

CSCI 2020-003 Fundamentals of Database

Course Information

Fall 2026

Section: 003

Tuesday, 2:55 – 4:55 PM, Brinkly Center 130

Thursday, 2:55 – 4:55 PM, Brinkly Center 125

Prerequisite:

None

Instructor information

Dr. Joseph Carpenter

Email: carpenterjr@etsu.edu

Office Hours (Brinkly Center 168)

Tuesday	10:30 – 2:30 PM
Thursday	10:30 – 2:30 PM
Friday	By Appointment

Catalog Description

Introduces the essential skills of creating, maintaining, and querying a database system. Basic methodologies for transferring data between a database and a program or web page is covered. Also considered are methodologies for database design to ensure consistency and accuracy of the data.

Course Learning Outcomes

Upon completion of this course, students should be able to:

1. **Explain** relational database concepts and tools.
2. **Develop** logical database models using entity-relationship (ER) diagrams.
3. **Convert** ER diagrams to relational tables in Third Normal Form (3NF).
4. **Create** effective database queries using structure query language (SQL).
5. **Explain** the opportunities and challenges of database administration.

Major Topics

- General Databases
- Relational Databases
- Other Types of Databases
- Conceptual Design
- Logical Designs
- Anomalies
- Normalization
- Physical Design
- SQL
- Data Definition Language: CREATE, ALTER, DROP
- Data Manipulation Language: SELECT, INSERT, UPDATE, DELETE
- Transactions and Locking
- Database Administration (As time permits.)
- Connecting to a Database using Code (As time permits.)

Required Textbooks, Platforms, and Resources

Textbooks

- Harrington, J. L. (2016). Relational Database Design and Implementation, 4th Edition, Morgan Kaufman: Cambridge, MA. ISBN: 978-0-12-804399-8.

- <https://go.oreilly.com/east-tennessee-state-university/https://learning.oreilly.com/library/view/relational-database-design/9780128499023/>
- Hernandez, M. J. (2013). Database Design for Mere Mortals®: A Hands-on Guide to Relational Database Design, 3rd Edition. Addison-Wesley: Upper Saddle River, NJ. ISBN: 978-0-321-88449-7.
 - <https://go.oreilly.com/east-tennessee-state-university/https://learning.oreilly.com/library/view/database-design-for/9780133122282/>

Platforms and Resources

- **D2L** – <http://elearn.etsu.edu>
 - This course will use [Desire2Learn](#) for resource distribution, homework submission, grade reporting, and other class elements, and students should regularly check the D2L site for the class. The course instructor will provide feedback for most graded items through D2L.
- **GitHub** – <https://github.com>
 - Provider of Internet hosting site for software development and version control using Git.
- **diagrams.net** – <https://www.diagrams.net/>
 - This software is an online drawing tool that will allow you to create, save, and modify Entity-Relationship Diagram (ERD) models. This is an integral part of this course. You may also download a desktop version of this software, available for Windows, macOS, Linux, and ChromeOS.
- **Oracle SQL Developer** – <https://www.oracle.com/database/sqldeveloper/>
 - This software allows you to interact with Department's Pythia Oracle database server. It is freely available, and versions exist for Windows, macOS, and Linux. You must create an Oracle account to download the software from the link above.

Technical Requirements

Students need consistent and reliable access to a computer to run the software stated above and the internet to complete this class. In addition, the computer should meet minimum specs according to the software vendor sites. (Linux, Mac, or Windows Required)

Note: All computers on ETSU's main campus have the required software to complete this course.

Course and Assignment Assessment

Grade Distribution

The instructor will base the final grade on the attached weights:

Category	Percentage
Quizzes	15%
Labs	25%
Semester Project	30%
Midterm Exam	15%
Final Exam	15%

A student can keep track of their grades throughout the semester using D2L. Students should calculate the grade according to the "Grade Distribution" information provided for the course.

Evaluation Policy

The final grade in this course is calculated based on a weighted average among several categories. The percentage breakdown for each category follows, along with an explanation of each item.

Grading Scale:

*Percentage	Letter	*Percentage	Letter
93.000 – 100.00	A	77.000 – 79.999	C+
90.000 – 92.999	A-	73.000 – 76.999	C
87.000 – 89.999	B+	70.000 – 72.999	C-
83.000 – 86.999	B	60.000 – 69.999	D
80.000 – 82.999	B-	0 – 59.999	F

Note: *Final Grades **will not observe** traditional rounding rules. (i.e., 89.999 will result in a B+)

Note: CSCI 2020 requires a C- or better for all Computing Majors. Please also note that the prerequisite for courses requiring CSCI 2020 is a C- or better.

Definitions of Grade Level

The following definitions will apply to the grading scale. Note that “C” is considered average. To achieve a mark of B or A, you must demonstrate above average or exceptional as described below. Undergraduate students are expected, in general, to achieve a C grade-point average in their programs of study.

Letter	Description	Numeric Equivalents	
A	Exceptional. Able to define terminology, perform analysis of topics, and synthesize information by relating topics from different domains.	A	93 - 100
	Performs exceptionally in project work by consistently going above and beyond the minimum requirements.	A-	90 - 92
B	Above Average. Able to define basic terminology associated with the course content and perform analysis of topics in the same domain.	B+	87 - 89
		B	83 - 86
	Performs work toward the goals of a project. Occasionally goes above the minimum requirements.	B-	80 - 82
	Average. Able to define basic terminology associated with the course work	C+	77 - 79

C		C	73 - 76
	Performs work in projects but does not demonstrate above-average work.	C-	70 - 72
D	Below Average. Unable to define basic terminology associated with the course work consistently	D+	67 - 69
	Performs work in projects but consistently has incorrect answers or does not meet all assignment requirements.	D	60 - 66
F	Poor/Below Average. Provides a few insights into course materials. Performs little to no work or performs work very poorly.	F	0 - 59

Quizzes

Each week, a D2L Assessment/Quiz will be provided to reinforce students' knowledge of the topics covered. Questions will consist of multiple choice, true/false, matching, and ordering questions.

Midterm & Final Exam

Midterm exams often come at the semester's midpoint. The Midterm Exam will assess the student's cumulative knowledge of covered course topics.

The Final Exam, administered during finals week, assesses the student's cumulative knowledge of course topics. Like the Midterm Exam, the Final Exam all have the same type of questions.

The students will take the Midterm and Final Exams via an in-person paper exam. Types of questions in both exams include but are not limited to: True or False; Multiple Choice; Multi-Select; Short Answer; Fill in the Blank; Matching; Ordering; Written Responses; and Written Code. Students must complete both exams in the assigned classroom. Both exams have a 120-minute time limit. Students are highly encouraged to use their **HANDWRITTEN** notes for these exams; however, solely relying on notes will run students over the allotted time to complete them.

Note: A student must make 65% or higher on the Final Exam to pass this class, regardless of all other earned grades. Failure to meet the 65% will afford a student a D+ or lower for the final grade.

Labs

Lab assignments will enforce and enhance the concepts covered in lectures and help you prepare for project deliverables. Labs will be assigned as homework if you do not finish during the lab period, but you are expected to begin the work in class.

Semester Project

The semester project gives you hands-on experience in designing and implementing a database. You will receive specific requirements to design and implement a database from the ground up.

To set your pace for the project, you will have multiple deliverables due throughout the semester. Deliverables must be completed and submitted electronically to D2L by 11:59 pm on the due date. Late submissions are NOT accepted under any circumstances (unless in the case of a documented D2L outage, emergency, or illness). Each deliverable will contribute equal weight to the semester project category.

Assignments

Students will submit all assignments to D2L and/or GitHub. The instructor will provide a Dropbox and, if necessary, a link to submit code to a specific repository in GitHub associated with your GitHub account. Students will need a free GitHub account and internet access to submit code submissions.

(www.github.com)

All assignments to be graded must have a reasonable attempt, follow appropriate documentation standards, and follow the instructions.

Late Work Policy

Pay attention to Dropbox deadlines and the course calendar – there will be no makeup assignments, quizzes, or exams.

Note: While the Instructor will keep the course calendar up to date, the associated Dropbox/Quiz/Exam item will be the published due date for assignments. Discrepancies should be notified to the instructor ASAP for clarity and direction.

Attendance, Participation, and Communication

Attendance

I strongly encourage you to attend every class session. If a student must miss class, be sure to ask your classmates for missed information. Missing class does not extend or allow for makeup on assignments.

Participation

Please stay engaged with the course by observing the following: Students should check email frequently and regularly to stay current with university-related communications and communications regarding this course. In addition to communication via email, students should check D2L daily to keep current with any changes or new information regarding this course.

Email Communication

You should only use email to contact the instructor for necessary requests. If you have a complex question or a question related to code, it is better to schedule a meeting rather than await an email response. Start on assignments early so you have ample time to finish and ask questions. **Questions for items hours before the due date will not receive a response.**

Please make an appointment if posted office hours do not align with your schedule.

Electronic communication via email is the best way to get in touch for issues unrelated to coding assignments. However, you might experience delayed responses to electronic communications, especially late at night, early in the morning, or on weekends.

An email will typically be responded to within 24-48 hours during the regular business week (Monday – Friday) between 9 am – 5 pm. Emails received on the weekend will generally be responded to the following business day. Please be aware of this as you work through projects and need help.

All email subjects must be in the format of **CSCI {Course #} - {Subject Matter}**. (E.g., CSCI 2020-201 New Database Question) Following the format will ensure an email is appropriately delivered and notifies the instructor. You are not guaranteed a response should you fail to adhere to this subject line format.

Personal Technology Use Policy

Students must silence Mobile phones, iPads, Laptops, etc., during all classroom and lab lectures. Students are welcome to use laptops or tablets in class if it contributes to their classroom learning environment. The instructor will ask students to leave if students use devices for anything outside the classroom learning environment.

ALL electronic devices must be off during an exam, including cell phones and placed inside a backpack or similar, out of sight. If you have an emergent need, please schedule that need outside of the exam time. Students with a disability needing to use electronic devices should register through disability services and provide the faculty accommodation form to the instructor.

Inclusivity and Cultural Competence

Your experience in this class is imperative to me. I intend that this course will serve students from all diverse backgrounds and perspectives and that the diversity students bring to this class is a resource, strength, and benefit. The class will treat you with respect. I also expect all students to treat each other with respect.

Professional Etiquette

Students should conduct themselves professionally during class and outside of class. Behave in class the same way you would in a professional setting, and you will build good habits for the future. Some elements of professionalism include:

- Ask pertinent questions. Students should use this over emailing the instructor.
 - A Poll Anywhere will be provided to help with student questions.
- Be attentive in class.
- Come to class prepared.
 - Students who forget standard classroom supplies usually waste class time. Students learn by completing assigned work. Many assignments cover questions students typically ask, and having students finish the assignment aids in learning.
- Do not have private conversations.
 - The noise is distracting to other students.
- Contribute to class discussions when appropriate.
- Help keep the classroom tidy and use the equipment properly.
 - Please return your work area to its original state, ensuring the next group of students will have the same learning environment you had.
- Share new ideas.

- Take responsibility for your education.

Student and Instructor Expectations

Students and instructors should have expectations of one another, many of which are mutual.

Student Expectations

Faculty expect students to arrive to class on time, be prepared, be attentive, participate in class, complete assignments on time, meet the course objectives, and devote considerable time and effort to the course. **Be prepared to spend a minimum of 2-3 hours outside of class for each hour in class.**

Learning to program is much like learning to play a musical instrument. **It requires A LOT OF PRACTICE to understand the concepts and to be a better problem solver.** You should practice your programming daily by reviewing concepts and examples discussed in class, working through the checkpoints and examples throughout the chapter, and working on your assignments. **If class time is the only time you spend on this class, it will not be sufficient to learn how to program.**

You are encouraged to ask appropriate questions and to participate in class discussions and activities. You may learn as much from one another as from the instructor. If you are confused about some point, the chances are that others are also confused and will appreciate that you asked for clarification. In addition, it is also important that you take notes in class. Engaging in class and not just simply listening will benefit your learning process.

Students should respect their classmates and instructor and should not distract others or disrupt the learning environment. The instructor will not generally reprimand disruptive students publicly, but the instructor may ask them to leave or lower their overall grade.

Mutual respect should extend to all class-related activities and interactions with classmates and faculty. Make communication professional, building good habits for a student's career.

Instructor Expectations

The instructor's objective is to maximize every student's learning. The instructor pledges to be prepared for each class, organized, and respectful of each student. In return, the instructor expects the same from every student.

Students should expect the instructor to arrive at class on time, be prepared, be attentive to students, be available to answer questions, provide help related to the course, and make a genuine effort to help students achieve course objectives. On those rare occasions when the instructor must miss class, students should expect suitable arrangements for the class to continue in the instructor's absence. Students should expect the instructor to devote considerable time and effort to the course.

Students are highly encouraged to ask for help and make office hour meetings to ask questions. The instructor schedules office hours 2-3 hours in advance. Please email the instructor with a list of times and topics. The instructor will respond with an Outlook Calendar invite containing the meeting time and location, typically via Zoom. Please use the instructor's office hours times posted at the start of the syllabus to suggest times. Suggest more than one time since the instructor may be accommodating other students' requests.

General Policies and Guidelines

Academic Integrity & Code of Conduct Policies

This section expand on the catalog's East Tennessee State University's Student Conduct and Rights section. (<https://catalog.etsu.edu/content.php?catoid=42&navoid=1780#student-conduct-and-rights>)

Honor Code

East Tennessee State University is committed to developing the intellect and ethical behavior of its students. Students who violate policies on plagiarism, cheating, or fabrication will be held accountable for their actions. Students should report any knowledge of academic misconduct. Students are expected to act with honesty, integrity, and civility in all matters.

Honor Pledge (Pledged at University Orientation)

By becoming a member of the campus community, students agree to live by the standards of the honor code and thereby pledge the following: "I pledge to act with honesty, integrity, and civility in all matters."

Cheating

You are encouraged to discuss material addressed in the courses, including assignments, with class members and others. Helping one another find and understand problems in assignments is permitted if a student makes an honest attempt to solve the problem. Students must do their work. Completing an assignment "by committee" and submitting it as personal work is academic misconduct. Your name on the submitted work is an affirmation that the work is yours.

All work must be your work.

Plagiarism

Plagiarism involves using someone else's words, ideas, and code without crediting the original author. Even if one does not copy the words exactly or even copies only a tiny part of someone else's work, one must cite the original author's name and provide a reference to that person's work (e.g., the title of work, year of publication, and name of publisher).

Repeating a Course and Coursework Resubmission

When students must repeat a course, they may not resubmit work submitted in a prior class instance. In the case of research papers or other class items, students must select a different topic, and the work on the project must be wholly different than the work previously submitted. For other course assignments, the student must submit original work. Students may not submit work from other classes.

Violation of the Honor Code

In cases where the honor code or other topics in the academic integrity section is violated, known as academic misconduct, the penalty will be an 'F' in the course. Be aware that repeated academic misconduct may result in the University applying other penalties.

Student Services and Technical Resources

Student Services

The [ETSU Services webpage](#) includes a comprehensive list of services available to all ETSU students.

Academic Accommodations for Students with Disabilities

It is the policy of ETSU to accommodate students with disabilities according to federal law, state law, and the University's commitment to equal educational access. Any student with a disability who needs accommodations, for example, arrangement for examinations or seating placement, should inform the instructor at the beginning of the course. ETSU provides Faculty accommodation forms to students through Disability Services in the D.P. Culp Center, Room 326, telephone 423-439-8346. [Visit the Disability Services webpage for more information.](#)

Mental Health Services

The BucsCARE website is meant to be a resource for students and student referrals. BucsCARE includes the most referenced offices and campus resources in various categories. This page includes a link to ETSU's "Need Help ?" site, including a comprehensive listing of other resources by topic area.

Learn more about the BucsCARE services at: <https://www.etsu.edu/bucscare/default.php>

Library Resources

The Sherrod Library extends access and services to all currently enrolled ETSU students. These services include traditional library patronage via Research and Instructional Services, Technology, and Content Services. Learn more about the Sherrod Library by visiting <https://libraries.etsu.edu>

Technical Resources

Help Desk

The Information Technology Services (ITS) Help Desk is the best resource for most technical problems. Find answers to common questions on the [Help Desk website](#), call, email, or stop in to see them on the first floor of the Sherrod Library. Phone: 423-439-4648 Email: itshelp@etsu.edu

Desire2Learn (D2L) Online Help

Faculty, Staff, and Students can find answers to D2L-related questions on the [D2L Help Student Home](#). If you still have trouble finding what you need, contact the Help Desk.

Microsoft Office Software

Microsoft Office productivity applications, including Word, PowerPoint, Excel, OneNote, and more, are free for students through the University's Office 365 campus agreement. For instructions on obtaining the software, see the [Office 365 page of the ITS Help Desk website](#).

Turnitin Plagiarism Detection

Turnitin is a plagiarism detection service available to students and faculty at ETSU. This tool compares student-written work against a comprehensive database of other work and various internet sources. Faculty may employ this service for some or all written assignments to help students learn to cite sources accurately and ensure academic integrity. Learn more on the [Turnitin home page](#).

ETSU Technical Resources

Faculty, Staff, and Students can find many other technical resources on the [Online Help webpage](#).

Syllabus Attachment

Students can find information regarding other University policies, procedures, and resources here: <https://www.etsu.edu/curriculum-innovation/syllabusattachment.php>

Disclaimers

Syllabus Changes

The instructor reserves the right to change the syllabus. The instructor will immediately notify students of such changes by posting the notification and the nature of the change(s) on the course site.

Schedule Changes

The instructor reserves the right to change the course schedule. The instructor will immediately notify students of such changes by posting the notification and the nature of the change(s) on the course site.