Course Syllabus
IST 101: Introduction to Structured Query Language
Spring 2014

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Office: Room 100
Office Hrs: M 9:00 – 10:00 am (CST) online
TH 7:00 – 9:00 pm (CST) online
Or by appointment

Course Information

Course Credit:	3 credit hours
Class Meeting Time:	Online – Primarily Asynchronous Synchronous – T, 7:00 – 9:00 pm (CST) via Fuze Meeting
Course Location:	Blackboard LMS – Texas Tech University

Introduction

Course Description:
This course is an introductory course in Structured Query Language (SQL) writing. Most of the dynamic content that you see on the internet today comes from a database. This course is designed to prepare you to write basic SQL statements to retrieve information from a database. It will allow you to practice what you learn using real world examples. The course covers database theory concepts, the basic structure and use of the SQL SELECT statement, retrieving and sorting data, using operators to filter data, summarizing and grouping data, and retrieving data from more than one table. This course is primarily designed for undergraduate computer information systems or management information systems students. However, graduate level students or other students who are interested in the course can enroll. By the end of this course, students will gain a solid working knowledge of how to retrieve useful information from a database using SQL.

This is a six-week course and all activities will be conducted at a distance in an online environment. The majority of the course will be conducted asynchronously using Blackboard (www.blackboard.ttu.edu) Learning Management System (LMS). All course content materials (i.e. syllabus, modules, schedule, quizzes, and practice exercises) will be available on Blackboard. All assignments are to be submitted via Blackboard. There will also be four synchronous sessions where students will meet with the instructor and their peers in real-time using Fuze Meeting (https://www.fuzebox.com/). Two of the synchronous sessions will be dedicated to working through various exercises that will promote student writing and interpretation of output results. The other two sessions will be dedicated to discussing and outlining the approach for the comprehensive report, and students' presentation of the final report.

This course will be hands-on so that students will be able to write and run SQL queries on a database. Microsoft Access will be used as the database management system (DBMS) for this course. However, students can use any other DBMS that they are familiar with that supports the

execution of SQL (e.g. Microsoft SQL Server). If you are not familiar with Microsoft Access, instructions will be provided on Blackboard. Essentially, students will get to practice running various SQL queries and integrating them into real world tasks. In addition, throughout the course students will get the opportunity use a variety of online tools for communicating, facilitating peer-to-peer interactions, and promoting learning.

Course Materials

Required Text:

John L. Viescas & Michael J. Hernandez. (2007). SQL Queries for Mere Mortals: A Hands-On Guide to Data Manipulation in SQL (2nd edition) [With CD-ROM]. Addison-Wesley. ISBN-13: 9780321444431

Optional:

Ben Forta. (2012). Sams Teach Yourself SQL in 10 Minutes (4th edition). Pearson. ISBN-13: 978-0672336072

Computer Equipment and Software:

- Students should have access to a computer with a built-in camera (PC or Mac).
- Students will need dependable Internet access. A high speed connection is highly recommended.
- Web browser software
- MS Office Suite (Access, Word, Power Point, Excel)
- Students will need to create an account for Fuze Meeting (free) for synchronous communication and download the desktop plug-in.
- Prezi (http://prezi.com/)
- VoiceThread (http://voicethread.com/)

Course Policies

Attendance:

There will be four synchronous sessions. Students are **required** to attend **two** of the synchronous sessions which will be dedicated to discussing and outlining the approach for the comprehensive report, and final presentations to receive credit for attendance. All four sessions will be recorded, and students will have access to playback any recorded session.

Coursework:

It is important for you to complete the assignments in a timely manner. Assignments are due by 11:59 pm (CST) on the date listed in the weekly module (also on the course calendar). If students have any issues with turning in the assignments on time they should contact the instructor immediately. All assignments must be completed to receive a grade for this course. Students will be expected to participate in a group project. All work must be typed and grammatically correct (where applicable). *Hand written assignments will not be accepted under any circumstances.*

Participation:
Students can participate by posting questions in the open forum area of Blackboard. Participation in two synchronous sessions in Fuze Meeting is required, unless you have made other arrangements with the instructor.

ADA Compliance Statement:
Any students who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services office at 806-000-9999.

Course Objectives and Corresponding Assessments

Objectives	Assessments
1. Given a list of key database terms, students will describe concepts relating to database theory.	• Students will describe key concepts relating to database theory in one or two sentences on a test. ○ Quiz 1
2. Given a diagram of a table, students will identify the four basic constructs, primary and foreign keys within the table.	• Students will be given sample tables and asked to identify and explain differences between the four basic constructs, primary and foreign keys. ○ Quiz 1

3. Given specific search criteria, students will use SQL SELECT statements to write queries that will retrieve data from a database table. The data retrieved should match the specific search criteria with 100% accuracy.	• Students will be asked to write the syntax for the structure of the basic SQL SELECT statement.
	• Students will be given assignments with specific criteria to write SQL SELECT statements to retrieve information from database tables.
	  ○ Practice exercises
	  ○ Quiz 2

4. Given specific search criteria, students will use conditional statements to write queries that will retrieve specific data from a database table. The data retrieved should match the specific search criteria with 100% accuracy.	• Students will be given assignments with specific criteria to write SQL SELECT conditional statements to retrieve information from database tables.
	  ○ Practice exercises
	  ○ Quiz 3

Objectives	Assessments

5. Given specific search criteria, students will use SQL SELECT statements to write queries that will retrieve data from more than one table. The data retrieved should match the specific search criteria with 100% accuracy.	• Students will be given assignments with specific criteria to write SQL SELECT statements to retrieve information from multiple database tables.
	  ○ Practice exercises
	  ○ Quiz 4

6. Given database software and data from various industries, students will collaborate to create a comprehensive report from one industry, and prepare a presentation of their findings from the data. Evaluation will be based on completion and quality of the report and presentation.	• Students will prepare and submit a group comprehensive report and present the report in a synchronous session. • Bonus treasure hunt activity (optional)

Class Schedule

The course will run for six weeks:
First day of class: January 6th, 2014
Last day of class: February 16th, 2014

The schedule for the four synchronous sessions is as follows:

Topics:
Week 2 – Retrieving and Sorting Data
- Tuesday January 14th – 7:00 pm to 9:00 pm (CST)
- Collaboration using Fuze Meeting

Week 4 – Using Operators to Filter Data and Summarizing Data
- Tuesday January 28th – 7:00 pm to 9:00 pm (CST)
- Collaboration using Fuze Meeting

Week 5 – Discussion and Review of Group Project Report Outline and Presentation Strategy
- Tuesday February 4th– 7:00 pm to 9:00 pm (CST)
- Collaboration using Fuze Meeting
- Required

Week 6 – Group Project Report Final Presentations
- Tuesday February 11th – 7:00 pm to 9:00 pm (CST)
- Collaboration using Fuze Meeting
- Required

Note: Dates and times are subject to change based on student demands.

Instructional Activities

Asynchronous Sessions (http://www.depts.ttu.edu/lms/)
For all asynchronous sessions, students will log into Blackboard to retrieve information and instructions on assignments for each module, watch videos for course content, post questions for the instructor in an open forum, check course calendar, check grades, and communicate with the instructor and their peers.

Week 1: Module 1 – Getting Started with Database Basics (35 points)
In Module 1, students will be presented with the concept name, definition and example of a database, the four basic constructs (i.e. table, columns, rows, fields), and primary/foreign key. Examples will be provided of databases and emphasis will be placed on how they are used in real world settings such as online stores, libraries, travel agencies, health care providers, real estate companies, government agencies etc. Students will be presented with a diagrammatic representation of the four basic constructs, primary keys, and foreign keys.

Activities
1. Log into Blackboard and retrieve syllabus and course related materials.
2. Post a brief biographical profile and include reason(s) for enrolling in this class, whether or not they have taken an online course previously, and their expectations for the class **(10 pts.)**
3. Read chapter 1 and 3 in the text.
4. Watch video on "Database Literacy: Why use a database? (http://www.youtube.com/watch?v=yeVHLTkIXB8)
5. Create a Fuze Meeting free account and install the desktop plug-in. Review documentation on setup and how to use of Fuze Meeting on Blackboard.
6. Review instructions on using Microsoft Access.
7. Post questions for chapter 1 and 3 in the open discussion forum on Blackboard.
8. Take Quiz 1 on Blackboard. The Quiz will allow students to perform multiple retakes (up to 3) after which it will close, give a grade and instant feedback. **(25 pts.)**

Week 2: Module 2 – Retrieving and Sorting Data (80 points)
In Module 2, students will learn how to use SQL to retrieve data from a table and sort output data. The lesson will discuss important query terms that enable communication with the database, as well as syntax rules that will enable students to create clear and understandable queries while avoiding system generated errors.

Synchronous Session (https://www.fuzebox.com/)
In Module 2, students will sign-in to Fuze Meeting for their first synchronous session. This session will allow students to clear up questions/issues with running SQL in Microsoft Access, and work on content material from Module 2. The instructor will share the desktop of her computer with students (and vice versa) so that they can see the actual writing, running, and output results of SQL statements in Access. A whiteboard will be used to diagram concepts that students have issues with. It will be a collaborative effort where students will get the opportunity to participate in real time with instructor and their peers. Students will also be introduced to the requirements for the optional bonus Treasure Hunt game **(5 pts.)**

Activities

1. Give students group assignments (groups of 2-3) so that they can become acquainted. Provide students with the details for the final project.
2. Read chapter 4 in the text.
3. Watch the video "Drawing Water" by David Wicks where it shows how data can be turned into art (http://sansumbrella.com/works/2011/drawing-water/)
4. Post questions for chapter 4 in the open discussion forum on Blackboard.
5. Submit practice exercises in Module 2 assignment section on Blackboard **(50 pts.)**
6. Take Quiz 2 on Blackboard. The Quiz will allow students to perform multiple retakes (up to 3) after which it will close, give a grade and instant feedback. **(25 pts.)**
7. *Optional Treasure Hunt game*. Students will be provided with a database which they will download to their computer, and will contain several tables. They will be given 15 questions which they will use in the treasure hunt as clues to find specific data from the database provided, by writing and running SQL statements. The Treasure Hunt game will be due at the end of the course **(20 pts.)**

Week 3: Module 3 – Using Operators to Filter Data (75 points)

In Module 3, students will learn how to limit data using the WHERE clause, and present query examples using the WHERE clause. In addition, students will learn how to use the ORDER BY clause and present examples using the ORDER BY clause.

Activities

1. Read chapter 6 in the text.
2. Review Tableau website to get tips and ideas on data visualization for group report and presentation (http://www.tableausoftware.com/public/gallery).
3. Students begin to work on group project using Blackboard, Fuze Meeting or any other mode of communication that they decide on within the group.
4. Post questions for chapter 6 in the open discussion forum on Blackboard.
5. Submit practice exercises in Module 3 assignment section on Blackboard **(50 pts.)**
6. Provide feedback and grade for Module 2 practice exercises.
7. Take Quiz 3 on Blackboard. The Quiz will allow students to perform multiple retakes (up to 3) after which it will close, give a grade and instant feedback. **(25 pts.)**

Week 4: Module 4 – Summarizing and Grouping Data (80 points)

In Module 4, students will learn how to gather statistics by using aggregate functions (such as SUM, AVG, COUNT etc.) to summarize data. In addition, explanations will be provided for how Group functions operate on groups of rows to return one value for the entire group. Students will also be presented with information on the GROUP BY clause and how it is used in conjunction with Group functions. Rules such as, the GROUP BY option must contain all the columns in the SELECT list for correct processing, will be emphasized.

Synchronous Session (https://www.fuzebox.com/)

Students will sign-in to Fuze Meeting in Week4/Module 4 for the second synchronous session. This session will allow students to clear up questions/issues with running SQL in Microsoft Access, and work on content material from Module 3 & 4. The instructor will share the desktop

of her computer with students (and vice versa) so that they can see the actual writing, running, and output results of SQL statements in Access. A whiteboard will be used to diagram concepts that students have issues with. It will be a collaborative effort where students will get the opportunity to participate in real time with instructor and their peers. **(5 pts.)**

Activities

1. Read chapters 12 and 13 in the text.
2. Review Tableau website to get tips and ideas on data visualization for group report and presentation (http://www.tableausoftware.com/public/gallery).
3. Post questions for chapter 12 and 13 in the open discussion forum on Blackboard.
4. Submit practice exercises in Module 4 assignment section on Blackboard **(50 pts.)**
5. Provide feedback and grade for Module 3 practice exercises.
6. Take Quiz 3 on Blackboard. The Quiz will allow students to perform multiple retakes (up to 3) after which it will close, give a grade and instant feedback. **(25 pts.)**

Week 5: Module 5 – Querying More than One Table (80 points)

In Module 5, students will learn how to retrieve data from multiple tables simultaneously using a join to another table, via the WHERE clause, primary, and foreign key (with relevant examples). The syntax/structure for joining two tables will be explained. Also, a review of the identification of primary and foreign keys will be provided.

Synchronous Session (https://www.fuzebox.com/)

Students will sign-in to Fuze Meeting in Week5/Module 5 for a third synchronous session. This session will be dedicated to discussing and outlining the approach for the comprehensive report, and students' presentation of the final report. This is one of two required sessions. The instructor will post the format for the discussion on Blackboard, and prior to that sample reports. Instructor will discuss software tools such as Prezi, VoiceThread and PowerPoint for use in students' online presentations. **(5 pts.)**

Activities

1. Read chapter 8 in the text.
2. Post questions for chapter 8 in the open discussion forum on Blackboard.
3. Submit practice exercises in Module 5 assignment section on Blackboard. **(50 pts.)**
4. Provide feedback and grade for Module 4 practice exercises.
5. Take Quiz 4 on Blackboard. The Quiz will allow students to perform multiple retakes (up to 3) after which it will close, give a grade and instant feedback. **(25 pts.)**

Week 6: Module 6 – Final Group Project and Presentation (155 points)

In Module 6, students will complete the comprehensive report and present it online.

Synchronous Session (https://www.fuzebox.com/)

Students will sign-in to Fuze Meeting in Week6/Module 6 for a final synchronous session. This session will be dedicated to student presentations. This is the second of two required sessions. Each student group will have 20 minutes to give their presentation. **(5 pts.)**

Activities

1. Group presentations online.
2. Each group to provide access to their presentation to the class and instructor on Blackboard or via Blackboard email.
3. Submission of final group report and presentation documents. **(150 pts.)**
4. Submission of Treasure Hunt game assignment (if applicable).
5. Provide feedback and grade for Module 5 practice exercises.

Assessment Information

Grading Policy:

The points for each module are detailed in the instructional activities section. Combined, these points will be used to determine students' final grade:

Assessment	Points	Assignment Details
Quiz	100	4 quizzes, 25 pts. each
Practice exercises	200	4 practice exercises, 50 pts. each
Final Group project report/Presentation	150	1 report/presentation, 150 pts.
Bonus treasure hunt (optional)	20	1 bonus treasure hunt, 20 pts.
Participation in Synchronous sessions	20	4 sessions, 5 pts. each
Biographical profile post	10	1 post, 10 pts.
Total Points	**500**	

Final grades will be assigned according to the following criteria.

- **A= 90% and above**
- **B= 80% - 90%**
- **C= 70% - 80%**
- **D= 60% - 70%**
- **Anything below 60% is a failing grade**