

**MSIS 5643 – Advanced Database Management**  
**Spring 2015**  
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D2L Course Site: <http://oc.okstate.edu>

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**Syllabus Attachment:** [Syllabus Attachment](#)

**Overview of the Course**

The effective use of database technology in business and industry has become critical in today's global, competitive environment. Students completing this class should gain a solid understanding of database concepts, theoretical and applied, and should be prepared to work effectively in the database environments that are so prevalent in today's global business enterprises. They should also have a substantive introduction to concepts data warehousing.

**Course Prerequisites**

You should be a graduate student at OSU. **Additionally the ability to use Access, the Microsoft Office database management system, is something that you should have prior to taking this class. It will not be taught in this class.** You should have Internet access so that you can login to D2L and the virtual lab at OSU (<http://virtuallabs.okstate.edu>). If possible, the student should own a computer (PC or laptop) that allows them to install database software (see below).

**Course Goals**

This course will introduce concepts and develop skills related to the design, implementation and management of databases. In addition students will be exposed to advanced topics such as procedural SQL and data warehousing.

**Course Objectives**

The objectives of this course are to:

1. *educate the student on relational database design and management;*
2. *teach the student tools, methodologies, and skills for working successfully with databases in today's global, data-driven business models;*
3. *give the student practice in applying some of these tools and skills through problems and exercises;*
4. *develop student expertise in popular database programming languages;*
5. *provide the students hands-on experience with widely used database software.*

**Textbook**

Database Systems: A Practical Approach to Design, Implementation, and Management, 6/E, by **Thomas Connolly and Carolyn Begg**, Sixth Edition; published by Addison Wesley 2015, ISBN-10: 0132943263 • ISBN-13: 9780132943260.

**Companion Web site:** [http://wps.aw.com/aw\\_connollyb\\_database\\_5/110/28382/7265991.cw/index.html](http://wps.aw.com/aw_connollyb_database_5/110/28382/7265991.cw/index.html)

**Grading Policy (tentative):**

|                                    |            |
|------------------------------------|------------|
| <b>Tests: (3 * 30 points each)</b> | <b>90</b>  |
| <b>Assignments:</b>                | <b>10</b>  |
| <b>TOTAL POINTS</b>                | <b>100</b> |

Final letter grades will be assigned according to the following percentages:

**A:** 90 – 100; **B:** 80 – 90; **C:** 70 – 80 **D:** 60-70 **F:** < 60

I (very rarely) may have some scaling at the end of the semester.

**Tests:** The tests will have problems/questions. There may be matching, multiple choice, fill-in-the-blank and/or short answer sections, and problems to work. I will give you some additional guidance as to exam content ahead of time. *All tests will be proctored and some or all may be computer-based.*

**Individual Assignments:** Several homework assignments will be given over the course of the semester. You have to turn in your typed, well-organized write-up electronically (using D2L's "Assignments" submission procedure) by 11:59 PM of the stated due date. These assignments help you prepare for the exams, and you are **strongly advised** to do them. The homework assignments are to be solved *individually*. This means that you are not to solve problems together or compare answers prior to turning in the work. Cooperative efforts on individual work will result in an immediate score of zero for all parties involved. (see Academic Integrity Policy below). Late assignments will **not** be accepted (that is the submission procedure will automatically be disabled after the due date/time on the D2L site), unless prior permission is granted by the instructor.

**Additional Preparation:** At the end of many of the chapters covered in the Semester Schedule (shown below) a set of questions and/or exercises is provided. Answering and working some of these (the ones relevant to the lectures) will give you a good basis for studying for the question and problem sections of our exams.

**Academic Integrity Policy:** Oklahoma State University is committed to maintaining the highest standards of integrity and ethical. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, fraudulently altering academic records, and similar behaviors) will result in a sanction. For details, please check OSU Guidelines at <http://academicintegrity.okstate.edu/>. I plan to use turnitin.com to check and make sure your writing is original, and properly credited where appropriate.

**Drops or Withdrawals and Special Accommodations for Students:** Please see the University [Fall 2014 Syllabus Attachment](#) for this information.

**Make-up Exam Policy:** Students are expected to take each exam on the date given. If for any reason a student cannot attend an exam, they will need to inform me ahead of time. After I grant permission, they must make arrangements on their own with the university testing center to take the exam. The testing center charges a fee to proctor the exam.

### **Software for the Course:**

We will be using two types of software in this course. One is the open source relational DBMS MySQL, and the other is the Oracle DBMS – Oracle 11g Express Edition. If you own a computer, you are strongly encouraged to download and install each piece of software. They are available free of cost. Each software is also available in the SSB labs.

#### **MySQL:**

MySQL is part of the XAMPP framework. You will have to download and install the entire XAMPP software available at: <https://www.apachefriends.org/index.html>. You will need the windows version.

#### **Oracle:**

The Oracle 11g Express Edition is available for download here: <http://www.oracle.com/technetwork/database/database-technologies/express-edition/downloads/index.html>. You will also need to download Oracle SQL Developer software to manage the Oracle databases, available for download here: <http://www.oracle.com/technetwork/developer-tools/sql-developer/downloads/index.html>.

I will also be providing videos on how to download, install and operate each of the software. These videos will be available in D2L.

**MSIS 5643 – Fall 2014 Tentative Syllabus (Subject to Change)**

| <b>Week</b> | <b>Topic</b>   | <b>Book Chapter</b> |
|-------------|--|---------------------|
| Jan 14      | <i>Lecture 1: Introduction to Databases, Environment and Architectures</i> | 1, 2 & 3            |
| Jan 21      | <i>Lecture 2: The Relational Model, Algebra &amp; Calculus</i>             | 4 & 5               |
| Jan 28      | <i>Lecture 3: SQL Data Manipulation</i>                                    | 6                   |
| Feb 04      | <i>Lecture 4: SQL Data Definition &amp; Advanced SQL</i>                   | 7 & 8               |
| Feb 11      | <b>Test 1 (Chapters 1 through 8)</b>                                       |                     |
| Feb 18      | <i>Lecture 5: Database Design &amp; Entity-Relationship Models</i>         | 10, 11, 12 & 13     |
| Feb 25      | <i>Lecture 6: Database Normalization</i>                                   | 14 & 15             |
| Mar 04      | <i>Lecture 7: Conceptual &amp; Logical DB Design</i>                       | 16 & 17             |
| Mar 11      | <i>Lecture 7: Continued</i>  |                     |
| Mar 25      | <b>Test 2 (Chapters 10 through 17)</b>                                     |                     |
| Apr 01      | <i>Lecture 8: Physical Database Design &amp; Security</i>                  | 18, 19 & 20         |
| Apr 08      | <i>Lecture 9: Transaction Management</i>                                   | 22, 23              |
| Apr 15      | <i>Lecture 10: Query Processing</i>  | 23                  |
| Apr 22      | <i>Lecture 11: Data Warehousing</i>  | 32, 33 & 34         |
| Apr 29      | <i>Lecture 11: Data Warehousing (continued)</i>                            | 32, 33 & 34         |
| May 06      | <b>Test 3 (Comprehensive)</b>  |                     |