Overview

CS 411: Database Systems

Tuesday, Thursday 14:00-15:15 pm in 2079 Natural History Building

Instructor:

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About the Course

Structured information is the lifeblood of commerce, government, and science today. This course provides an introduction to the broad field, covering a range of topics relating to structured data, ranging from data modeling to logical foundations and popular languages, to system implementations. We will study the theory of relational data design; the basics of query languages; efficient storage of data, execution of queries and query optimization; transactions and updates; and "big data" and NoSQL systems.

Registration and other generic inquiries

We will not be managing a waitlist for the course. Registration will be on the first-come-first-serve basis. Unfortunately, we will not be able to answer questions about where your name is on the waitlist because we don’t manage the waitlist. Usually, the CS Department staff will release more spots in-bulk every so often.

Piazza signup link

Here’s the link to sign up on Piazza: piazza.com/illinois/spring2019/cs411

Prerequisites

- Background: CS 225.
- Programming: For projects, you will do some significant application programming, with both SQL (and No-SQL) and some host languages of your choice (e.g., C, C++, Java, PHP). We will not cover programming-specific issues in this course.

Textbook


Course Format and Activities

This course will draw materials from the textbook as well as recent database literature. Students will study the materials and complete a project.

Lectures, Class Participation and iClickers!

This semester, we will be utilizing iClickers for In-class participation.

- For on-campus students, participation is worth 5% of the class grade: 2% for Piazza participation and 3% for iClicker participation.
- For online students, the 5% class participation will be graded based on Piazza participation.

Each lecture, we will have 1-4 iClicker activities to encourage collaboration and engagement with the class material. Lecture slides will be posted on the Schedule page, either before or just after class.

iClicker is required for on-campus students:

- You can use Clicker 2 (“iClicker”) – available at the Illini Union Bookstore
  - The iClicker must be registered on the Compass2g site for the course for you to get participation credit.
- Or you can download iClicker Reef Student App at https://www.iclicker.com/students/apps-and-remotes/apps
- You must answer questions throughout the class to get participation credit.
- You are responsible for ensuring your iClicker is with you, has batteries, and is working.

Questions, Discussions, and Help

- If you have any questions or need clarification of class material, what should you do? First, try to discuss with your project group-peers. This way, you can get immediate help, and also learn to communicate “professionally” with your peers. You will know the material better by discussing with and explaining to your peers.
- Next, if you do not get satisfactory answers, try to post your question to Piazza. Note that Piazza is for you and your peers to discuss class-related materials and to help one another. The TAs will monitor the forum and try their best to help. But please be aware that the TAs may not be able to answer all questions on the forum promptly, due to the overwhelming number of questions that such for a sometimes generate. Also, there are obviously things that are not appropriate for the forum, such as solutions for assignments as well as comments or requests to the staff.
- In any case, for a more thorough discussion, come to our office hours if you can! The TAs and the instructor will have office hours for all weekdays. Don’t be shy. Use our office hours to their fullest extent to help your study.
• Any announcements will be posted on Piazza. Make sure to check either place frequently enough to stay informed.

Reading

Read the textbook for the required reading before lectures, and study them more carefully after class. Please note that all the required readings are fair materials for exams. These materials may not be fully covered in lectures; that does not make them 'outside the syllabus'. Our lectures are intended to motivate as well as provide a roadmap for your reading-- with the limited lecture time, we may not be able to cover everything in the readings.

Assignments

There are expected to be 10 written/MP assignments, spaced out over the course of the semester. We will drop one assignment with the lowest grade.

You are allowed to submit regrade requests up to one week after the HW grades are released. For regrade request guidelines, please check Piazza.

Project

There will be a semester-long project, which involves significant database application programming. The project will be structured with several milestones due in the course of the semester, leading to a demo and write-up near the end of the semester.

Examinations

There will be two midterm exams. We will not normally give make-ups for missed exams; please see the policies.

Sample exams: will be posted here before exams.

Extra 4-Credit Work (Optional for Graduate Students)

Graduate students MAY take this course for 4 credit units. (Undergraduates take this course for three hours credit.) For the extra unit, you will complete an additional project (a literature survey) -- i.e., you will work on both tracks of the projects.

Evaluation

We plan to determine final grades of the course in the following way (for graduate students who work for 4 credits it will be reweighed accordingly, with weights 0.90 for the items below and 0.10 for the literature survey):

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework Assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Project</td>
<td>30%</td>
</tr>
<tr>
<td>Participation</td>
<td>5%</td>
</tr>
<tr>
<td>First Midterm Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Second Midterm Exam</td>
<td>20%</td>
</tr>
</tbody>
</table>

Final grading (tentative):  

In this course, we will be assigning +/- letter grades.

<table>
<thead>
<tr>
<th>Total</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A (A-, A, A+)</td>
</tr>
<tr>
<td>80-89</td>
<td>B (B-, B, B+)</td>
</tr>
<tr>
<td>70-79</td>
<td>C (C-, C, C+)</td>
</tr>
<tr>
<td>60-69</td>
<td>D (D-, D, D+)</td>
</tr>
</tbody>
</table>

We will give you the best grade of the scale above and a regular Gaussian curve using this rule, with a mean around B+.
This course may contain both graduate and advanced undergraduate students. We will grade all groups of students on different curves.

**Academic Integrity and Plagiarism**

Please remember that the University honor code binds students to academic integrity regarding all work related to this course. Any student found to be violating this code will be subject to disciplinary action. We have seen instances of this in the past via automated detection software so don't think we won't be able to catch you.

We will follow Articles 1-401 through 1-406 of the studentconduct (beginning at [http://studentcode.illinois.edu/article1_part4_1-401.html](http://studentcode.illinois.edu/article1_part4_1-401.html)). This rule defines infractions of academic integrity, which include but are not limited to cheating, fabrication, and plagiarism. You are responsible for following these guidelines. If you have any questions about whether something would be an infraction, consult with the instructor before proceeding.

**Request for Special Accommodations**

To obtain disability-related adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) office as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 217.333.4603, email [disability@illinois.edu](mailto:disability@illinois.edu) or go to the DRES website.

Please also schedule a private meeting with the course professor to discuss your needs and requirements. We will try to accommodate all requirements once you self-identify. **Please note accommodations are not retroactive to the beginning of the semester** but begin the day you contact your professor with a current letter of accommodation from DRES.

**Run>Hide>Fight** (see the link below for instructions and resources)

[http://police.illinois.edu/emergency-preparedness/run-hide-fight/](http://police.illinois.edu/emergency-preparedness/run-hide-fight/)