CSC 355 Database Systems

DePaul University – Jarvis College of Computing and Digital Media
School of Computing
Spring 2024wni

Instructor information

Instructor	**Email**	**Website**
Eliecer Peraza-Ayala	eperazaa@depaul.edu	http://d2l.depaul.edu/

Class Meetings
- Section 601 (Loop Campus, Tuesdays/Thursdays 11:50 am - 1:20 pm) – CDM 228
- Section 630 (Online Synchronous, Tuesdays/Thursdays 11:50 am- 1:20 pm) - Zoom

Office location & hours   *(by appointment – hit me an email)*
- **Tuesdays:** 1:30 pm - 2:15 pm at the classroom or CDM 941 (if the classroom is not available)
      Note: Please knock on the door or call (312) 362-8207.
- **Thursdays:** 1:30 pm - 2:15 pm via Zoom at https://depaul.zoom.us/my/eperazaa

General information

Description

An introduction to modern database systems; The course covers the traditional concepts and techniques of database systems including the relational model, SQL, indexes, and normalization as well as a selection of advanced topics such as constraints and triggers, transactions, database programming, semi-structured data, and recursive SQL.

Learning outcomes

Learn the principles of data management in the context of a relational database management system by:

- Getting familiar with database models, particularly the relational model. Sketch conceptual data models (including ER) to describe a database structure.
- Using Structured Query Language (SQL) to create a relational database schema based on conceptual and relational models.
- Building queries in relational algebra to retrieve data as well as queries in SQL to populate, retrieve, modify, and delete data in a relational database.
- Applying the concepts of entity integrity constraint and referential integrity constraint (including the definition of the concept of a foreign key).
- Learning functional dependencies, and normal forms and applying normalization to a relation to create a well-designed relational schema.
- Understanding and applying PL/SQL to generate triggers using a relational DBMS.
- Learning how transactions work when manipulating databases.
- Generating views and Materialized views over a database schema.

Course Delivery

The course material for CSC 355 will be delivered simultaneously on campus and via Zoom. Both sections will use the course website at http://d2l.depaul.edu/.

Prerequisites: CSC 301 - Data Structures II (or CSC 393 - Data Structures in C++)

Drop dates: Please refer to the DePaul Academic Calendar

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L, and sent via email.

Course materials

Textbooks (For reference only – not required)

- **A First Course in Database Systems (Third Edition)**, by Jeffrey D. Ullman and Jennifer Widom, ISBN 9780136006374
- **Optional Additional Reference:** Murach's Oracle SQL and PL/SQL for Developers (Second Edition), by Joel Murach, ISBN 9781890774806

Software

Oracle SQL Developer https://www.oracle.com/tools/downloads/sqldev-downloads.html.

Please download it and install it at your earliest convenience.

Note: Most CDM machines have SQL Developer installed.

Assessment/Grading

Homework assignments **25% -** Homework will be given most weeks and will be worth a total of 25% of the course grade (the lowest homework score will be dropped).

Quizzes **15% -** Short weekly quizzes given via d2l will be worth a total of 15% of the course grade.

Midterm exam **30% -** The midterm exam will be given during <u>class time on Week 6</u> and will be worth 30% of the course grade.

Final Exam **30% -** A <u>comprehensive final exam</u> given during <u>class time on Week 11</u> will be worth 30% of the course grade.

Exam schedule

Date	Exam
02/07/2024	Midterm: comprehends all the material before the exam
06/11/2024	Final: comprehends all the material of the course

Student Expectations

Course-related

- Students are expected to attend class, read posts on D2L in a timely fashion, and read about the topics and reflect upon them.
- Lecture slides are a supplement to lectures only. The slides are not intended to be read in place of listening to the lecture.
- The course requires that students actively engage in the material on their own. Students should not only read the notes and example coding in class, but also do self-tests, modify code and queries, and run it.
- Students are strongly encouraged to ask questions in the Discussion forum and offer comments relevant to the day's topic.

Email Communication

Please begin the subject line of any email to me with "CSC 355", so that course-related messages can be easily identified. If not, there is no guarantee of a response. I will generally reply to email messages within one to three business days after receiving them; therefore, questions that are only received by me on an assignment's due date are not guaranteed replies before the assignment is due. Please plan accordingly and begin the assignments early enough to ask questions and receive answers. If you are having problems, send me a detailed description of the problems you are having; I will guide you in locating and solving your problems yourself, rather than simply solving the problems for you. For general questions, please consult the course syllabus and course announcements for answers before emailing me. Please **do not use** the comment field of the assignment submission system to send me questions.

Homework

- Homework assignments will be distributed and submitted via D2L. Emailed submissions **will not** be accepted.
- Grades and comments will be returned through D2L.
- Late Submission policy is set to deduct 15% per day for late submissions, up to 2 days.
- Submitted work must be worked on individually. You must not use or look at anyone else's solution, and you must acknowledge any code that you obtain from other sources (such as books, magazines, or the Internet). If you are in any doubt, contact the instructor well before the submission date for advice. You may use as much code as you like (without acknowledgment) from the examples discussed in class. Plagiarism will result in penalties up to and including failing the course.

Exams

Students are going to take an online midterm and final exam. Midterm and Final Exams will be proctored in person. Online students should register to take the exams. You must take note of the midterm exam and final exam dates as they are posted on the schedule on the course homepage.

Everyone must take the midterm and final exams on the scheduled days and times – as a rule, no make-up exams will be given. **If you wish to petition for a make-up exam in an emergency, you must contact me in advance and provide written documentation of the emergency. In case of a medical emergency, a medical note, cc'ed to the Dean of Students and your Academic Advisor, will be required for an absence**. Business trips or vacations **are not valid reasons** for missing exams.

Location: A CDM lab would be reserved for the in-person students to take the exam. Lab information will be posted promptly before the exam. Online students must register **for in-person exam proctoring**.

Students will need a computer to take the exam.

"A system for scheduling exams is available on D2L or MyCDM. When your instructor enters the exam name and dates into the system, you will receive an e-mail notification that you should sign up for the exam. First, contact your proctor to confirm that they can administer the exam on the day you need to take it. Then, register for your exam in D2L or MyCDM. When you register, you will be prompted to enter all of the contact information for your proctor."

Remarks

- Indications about the exam will be given promptly along with a code to access the exam (as in the mockup quiz – to be posted on D2L).
- You SHOULD have taken the mockup quiz BEFORE the midterm/final exam day.
- Closed book, closed notes, no electronic devices (only the computer used to take the exam)
- You may use one 8.5"x11" sheet of original, handwritten notes for the exam (both sides)
- No typed, printed, or photocopied notes are permitted.

- You must hand in your written notes at the end of your exam.

Important reading

- DePaul's Academic Integrity Policy.
- https://web.respondus.com/privacy-policy/

School Policies

COVID-19 Health and Safety Precautions

The health and safety of everyone at DePaul depend on the cooperation of all who come to campus. By taking care of yourself, you protect the entire community. DePaul's COVID-19 response plans are based on the latest guidance from the Centers for Disease Control and Prevention, the Chicago Department of Public Health, and the university's medical advisor from AMITA Health.

Mandatory protocols must be followed by DePaul students, faculty, and staff at all times on both campuses
https://resources.depaul.edu/coronavirus/guidance/health-safety-practices/Pages/default.aspx

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Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect. Please see https://resources.depaul.edu/teaching-commons/teaching/Pages/online teaching-evaluations.aspx for additional information.

Respect for Diversity and Inclusion at DePaul University as aligned with our Vincentian Values

At DePaul, our mission calls us to explore "what must be done" in order to respect the inherent dignity and identity of each human person. We value diversity because it is part of our history, our traditions, and our future. We see diversity as an asset and a strength that adds to the richness of classroom learning. In my course, I strive to include diverse authors, perspectives, and teaching pedagogies. I also encourage open dialogue and spaces for students to express their unique identities and perspectives. I am open to having difficult conversations and I will strive to create an inclusive classroom that values all perspectives. If at any time, the classroom experience does not live up to this expectation, please feel free to contact me via email or during office hours.

Academic Integrity and Plagiarism

This course is subject to the university's academic integrity policy. More information can be found at http://academicintegrity.depaul.edu/. Violations of the Academic Integrity Policy will be dealt with decisively; in particular, penalties for cheating, plagiarism, and/or complicity as defined in the policy may range up to an automatic F in the course and possible expulsion for repeated offenses.

Posting work on online sites, such as CourseHero is strictly prohibited. All students are expected to abide by the University's Academic Integrity Policy which prohibits cheating and other misconduct in student coursework. Publicly sharing or posting online any prior or current materials from this course (including exam questions or answers), is providing unauthorized assistance prohibited by the policy. Both students who share/post and students who access or use such materials are considered to be cheating under the Policy and will be subject to sanctions for violations of Academic Integrity. These terms are further described below.

Cheating: Cheating is any action that violates university norms or instructor's guidelines for the preparation and submission of assignments. This includes but is not limited to unauthorized access to examination materials before the examination itself, use or possession of unauthorized materials during the examination or quiz; having someone take an examination in one's place-copying from another student; unauthorized assistance to another student; or acceptance of such assistance.

Plagiarism: Plagiarism is a major form of academic dishonesty involving the presentation of the work of another as one's own. Plagiarism includes, but is not limited to: Turning in another person's work as your own (including hiring someone else to complete an assignment for you); Starting with another person's work

and modifying it to turn in as your own; Cutting and pasting, or otherwise copying, sections of another person's work into your assignment; Allowing another person (such as a tutor) to write any part of your assignment; and so on. (Obviously, any examples that I post qualify as "another person's work".) Supplying such assistance to another student is also considered a violation of the policy.

Complicity: Complicity is any intentional attempt to facilitate any of the violations described above. This includes but is not limited to allowing another student to copy from a paper or test document; providing any kind of material—including one's research, data, or writing—to another student if one believes it might be misrepresented to a teacher or university official; providing information about or answers to test questions. More information can be found at http://academicintegrity.depaul.edu/. If you have any questions, be sure to consult with your professor.

You may always discuss the course material with other students, and you may also discuss assignments at a general level. However, when completing your assignments, you must work individually and neither share your solutions with other students nor consult other students' solutions. Any assignment you submit must be entirely your work.

Students with Disabilities

Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success. There are two office locations:

- Loop Campus (312) 362-8002
- Lincoln Park Campus (773) 325-1677
- Email: csd@depaul.edu

Students who register with the Center for Students with Disabilities are also invited to contact Dr. Gregory Moorhead, Director of the Center, privately to discuss how he may assist in facilitating the accommodations to be used in a course. This is best done early in the term. The conversation will remain confidential to the extent possible.

Please see https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx for Services and Contact Information

Dean of Students Office
The Dean of Students Office (DOS) helps students navigate the college experience, particularly during difficult situations such as personal, financial, medical, and/or family crises. For a list of support services and advocacy information, please visit http://studentaffairs.depaul.edu/dos/

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading, and incompletes can be found at: https://www.cdm.depaul.edu/Student-Resources/Pages/PoliciesandProcedures.aspx

Incomplete Grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exception cases will receive such approval. Information about the Incomplete Grades policy can be found at https://www.cdm.depaul.edu/Student-Resources/Pages/Grading-Policies.aspx

Preferred Name & Gender Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter so that I may make appropriate changes to my records. Please also note that

students may choose to identify within the University community with a preferred first name that differs from their legal name and may also update their gender. The preferred first name will appear in university-related systems and documents except where the use of the legal name is necessitated or required by university business or legal need. For more information and instructions on how to do so, please see the Student Preferred Name and Gender Policy at http://policies.depaul.edu/policy/policy.aspx?pid=332