

INLS 773

Databases for Data Science (1.5 credits)

Fall 2023

Class Format:	remote asynchronous
Class Sessions:	asynchronous
Prerequisite(s):	None
Instructor:	Kevin Beswick
Office Hours:	by appointment
Email:	kbeswick at unc dot edu

Texts/Resources:

The following book is the suggested textbook for the class. Many of the examples in the lectures are taken from that book:

Avi Silberschatz, Henry F. Korth, S. Sudarshan. Database System Concepts Seventh Edition, McGraw-Hill, ISBN 9780078022159.

A supplemental, open textbook for this course, which covers most of the core concepts within, is available here: <https://opentextbc.ca/dbdesign01/>

Grade Weighting:

Homework Assignments (4 deliverables)	4 x 10% = 40%
Term Project	30%
Final Exam	25%
Participation	5%

1. WELCOME

My goal for this semester is for us to have a rich, supportive, interactive learning community. I'm looking forward to this class with you all.

2. COURSE DESCRIPTION

This course will introduce the basic concepts and implementations of relational database management systems suited for data science applications. Topics include user requirements and specifications, ER models, database programming including SQL, data quality, and applications.

3. COURSE OBJECTIVES

This course focuses on aspects of database design, implementation, and use that are an integral part of data science and analytics. In this course, students will:

- Gain experience in transforming user requirements into a well-formed, functional database. (Database Design, ER Models)

- Be able to create, modify and manipulate relational databases and pose complex queries (SQL DDL and DML)
- Be able to support database access through other programming languages
- Understand issues of data quality and data cleansing.
- Have hands-on experience with Data Science projects.

4. COMPUTING REQUIREMENTS

Computer requirement: You are expected to have a laptop computer that meets CCI requirements. The course involves examples and exercises that will count as part of your course grade.

5. GRADED WORK

Your grade will be based on participation, quizzes, exercises, programming projects, and a final exam. These will be weighted as shown on the table on the first page.

- **Participation:** Students are expected to regularly participate in class exercises and forums. Part of being prepared for class is that you are expected to read and interact with the assigned readings for each class week.
- **Assignments:** Short exercises will be assigned for you to work on. Most of these assignments will require you to submit written answers via Sakai to get credit for the exercise.
- **Project:** There will be a term project, designed to give you in-depth, “hands-on” experience with the techniques around creating and querying databases that are covered in this course.
- **Exams:** There will be a comprehensive final exam.

6. GRADING POLICIES

The following scales will be used as a GUIDELINE ONLY. The final grade scales may differ.

The following grade scale will be used AS A GUIDELINE for **undergraduates**:

Grade Range	Definition*
<p>A</p> <p>90-100 %</p>	<p>Mastery of course content at the <u>highest level of attainment</u> that can reasonably be expected of students at a given stage of development. The A grade states clearly that the students have shown such <u>outstanding promise</u> in the aspect of the discipline under study that he/she may be strongly encouraged to continue.</p>
<p>B</p> <p>80-89.9%</p>	<p><u>Strong performance</u> demonstrating a high level of attainment for a student at a given stage of development. The B grade states that the student has shown solid promise in the aspect of the discipline under study.</p>
<p>C</p> <p>70-79.9%</p>	<p>A <u>totally acceptable performance</u> demonstrating an adequate level of attainment for a student at a given stage of development. The C grade states that, while not yet showing unusual promise, the student may continue to study in the discipline with reasonable hope of intellectual development.</p>
<p>D</p> <p>60-69.9%</p>	<p>A <u>marginal performance</u> in the required exercises demonstrating a minimal passing level of attainment. A student has given no evidence of prospective growth in the discipline; an accumulation of D grades should be taken to mean that the student</p>

	would be well advised not to continue in the academic field.
F 0-59.9 %	For whatever reason, an <u>unacceptable performance</u> . The F grade indicates that the student's performance in the required exercises has revealed almost no understanding of the course content. A grade of F should warrant an advisor's questioning whether the student may suitably register for further study in the discipline before remedial work is undertaken.

* Definitions are from:

<http://registrar.unc.edu/academic-services/grades/explanation-of-grading-system/>

(underlining is my emphasis)

The following grade scale will be used AS A GUIDELINE (subject to any curve) for **graduate** students:

Grade Range	Definition*
H	High Pass
P	Pass
L	Low Pass

F	Fail
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These scales will be used as a GUIDELINE ONLY. The final grade scale may differ.

* Definitions are from:

<http://registrar.unc.edu/academic-services/grades/explanation-of-grading-system/>

DUE DATES AND LATE WORK

Each assignment will have a due date and time and will include instructions for submission. A late penalty of 10% per day may be applied **unless prior arrangements have been made with the instructor**. Assignments submitted more than 5 days after the due date may not be graded unless prior arrangements have been made with the instructor.

REQUESTS FOR EXTENSIONS AND ABSENCES

Any request for an extension must be made, preferably by email, at least 24 hours prior to the due date. Written documentation is required for illness. If a serious illness prevents you from taking any of the tests, send your instructor an e-mail message, or a friend with a note, describing your condition before the scheduled test.

STATUTE OF LIMITATIONS

Any questions or complaints regarding the grading of an assignment or test must be raised within one week after the score or graded assignment is made available.

7. COURSE COMMUNICATION

SAKAI

All enrolled students should have access to the UNC Sakai site for this course:

<https://sakai.unc.edu/>

We will use Sakai for many of the administrative aspects of the course.

- **Course Announcements:** I will often use the Sakai messaging feature to post announcements to the class. Usually these posts will also be sent via email to each student's email address of record. However, it is the responsibility of every student to check the Sakai site regularly for announcements and messages. The Sakai site is a reliable source for announcements and messages from the instructor.
- **Assignments:** In order for you to receive credit for an assignment, it must be submitted using the Sakai "Assignments" section. In my experience, Sakai is a reliable method to submit assignments. It is the responsibility of each student to make sure they have access to Sakai and can submit assignments when they are due.

If for some reason you are unable to submit an assignment to Sakai, as a last resort you may email it to the instructor along with a note about the problem you encountered. Then, **as soon as you are able to, it is your responsibility to submit the exact same assignment to Sakai.** The email serves as a record that you tried to submit the assignment on time, but to receive credit, your assignment must be uploaded to Sakai.

- **Grades:** I will use the Sakai "Gradebook" to record your course grades.

8. HONOR CODE

The UNC Honor Code is in effect for all work in this course. The "Instrument of Student Judicial Governance" gives examples of actions that constitute academic dishonesty:

<http://instrument.unc.edu/instrument.text.html#academicdishonesty>

Students often ask what is okay to talk about with other students and what is not. I do encourage you to help each other learn the course material – your fellow students can often be a great resource. However, you should NOT discuss the details of a solution to a particular assignment with other students, and should never copy or share answers for an assignment with other students. It is okay to talk about course material with other students, but you should not discuss detailed solutions to pending assignments. **All work you submit should be your own.** One way to help ensure this is that if you do discuss course material with other students, do not take any written notes.

9. ACCESSIBILITY RESOURCES AND SERVICES (ARS)

The University of North Carolina at Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities.

Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. See the ARS Website for contact information: <https://ars.unc.edu> or email ars@unc.edu.

(source: <https://ars.unc.edu/faculty-staff/syllabus-statement>)

10. COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS)

CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

(source: Student Safety and Wellness Proposal for EPC, Sep 2018)

11. TITLE IX RESOURCES

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne Allison – Adrienne.allison@unc.edu), Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators (gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at safe.unc.edu.