Instructor
Jeremy Smith
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(*You may also see smithj@andrew.cmu.edu, these are aliases to the same email account, you can use either one)

Teaching Assistants
*Office hour and contact information will be posted in the STAFF INFORMATION section of the course blackboard website during the first week of class.

Additionally, instant Messaging availability is noted on blackboard under the STAFF INFORMATION section of the website.

Audience
This course is appropriate for masters students who wish to acquire a technical understanding of relational database systems; their design, development, management and application, while developing knowledge of and skill in using the Oracle Database Management System, a popular database platform currently utilized by many organizations.

Course Overview
Data are now recognized as a major organizational resource to be managed like other assets such as land, labor and capital. The ability to structure, access, manage and leverage this important resource is becoming more and more critical to all organizations, large or small, public or private. Central to supporting this ability, and at the core of every information system, is the database. Developments in database technology have produced systems that are more powerful and easier to use, develop, and maintain. This is especially true for relational databases - the predominant database structure used for business applications - and the primary focus of this course.

This one semester course will address the theory, application and management of relational database technology. The course will cover topics on the relational data model, understanding entities and relationships, designing logical data models and database design using normalization theory. We will also learn relational algebra as the theory behind data queries and implement actual data queries using SQL to manage and retrieve data within an Oracle database.
Required Textbook
• Joan Casteel, Oracle 11g:SQL, Course Technology

Recommended Textbook
  *Other editions are also acceptable, but the noted chapter and page numbers may not match the ones noted on the schedule

Course Objectives

• Gain a good understanding of relational data models in terms of data structure, data integrity, and data manipulation.

• Understand and create conceptual database models utilizing entity-relationship modeling.

• Design data structures that will limit redundancy and enforce data integrity while conforming to organizational requirements utilizing normalization methodology.

• Understand the theory behind the relational data model as it applies to interactions with current database management systems.

• Read and interpret a given data model to query the database and transform the data into information using Structured Query Language (SQL).

• Implement a data model in a current relational database management system.

• Create SQL queries, based on transactional data, including elements such as data groupings and summary values.

For specific topics covered in this course, please see the Course Schedule
Class Meetings

This is a distance course as opposed to a self-paced learning course. This means that we have scheduled lecture topics for each week of the semester. We do this to ensure that everyone is learning the same material at the same time. Some of you may be inclined to read ahead and view lectures ahead of time based on your schedules and time availability. If you choose to do that, please keep in mind that class discussions will be focused on the material that is scheduled for the week and assignments will be made available and due at pre-determined times based on the schedule.

Software Requirements

Students MUST have a computer with the Oracle 11g Express edition provided by the Heinz College installed per the instructions provided by The Heinz College. If you have trouble with your installation, please contact Heinz Computing as soon as possible to ensure that your installation is functional before we begin the SQL topics in the course.

A few items about the roles in this course:

- Keep in mind throughout the semester that while we are working from Professor Szczypula’s lecture material, the course schedule, assignments, grading and general course policies are specific to this distance course and may be different than what you hear Professor Szczypula discuss in the lectures.
- Please focus only on the material in the lectures and refer to the syllabus and schedule found on the Blackboard website for this distance course to determine which lecture is the week’s focus and what assignments are coming due.
- The Instructor and TAs in this course are here for a few purposes:
  - To guide you through the course and answer questions that you may have from the lecture material.
  - To assist with and answer questions about the homework assignments.
  - To answer general questions about the material, even if it is outside of the bounds of the lecture material.

Please be sure to make use of all of our availability.
Assignments and Grading

Each student’s knowledge of the course material will be evaluated by a combination of individual homework assignments and a final exam. All homework assignments and the exam are to be individual efforts completed by the submitting student alone. For these assignments, please direct any questions you have to the instructor or the TAs.

Homework assignments will be made available based on the schedule provided. Each assignment will be due the week after it is assigned. Due dates are noted in the course schedule.

While there is no formal assessment of participation in class, regular participation is encouraged and expected. In this distance-format class, most participation is done through discussion groups on blackboard. I will occasionally post questions or comments to try to start a conversation, but please feel free to do so yourself as well. These discussions allow students an opportunity to learn from each other and share their own thoughts and experiences. They also provide a central location for general questions that many students may have.

I will create a discussion group topic for each week’s lecture and each homework assignment as well as a few that will remain throughout the semester for general course questions, and Oracle technical questions.

Please post any questions, thoughts, insights, experiences, etc. that you have related to the material to share with the class. The TAs and I will monitor the discussion groups regularly to respond to any posting. Since we do not have the in-class interaction of a local course, the discussion groups are the best method we have to learn from one another.

Final grades in the course are based on the following weights:

Assignments  75%
Final Exam     25%

Final letter grades are assigned to a student’s body of work in this course according to the following scale (there is no curve applied to grades in this course):

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
</tr>
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<tbody>
<tr>
<td>A+</td>
<td>96.67% to 100%</td>
</tr>
<tr>
<td>A</td>
<td>93.34% to 96.66%</td>
</tr>
<tr>
<td>A-</td>
<td>90% to 93.33%</td>
</tr>
<tr>
<td>B+</td>
<td>86.67% to 89.9%</td>
</tr>
<tr>
<td>B</td>
<td>83.34% to 86.66%</td>
</tr>
<tr>
<td>B-</td>
<td>80% to 83.33%</td>
</tr>
<tr>
<td>C+</td>
<td>76.67% to 79.9%</td>
</tr>
<tr>
<td>C</td>
<td>73.34% to 76.66%</td>
</tr>
<tr>
<td>C-</td>
<td>70% to 73.33%</td>
</tr>
<tr>
<td>R</td>
<td>less than 70%</td>
</tr>
</tbody>
</table>

The average grade in a core course is expected to be 3.33-3.4 (out of 4), equivalent to a B+. This expected average reflects the degree of difficulty and/or breadth of coverage for a core course.
Assignment Due Dates

Due dates for assignments are posted on the course schedule. All assignments must be submitted by the due date/time noted on the assignment posting. Assignments submitted after the deadline without prior approval will be penalized up to and including receiving 0 points for the assignment.

Assignment Extension Requests

Assignment Extension Requests *MAY* be accepted ONLY for extenuating circumstances such as illness or family emergencies.

Do not request an extension due to work or travel schedules.

Prior approval for extensions MUST be requested by the student contacting the instructor as early as possible. Do not request approval from teaching assistants.

Policy on Cheating and Plagiarism

Excluding assignments that are assigned as group work, the work students submit should reflect an individual effort. Students are encouraged to discuss course topics with each other, but the final work product must reflect each individual student’s knowledge and effort, not his/her classmate’s.

Cheating includes but is not necessarily limited to:

1. Submission of work that is not the student's own for papers, assignments, lab exercises, or exams.
2. Submission or use of falsified data.
3. Theft of or unauthorized access to an exam, current or previous.
4. Use of an alternate, stand-in or proxy during an examination.
5. Use of unauthorized material including textbooks, notes or computer programs in the preparation of an assignment or during an examination, unless otherwise indicated.
6. Supplying or communicating in any way unauthorized information to another student for the preparation of an assignment or during an examination.
7. Collaboration in the preparation of an assignment, unless expressly allowed by the instructor.
8. Plagiarism which includes, but is not limited to, failure to indicate the source with quotation marks or footnotes where appropriate if any of the following are reproduced in the work submitted by a student:

   a. A graphic element.
   b. A proof.
   c. A phrase, written or musical
   d. Specific language.
   e. An idea derived from the work, published or unpublished, of another person.
   f. Program code or algorithms.

Penalties for Cheating

The penalty for cheating on a homework assignment or on an exam is 0 points for the homework assignment / exam.

All incidents of cheating are reported to the Dean. Additional penalties may be imposed.