Syllabus
IS 5305-03: DATABASE MANAGEMENT IN BUSINESS
Fall 2017

I. Instructor
Professor Jari D. Williams, MIS, MSE, CSM, CPO
Mailing Address:
Department of Management, Albers School of Business and Economics, Seattle University, 901 12th Ave., Seattle, WA, 98122
Phone: 205-266-5274 cell, E-mail: jariwilliams@hotmail.com or williamju@seattle.edu
Office: Pigott 508
Office Hours: By Appointment

II. Class
Time: Monday 06:00PM-08:40PM
Room: Pigott Room 207

III. Course Description
This course introduces the fundamental concepts and implementations of the relational database systems. Most of class time will be spent on the relational database modeling, systems analysis and design, database design, ERD diagram, Process Flows, and SQL queries. You will be proficient in designing and programming database systems after you successfully finish this class. We will use MS SQL Server for practice and assignments. This course will provide a solid preparation for data mining.

IV. Learning Goals
• Understand corporate data management, database design, ERD, PFD, database architecture
• Write basic SQL queries for providing information for decision making
• Build a preparatory foundation for business analytics using data mining

V. Readings
1 Before purchasing any of the textbooks, you may want to wait until the first day of class. (TBD)

*Lecture Notes – Available at Canvas and Printed
IS 5305 Data Management in Business

This course introduces the management and analysis of corporate data. Topics include conceptual data modeling, relational database systems, entity relationship diagrams, process flow diagrams, data warehousing, and data administration, as well as SQL. Students are expected to understand the managerial challenges and solutions of corporate data management.

Weight of Each Requirement

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments*</td>
<td>25 %</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20 %</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20 %</td>
</tr>
<tr>
<td>Group Project</td>
<td>25%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>10 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Assignments includes articles, questions etc.

Class Attendance and participation

You are expected to attend all the sessions and to come to class on time. Please let the Professor know when you are unable to attend class.

Grading Policy

All assignments MUST be turned in on time and if one week late 10% will be deducted from the grade. No assignments will be taken after two weeks late. Please see Professor personally regarding grades.

Academic Honesty

Seattle University is committed to the principle that academic honesty and integrity are important values in the educational process. Academic dishonesty in any form is a serious offense against the academic community. Acts of academic dishonesty will be addressed according to the Seattle University Academic Honesty Policy. The policy can be found at the address below:

http://www.seattleu.edu/regis/Policies/Policy_2004-01.htm

If you are not sure whether a particular action is acceptable according to the Academic Honesty Policy, you should check with your instructor before engaging in it.

VIII. Disability

If you have, or think you may have, a disability (including an ‘invisible disability’ such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this class, you are encouraged to arrange support services and/or accommodations through Disabilities Services staff in the Learning Center, Loyola 100, (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process.
Course Summary

Major Instructional Areas As defined by the goals of this course, approximately 60%+ of the instructional areas will be devoted to basic database concepts and competencies, i.e., define what database are, how to classify them, what relational databases are, what appropriate data types are, and how to build simple databases. The rest of the course will focus on intro-level DBA tasks in terms of installation and daily routines of maintaining the database server, for which this course is Microsoft SQL Server 2008 Express in the Microsoft Windows XP environment (as a virtual machine solution for each individual student). Specifically, this course will cover the following:

1. Database design and management
2. Data retrieval and manipulation
3. Database security and maintenance
4. RDBMS administration and management

Course Objectives

1. Define a relational database.
2. Gather database requirements.
4. Create an entity design for a database using MS Visio.
5. Develop databases in MS SQL Server.
6. Run SQL queries in MS SQL Server.
7. Define the security context of a database and its users in MS SQL Server.

SCANS Objectives SCANS is an acronym for Secretary’s Commission on Achieving Necessary Skills. The committee, created by the National Secretary of Labor in the early 1990s, created a list of skills and competencies that the committee feels are necessary for employees to function in a high-tech job market. For more information on SCANS objectives, visit the U.S. Department of Labor Employment and Training Administration: www.doleta.gov.
Information Search

Use the following keywords to search for additional online resources that may be used for supporting your work on the course assignments:

1. Relational databases
2. Relational Database Management Systems (RDBMS)
4. Entity relation diagrams (ERD)
5. Primary and foreign keys
6. Structured Query Language (SQL)
7. Entities and attributes
8. Constraints
9. SQL Server 2008 Express
10. Roles and users

Course Plan

Suggested Learning Approach

In this course, you will be studying individually and within a group of your peers. As you work on the course deliverables, you are encouraged to share ideas with your peers and instructor, work collaboratively on projects and team assignments, raise critical questions, and provide constructive feedback.

Use the following advice to receive maximum learning benefits from your participation in this course:

<table>
<thead>
<tr>
<th>DO</th>
<th>DON'T</th>
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<tbody>
<tr>
<td>- Do take a proactive learning approach.</td>
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<tr>
<td>- Do share your thoughts on critical issues and potential problem solutions.</td>
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<tr>
<td>- Do plan your course work in advance.</td>
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<tr>
<td>- Do explore a variety of learning resources in addition to the textbook.</td>
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<td>- Do offer relevant examples from your experience.</td>
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<td>- Do make an effort to understand different points of view.</td>
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<tr>
<td>- Do connect concepts explored in this course to real-life professional situations and your own experiences.</td>
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<tr>
<td>- Don’t assume there is only one correct answer to a question.</td>
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<td>- Don’t be afraid to share your perspective on the issues analyzed in the course.</td>
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<td>- Don’t be negative about the points of view that are different from yours.</td>
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<td>- Don’t underestimate the impact of collaboration on your learning.</td>
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<tr>
<td>- Don’t limit your course experience to reading the textbook.</td>
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<tr>
<td>- Don’t postpone your work on the course deliverables – work on small assignment components every day.</td>
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# Course Outline

**Unit 1: DATABASE CONCEPT**
Upon completion of this unit, students are expected to:
- Define relational databases.
- Describe the position of relational databases in the history of databases.
- Identify major relational database management systems (RDBMS).
- Identify main characteristics of relational databases.
- Describe the SQL’s role in relational database.
- Identify some indications of where a database could be useful.
- Define a statement of work for a given scenario.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
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<th>ACTIVITY/DELIVERABLE TITLE</th>
<th>GRADE ALLOCATION (%)</th>
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<td>Conger, Appendix B</td>
<td></td>
<td>Unit 1 Lab 1.2</td>
<td></td>
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<td></td>
<td></td>
<td>Unit 1 Lab 1.3</td>
<td></td>
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<td></td>
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<td>Unit 1 Lab 1.4</td>
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<td></td>
<td>Assignment</td>
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<tr>
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<td>Research Assignment</td>
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<td>1%</td>
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**Out-of-class work: 6 hours**

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**Unit 2: GATHER INFORMATION AND DEFINE REQUIREMENTS**
Upon completion of this unit, students are expected to:
- Review documents to discover relevant entities and attributes for a database.
- Prepare interview questions and follow up.
- Prepare questionnaires.
- Observe workflow for process and exceptions.
- Identify the issues with the current database.
- Define and list requirements of a database.
- Define business rules of a database.
- Define entities and attributes of a database.
- Identify candidate keys for entities of a database.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
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<th>GRADE ALLOCATION (%)</th>
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<td>Unit 2 Lab 2</td>
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<td></td>
<td>Research Assignment</td>
<td>Unit 2 Research Assignment 1</td>
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<tr>
<td></td>
<td>Quiz</td>
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**Out-of-class work: 6 hours**
# Unit 3: Database Design

Upon completion of this unit, students are expected to:
- Use the database-modeling template in MS Visio.
- Create entities and attributes of a database.
- Define relationship between entities of a database.
- Create many-to-many relationships with a linking table.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
<th>GRADED ACTIVITIES / DELIVERABLES</th>
<th>Grade Allocation (% of all graded work)</th>
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<td>Conger, Appendix D</td>
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<td>Quiz Unit 3 Quiz 2</td>
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# Unit 4: Normalization

Upon completion of this unit, students are expected to:
- Evaluate an entity against the first three normal forms.
- Normalize a database in first normal form (1NF).
- Normalize a database in second normal form (2NF).
- Normalize a database in third normal form (3NF).
- Describe the importance of design review.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
<th>GRADED ACTIVITIES / DELIVERABLES</th>
<th>Grade Allocation (% of all graded work)</th>
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<td>Conger, Appendix D</td>
<td>Lab Unit 4 Lab 4.2 (Group B) †</td>
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<td>Quiz Unit 4 Quiz 3</td>
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### Unit 5: Physical Design

Upon completion of this unit, students are expected to:
- Compare different RDBMS and determine which best suits current needs.
- Implement a physical design of a database based on the logical ERDs.
- Choose appropriate data types for table columns.
- Enter sample data into database tables.

<table>
<thead>
<tr>
<th>Grading Category</th>
<th>Activity/Deliverable Title</th>
<th>Grade Allocation (% of all graded work)</th>
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<tbody>
<tr>
<td>Lab</td>
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<td>Unit 5 Lab 5.2 (Group B)</td>
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<td>Assignment</td>
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<td>Research Assignment</td>
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<tr>
<td>Quiz</td>
<td>Unit 5 Quiz 4</td>
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</table>

### Unit 6: SQL Queries I

Upon completion of this unit, students are expected to:
- Name the main events in the development of SQL statements.
- Run SELECT queries with a variety of criteria.
- Run queries with the WHERE clause to filter the result sets.
- Use the Aggregate functions COUNT, AVG, SUM, MIN, and MAX.

<table>
<thead>
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<th>Grade Allocation (% of all graded work)</th>
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<tr>
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<tr>
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<td>Unit 6 Lab 6.2 (Group B)</td>
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<tr>
<td>Assignment</td>
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<td>Research Assignment</td>
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<tr>
<td>Quiz</td>
<td>Unit 6 Quiz 5</td>
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### Unit 7: SQL Queries II

Upon completion of this unit, students are expected to:
- Use GROUP BY and HAVING SQL statements to create advanced queries.
- Join two or more tables in a SQL query.
- Use INSERT, UPDATE, and DELETE SQL statements to maintain database records.
- Create indexes to optimize query performance.
- Use SQL statements to test business rules.

<table>
<thead>
<tr>
<th>Grading Category</th>
<th>Activity/Deliverable Title</th>
<th>Grade Allocation (% of all graded work)</th>
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</thead>
</table>
### Unit 8: DATABASE SECURITY I

Upon completion of this unit, students are expected to:
- Analyze security needs and restrictions for users of the database.
- Describe the concepts of authentication and authorization.
- Create logins and users.
- Create roles.
- Grant rights and permissions.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
<th>Grading Category</th>
<th>Activity/Deliverable Title</th>
<th>Grade Allocation (% of all graded work)</th>
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<tr>
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<td>Lab</td>
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<td></td>
<td></td>
<td>Unit 8 Lab 8.2 (Group B)</td>
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<tr>
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<td>Assignment</td>
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<tr>
<td></td>
<td>Quiz</td>
<td>Unit 8 Quiz 7</td>
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### Unit 9: DATABASE SECURITY II

Upon completion of this unit, students are expected to:
- Implement a preliminary threats assessment.
- Describe disaster recovery plan.
- Create stored procedures.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
<th>Grading Category</th>
<th>Activity/Deliverable Title</th>
<th>Grade Allocation (% of all graded work)</th>
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<tbody>
<tr>
<td>Database Development: Select Readings from Microsoft SQL Server 2003 Management and Administration (CD), Chapter 7</td>
<td>Lab</td>
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<td></td>
<td></td>
<td>Unit 9 Lab 9.2 (Group B)</td>
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</tr>
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<td></td>
<td>Assignment</td>
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<td></td>
<td>Research Assignment</td>
<td>Unit 9 Research Assignment 1</td>
<td>1%</td>
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<tr>
<td></td>
<td>Quiz</td>
<td>Unit 9 Quiz 7</td>
<td>1%</td>
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</table>
Unit 10: COURSE PROJECT
Upon completion of this unit, students are expected to:

- Use the database modeling template in MS Visio.
- Create entities and add attributes of a database.
- Define relationship between entities of a database.
- Create many-to-many relationships with a linking table.
- Evaluate an entity against the first three normal forms.
- Normalize a database in first normal form (1NF).
- Normalize a database in second normal form (2NF).
- Normalize a database in third normal form (3NF).
- Describe the importance of design review.
- Compare different RDBMS and determine which best suits current needs.
- Implement a physical design of a database based on the logical ERDs.
- Choose appropriate data types for table columns.
- Enter sample data into database tables.
- Name the main events in the development of SQL statements.
- Run SELECT queries with wild cards, DISTINCT keyword, calculations, sorting and aliasing.
- Run queries with the WHERE clause to filter the result sets.
- Use the Aggregate functions COUNT, AVG, SUM, MIN, and MAX.
- Use GROUP BY and HAVING SQL statements to create advanced queries.
- Join two or more tables in a SQL query.
- Use INSERT, UPDATE, and DELETE SQL statements to maintain database records.
- Create indexes to optimize query performance.
- Use SQL statements to test business rules.
- Analyze security needs and restrictions for users of the database.
- Describe the concepts of authentication and authorization.
- Create logins and users.
- Create roles.
- Grant right and permissions.
- Implement a preliminary threat assessment.

Out-of-class work: 9 hours
- Describe disaster recovery plan.
- Create stored procedures.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
<th>GRADED ACTIVITIES / DELIVERABLES</th>
<th>Grade Allocation (% of all graded work)</th>
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<tr>
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<td>Project: Course Project†</td>
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<td>Quiz: Unit 10 Quiz 9</td>
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**Unit 11: REVIEW AND FINAL EXAM**
Upon completion of this unit, students are expected to:
- Summarize their learning for the entire course from Units 1 to 10.

<table>
<thead>
<tr>
<th>READING ASSIGNMENT</th>
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<th>Grade Allocation (% of all graded work)</th>
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<tbody>
<tr>
<td>None</td>
<td>Final Exam: Final Exam</td>
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† Candidate for ePortfolio

**Note:** Your instructor may add a few learning activities that will change the grade allocation for each assignment in a category. The overall category percentages will not change.
Tentative Class Schedule
(subject to change)

Week 1: Introduction and Overview
(9/25/17) Chapter 1 and 2 Database Concept and Gather Information and Define Requirements

Week 2: Chapter 1 & Chapter 2 Review
(10/2/17) Chapter 1 and 2 Database Concept and Gather Information and Define Requirements

Week 3: Process Flow Diagrams, Entity Relationship Diagrams
(10/9/17)

Week 4: Possible No Class due to business travel (Process Flow Diagrams, Entity Relationship Diagrams)
(10/16/17)

Week 5: Process Flow Diagrams, Entity Relationship Diagrams
(10/23/17)

Week 6: Database Design; Physical Design
(10/30/17)

Week 7: SQL Queries I & SQL Queries II
(11/6/17)

Week 8: SQL Queries I & SQL Queries II
(11/13/17)

Week 9: THANKSGIVING HOLIDAY NO CLASS
(11/20/17)

Week 8: Database Security I & Database Security II
(11/27/17)

Week 9: Group Project & Final Exam
(12/4/17)
Bio of Prof. Jari Williams

Professor Jari Williams degrees:

- Bachelors of Business Administration from Tennessee State University 2002
- Masters of Science in Information Management & Technology from Syracuse University 2007
- Masters Certificate – Systems Engineering and Design from Arizona State University 2010

Professor Jari Williams Certifications:

- Masters Certificate in Advanced Studies in Information Systems and Telecommunications Management
- Lean Six Sigma Certified Greenbelt
- Certified Scrum Master (CSM)
- Certified Scrum Product Owner (CSPO)

Professor Jari Williams Work Experience:

- Currently Employed at Microsoft as a Senior IT Program Manager (Security and Privacy Compliance Lead)
- Microsoft - Senior Technical Program Manager (Information Security Risk Management, Identity & Access Management)
- Internal Revenue Service (IRS) Lead Information Technology Specialist (Systems Analysis/Lead Systems Infrastructure Engineer)
- General Dynamics Corp. - Cyber Security Systems Engineer Senior & Senior Systems Engineer
- Lockheed Martin – Senior Software Engineer, Senior Project Engineer, Senior Systems Engineer
- Maximus Inc. – Database Software Developer, Network Engineer

Professor Jari Williams Teaching Experience:

- Seattle Central Community College
- ITT Technical Institute

Professor Jari Williams Publications: