDSTATECSCI411511GhoshSpring2026
3. Subscribe

Assessment

Methods

Student performance will be assessed through exams, quizzes, coding assignments, and/or presentations. These assessments evaluate your mastery in this topic.

Assignment Submission

Homework assignments must be submitted by 11:59 pm on the due date. Late submissions within one week will incur a 20% deduction from the potential points. Submissions beyond one week will not be accepted.

Grading

Assignments, quizzes, and activities: 45%

Mid-term Exam: 30%

Final Exam: 25%

Grading Policy

Your letter grade will be determined based on the percentage of possible points that you earn during the semester. At the end of the semester, I will only make one adjustment: rounding your grade to the nearest integer. For example, a grade of 93.5 will be rounded up to 94, while a grade of 93.4 will remain 93. The following table relates the percentage to a letter grade:

Percentage	Grade
94-100	A
90-93	A-
87-89	B+
84-86	B
80-83	B-
77-79	C+
74-76	C
70-73	C-
60-69	D
Below 60	F

If the course workload proves to be significantly more challenging than anticipated, I retain the right to modify the grading scale to be more accommodating than the one outlined previously. However, any adjustments to the grading scale will be considered only at the end of the semester.

Course schedule (tentative)

Week	Topic
Week 1	Introduction to Databases
Week 2	Relational DB Basics
Week 3	Basic Queries
Week 4	Keys & Constraints
Week 5	Complex Queries I
Week 6	Joins
Week 7	Subqueries & Views
Week 8	Spring Break

Week	Topic
Week 9 and 10	Database Design
Week 11	Data Storage
Week 12	Transactions
Week 13	Architecture
Week 14	Complex Types & NoSQL
Week 15	Database Programming
Week 16	Case Study

Additional information and resources

Attendance

Attendance to every class is strongly recommended. In case of an absence, it is the responsibility of the student to make up work and get notes from other students. If the student must miss a scheduled test, s/he will need to email me before the class. Acceptable excuses would include medical emergencies.

Academic Honesty

Please consult the student handbook for policies relating to academic honesty.
All homework and the projects must be individual and original work unless the assignment specifies otherwise.

All students are encouraged to critically reflect on the course topics and to raise questions to the class and to the professor. Please be respectful to one another by not presenting your question in a hostile manner. Open dialogue on course content is encouraged, but attacks on classmates or me are not. Please set up a time to talk with me if you have questions about this policy or if you believe this policy is being violated. You may also report hostile, biased or threatening behavior to www.stcloudstate.edu/oea/

There are many offices on campus that provide additional support and/or information outside of class including:

American Indian Center: www.stcloudstate.edu/aic

Multicultural Student Services: www.stcloudstate.edu/mss

Center for International Studies: www.stcloudstate.edu/internationalstudies

Additional Student Services Offices: https://www.stcloudstate.edu/campuslife/student-services.aspx

Student Accessibility Services

Student Accessibility Services maintains Accessibility Syllabus Statements for faculty to include in their course syllabi. Check out the Student Accessibility Services Faculty and Staff Resources webpage for additional information statements, the accommodation process, and more. The below syllabus statement sample is supported by Student Accessibility Services:

- **Accessibility Statement:**
  This course is designed with accessibility in mind and aims to be inclusive to all students. If you encounter barriers to accessing course materials, participating fully, or demonstrating your

learning, please don't hesitate to reach out. I am committed to working with you to ensure equitable access. Students who have a disability, or who think they may benefit from formal accommodations, are encouraged to contact Student Accessibility Services (SAS) as early as possible. SAS is located at Centennial Hall 210 and can be reached at 320-308-4080 or sas@stcloudstate.edu. For more information or to request accommodations, please visit www.stcloudstate.edu/sas.

EAB Navigate Student Success Tool

St. Cloud State University uses the Navigate platform, which allows faculty and advisors to provide proactive and coordinated care for students. Throughout the semester, I may submit updates on students with attendance or academic concerns so that advisors can reach out to provide additional support and/or connect you to campus resources. I may also contact you through email, before or after class, or encourage you to meet with me during my office hours. Please know I'm here to support you in your academic success. You can learn more about the Navigate tool at www.stcloudstate.edu/universitycollege/navigate/student-resources.aspx

Our Land Commitment

St. Cloud State University is committed to developing a land acknowledgment that is not just words but actions. We will actively promote education among our faculty, staff, and students on Indigenous issues, including research on the historical and ongoing harms impacting our Indigenous communities. We will also clearly outline our goals to make a positive and lasting contribution to efforts to build relationships with the Tribal Nations represented within our local and broader community. St. Cloud State University commits to creating a substantive and empathic land acknowledgment, demonstrating our continued commitment to action. Faculty are encouraged to learn more about Our Land Commitment on the OEA Land Commitment webpage for the most up to date information.

Exploratory Use of AI (Supportive but Limited)

Supported tools such as Copilot and Adobe AI tools may be used in this course for limited academic tasks such as idea generation, outlining, or early-stage revisions. However, all submitted work must reflect your own understanding, voice, and academic reasoning.

AI tools should serve as a support, not a replacement, for your thinking. Submitting work that is primarily AI-generated without acknowledgment is a breach of our Academic Integrity Policy.

If you use AI tools as part of your process, you must be transparent about how they were used (e.g., "Used Copilot to draft bullet points; expanded and revised with personal analysis"). When in doubt, ask for clarification before submitting your work.

Please consult the Academic Integrity Policy for more information and let's maintain an open dialogue about ethical and responsible technology use.