Carnegie Mellon
HeinzCollege

95-813: Intermediate Database Management

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<td>Course Information</td>
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6-Unit Course
Fall, 2021

Instructor: Jeremy Smith
Phone: 268 – 8664
Email: smithj@andrew.cmu.edu / jcsmith@cmu.edu
Office hours: Will be posted on Canvas Website

Teaching Assistants:
<table>
<tr><td>Name:</td><td>Pranav Katariya</td><td>Haoyang Wu</td></tr>
<tr><td>Email:</td><td>pkatariy@andrew.cmu.edu</td><td>haoyang2@andrew.cmu.edu</td></tr>
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Teaching assistant office hours schedule and zoom links will be posted to Canvas Contacts page

Lecture Times: Tuesdays and Thursdays, 8:35 am – 9:55 am
Lecture Location: Hamburg Hall, Room 2008

Class Website: www.cmu.edu/canvas
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<td>This course is offered for MISM students who partially exempted the Database Management class during the fall orientation time. It is expected that students enrolled in this class already have some basic knowledge of the SQL language and database design fundamentals.</td>
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<td>Description</td>
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The ability to structure, manage, and analyze data is critical to any organization. Databases, being the core of every information system, are essential in supporting this ability. Therefore, knowing how to effectively use the information and learning new skills in designing database systems is an advantage and necessity today. In addition, with the accessibility and availability of data from multiple sources and in disparate formats, it is also important to become familiar with methods for integrating those external data sources with internal enterprise data.

This accelerated 6-unit course will address the theory and application of relational database technology. The course covers advanced data modeling (including entity relationships modeling and database normalization) as well as the structured query language (selected topics). Data integrity as well as utilizing metadata will also be addressed. In addition, the course will cover tools, technologies and methods to aid in working with heterogeneous and external data sets.

To provide students with an opportunity to apply the knowledge they learn from the lectures, readings and various assignments.
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<tr><td>Course Materials</td><td>For each lecture, the instructor will provide notes and any class material relevant for the lecture.

Suggested Books:
◈ Casteel, J., “Oracle 12c: SQL,” Cengage Learning
◈ Connolly, T. and C. Begg, “Database Systems: A Practical Approach to Design, Implementation, and Management,” 6th edition, Addison-Wesley, 2015
◈ Coronel, C. and S. Morris, “Database Systems: Design, Implementation, & Management,” 12th edition, Cengage Learning, 2017
◈ Price, J., “Oracle Database 12c: SQL,” Mc Graw Hill, 2014

Software:
Instructions will be provided to configure an Oracle Instant Client that will be required during the semester.

No other components of Oracle Software will be required for this class.</td></tr>
<tr><td>Course Objectives</td><td><table><tr><th>Objective</th></tr><tr><td>Understand and implement advanced data modeling techniques to enforce data integrity within the model while designing the model around specific business processes and constraints.</td></tr><tr><td>Learn advanced query methods and tools to allow for complex query results that are required for analyzing enterprise data sets.</td></tr><tr><td>Understand methods and tools available for working with datasets from diverse sources and formats both internal and external to the organization’s data.</td></tr><tr><td>Use current Oracle Database System to implement all of the above concepts including data structures, extending the model with additional available related data, querying, and analyzing the data within those sources.</td></tr></table></td></tr>
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<tr><td>Evaluation Method</td><td>Students' performance in the class will be evaluated based on the following components:

<table><tr><td>DB Design Assignments</td><td>35%</td></tr><tr><td>DB Design Exam</td><td>25%</td></tr><tr><td>SQL Assignments</td><td>40%</td></tr><tr><td></td><td>100%</td></tr></table></td></tr>
<tr><td>Grading Scale</td><td>A+ 96.67% – 100 % B+ 86.67% – 89.99 % C+ 76.67% – 79.99 %
A 93.34% – 96.66 % B 83.34% – 86.66 % C 73.34% – 76.66 %
A– 90% – 93.33 % B– 80% – 83.33 % C– 70% – 73.33 %

No curve is applied to grades.
Scores below 70% equate to a failing grade (R).</td></tr>
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Course Policies & Expectations	*Lectures/Absences*: Attending lectures is mandatory. If you are unable to attend class due to an illness, a positive COVID19 test or quarantining due contact tracing you must notify me via email prior to class time. In these cases, I will allow you to join the lecture zoom meeting so you do not miss the lecture material. Please arrive for each class a few minutes early and refrain from using your laptops and mobile devices during class. *Cell Phones during class:* Cell phones are ***not to be used*** during lecture. Please turn off your phone or place it in "airplane mode" and leave it in your bag. Do not leave the cell phone on the table/desk as it becomes a distraction. *Masks in lecture:* Masks are required at all times during lecture. *Laptops/Tablets During Class:* Laptops/tablets may be used during lectures only to **view** lecture notes to follow along with the lecture. Please plan to take notes on paper. No active use or typing on the keyboard is allowed during lecture. *Assignments*: All assignments are due BEFORE the lecture begins on the day specified. Submissions will be uploaded to the Canvas website. Assignments submitted after that deadline, if accepted, may be penalized, unless permission is granted by the instructor prior to the due date. Each assignment must be typed (not handwritten) and diagrams created using PowerPoint or an equivalent tool. No collaboration in any form on assignments is allowed. All assignments are graded by class TAs and reviewed by the instructor before they are returned to students within a week of submission. Suggested solutions to each assignment will be provided on Canvas when the graded assignments are returned.
A Note from the Heinz College:	Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call 412-268-2922 and visit their website at http://www.cmu.edu/counseling/. Consider reaching out to a friend, faculty or family member you trust for help getting connected to the support that can help.

Academic Honesty and Integrity	All CMU students are expected to follow the ethical guidelines and adhere to the policies as defined in your Program's Student Handbook or in any other source describing such policies as they apply to students at Carnegie Mellon University. These policies and guidelines are available on the CMU web site. Please read them carefully! You will be held accountable for any violations of these guidelines and policies. Individual assignments must reflect individual effort. Although I expect you to attempt solving each problem on your own, I encourage you to seek help from the class TAs if you struggle with any assignment. Sharing your assignments with any other student in any form (whether it is a paper document, an electronic document such like a MS Word document, or a document in any other format) is not permitted and will be considered cheating. Any "discussion" between students that results in a similar HW submission is also not allowed. If you are in possession of any other person's document or file from this or any other semester, you are in jeopardy. Any violations of academic integrity in this class will have the following consequences: (a) at the minimum, no credit for assignment in question and lowering final grade by one letter (e.g., from B to C); (b) in more serious offenses, failing the class; **All violations of academic integrity are reported to the Associate Dean's Office. Additional penalties may be imposed.**