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BMIS 370.01: Managing Data and Information

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BMIS 370 – MANAGING DATA AND INFORMATION

The University of Montana, School of Business Administration

COURSE DESCRIPTION

Term / Credits	**SPRING 2015, 3 credits**
Pre-requisites	**Lower Core Complete + MIS 371/BMIS 365 (Data Applications/Programming)**
Meets	**TUES/THURS 11 – 12:30 in GBB L26**
Instructor	**Laurie Toomey, Adjunct Instructor**
Office	**GBB 389**
Contact	**Phone: 243-6768 (email is best!)** **E-mail: laurie.toomey@business.umt.edu**
Office Hours	**THURS 12:30 – 1:30 or by appointment**
Website	**UM's Moodle website** **moodle.umt.edu**

COURSE DESCRIPTION

This Managing Data and Information course is a broad overview of many different concepts. Part of the course is a condensed version of what many traditional database management courses cover including relational database design and usage. In addition to gaining a solid understanding of relational databases, students will learn about the challenges and opportunities of information within the context of an organization.

COURSE OBJECTIVES

Upon completion of this course, a student will be able to:

- Recognize the role databases play in an organization, including the responsibilities to secure and protect information;

- Apply knowledge of business operations to create logical and conceptual data models;

- Analyze a data model for potential problems due to client communication, such as multiple meanings of ambiguous terms, relationships that have been assumed but not confirmed and the level of detail needed for historical data;

- Determine answers to organizational questions using SQL queries;

- Demonstrate ability to use database software such as SQL Server and various CASE tools;

- Understand the security and ethical concerns surrounding data management;

- Understand general terminology and concepts of databases to effectively manage and communicate with a development team.

TEXTBOOK AND CONTENT RESOURCES:

There is no textbook for this class. Content is divided into the following four types:

Main concepts: There are PDFs for the specific concepts that will be covered for each week. Think of this as my lectures written on paper. This also forms the bulk of the exam questions.

Lab summaries: This is a high-level summary of what you will be doing in the lab. There will be 1-2 of these each week.

Additional readings: These are whitepapers or blog posts or online articles dealing with the business side of data and information. These are required reading and will come up in discussion.

For more information: If you want to learn more, you can optionally read these resources.

SOFTWARE

We will be using custom images on Amazon Web Services that are built specifically for the labs. Using Amazon Web Services will allow you to continue working on a lab outside of class or to retry a lab whenever you want. These images have all the software needed for each lab plus you won't have download the starter projects because they will be ready to go.

The following are the primary software tools used in this class but the list is not exhaustive. For some functionality, students have a choice between using two possible options.

Database:
- SQL Server 2014 Express With Tools (i.e. SQL Server Management Studio)

Programming Application:
- Visual Studio Community 2013 (includes IIS Express)

Data Modeling (can choose):
- Power Architect 0.9.15 OR Excel spreadsheet with custom macros

Database Population Tool (can choose):
- SQLDog OR Use Excel random functions

The above software is all free and you are welcome to download it to your computer. However, there are the following advantages to using Amazon Web Services:

- Everything is exactly like the screenshots in the step-by-step lab instructions.
- The starter files are already installed.
- You can "turn off" the virtual server and then get on any other computer and start it again to continue working.
- If you totally mess something up, you can delete the virtual server and restart with a fresh new one in about 10 minutes.
- You learn about using virtual servers which is an excellent skill to have.

If you choose not to use Amazon Web Services, you will need to bring your own laptop to class with the above software. If there is a starter file, you will be able to download it at the beginning of class. Sometimes you will need to follow additional instructions for a few labs to get your computer ready BEFORE class begins. For labs with additional setup, the instructions will be posted ahead of time.

It is highly recommended that you use Amazon Web Services to minimize the work you need to do for both installing the software initially and setting up the labs.

GRADING

Moodle will be used to post grades. POP QUIZZES <u>MAY</u> BE ADDED (SEE ELECTRONIC DEVICES SECTION). The course grade is on a +/- system as shown below.

A+ 100-97%	A 96.99-93%	A- 92.99-90%
B+ 89.99-87%	B 86.99-83%	B- 82.99-80%
C+ 79.99-77%	C 76.99-73%	C- 72.99-70%
D+ 69.99-67%	D 66.99-63%	D- 62.99-60%
	F Below 60%	

Qty	Type	Each	Total
3	Exams (with one make-up replacing lowest)	100	300
1	SQL SELECT Assessment (use best score)	100	100
10	Almost Weekly Content Quiz	10	100
8	Almost Weekly SQL Practice Quiz	12	96
18	Lab Assignments	10	180
1	Bio (Moodle Profile) Assignment	14	14
1	PROJECT PART 1 All Students - Project proposal including beginning data model	60	60
1	PROJECT PART 2 Database Project: Model improvement paper & model OR Research Project: Research paper	60	60
1	PROJECT PART 3 Database Project: Implementation OR Research Project: Presentation and improved research paper	60	60
1	PROJECT PEER EVALUATION Database Project: Group member evaluate each other OR Research Project: Class evaluates presenter	30	30
		TOTAL	1000

BREAKDOWN OF CLASS TIME

BEFORE TUESDAY'S CLASS TIME

- Review the resources outside of class that were posted the previous week.
- Review the summaries of the labs that walk you through what we will be doing and why.

AT CLASS TIME

During the first 10 minutes:
- <u>Start your instance</u> - You will create and start the Amazon Web Service instance needed for the lab that day. You can do this before class too and just keep it running.
- <u>Take a quiz</u> – On Tuesdays you will take a quiz on the resources that were posted the week before. On Thursdays the quiz will be on writing SELECT statements. The quiz will have a timer for 5 minutes.

During the next 10 minutes:
- <u>Discuss major points</u> - We will use the quiz and class discussion to go over either the readings (on Tuesdays) or the SQL practice (on Thursdays).

During the next 60 minutes:
- <u>Lab intro</u> – I will give an overview of the lab and what you should get out of it.
- <u>Do the lab</u> - Students use the step-by-step online guides to independently work through the labs. Lab exercise questions will be due one week from the lab by class time.
- <u>Possibly earn extra credit</u> – Students who stay to the very end may get extra credit on random days.

QUIZZES AND EXAMS AND ASSESSMENTS

(ALMOST) WEEKLY CONTENT QUIZZES AND SQL PRACTICE QUIZZES

Both the content quizzes and the SQL quizzes occur during the first 10 minutes but are timed 5-minute Moodle quizzes. This is because when you get to class, you need to start up your AWS instance and take the quiz. If you are not done by the end of 10 minutes or are late you will not be able to finish.

However, the lowest scores of each kind of quiz are dropped. There are 10 content quizzes but will probably be about 12 opportunities to take a content quiz. There are 8 SQL practice quizzes but there will be about 9 opportunities to take a SQL quiz. The total number of opportunities are subject to change.

EXAMS

There will be short multiple-choice/short answer/short problem exams throughout the semester.   **A MAKE-UP EXAM WILL BE GIVEN DURING FINALS WEEK!**

- Exams will cover material for the labs, graded <u>and ungraded</u> assignments, reading materials and lectures (on video and in-class).
- If you miss an exam or do very poorly on a test, you have an opportunity to improve by taking a comprehensive make-up exam at the end of the semester. You can only retake (or make-up) one exam. To repeat… if you miss two exams, you can only retake one exam.
- Exams will usually contain about 30 questions. You will have 30 minutes to take the exam.
- Exams will usually be given during the first part of a class. **Regular class will resume once the 30 minutes allocated for the exam have passed.**

SQL ASSESSMENT

SELECT statements including filtering, calculated fields, joins, etc. You can take this assessment multiple times. Your best score for the assessment is the one recorded in the gradebook.   This should be a grade booster for you! The attempts for the SQL Assessments are given after the first two Exams and during finals week. You have 35 minutes to complete 14 SELECT statements. While learning SQL statements is not difficult, you must practice quite a bit to become fast enough to complete the statements in the time allowed.

ASSIGNMENTS

MOODLE BIO AND PICTURE

Simply upload head shot of your lovely smiling face with no hat and then write a little about yourself in Moodle. The bio should include why you are in your major or what career interests you have or both. If you include other information required from other courses then that is obviously ok.

LABS AND LAB QUESTIONS

Each student works through the assigned lab at their own pace. While the lab is set up for students to finish within an hour, you do not have to finish within that hour. However, if you need to save the lab to work on it later, be aware that you are charged for instances you keep. While working on your own lab, you can be going through the steps with another student so that you can help each other.

While you are working through the lab, there will be questions in the step-by-step guide that correspond to questions on Moodle. You have a week to submit the questions.

PROJECTS

DATABASE PROJECT

Most students will be working to design a small database with some limited functionality in a web application. Students will be creating forms and simple reports as well as charts and web services. The project is designed to give you a taste of multiple techniques to interact with data. Much of the code is already written in a sample project and you will need to follow instructions to modify the code for your particular database. The main emphasis is on developing a data structure that works for your group's fictitious business. More information will be available later during the semester.

Please DO NOT combine this project with any other project you are doing for another class during this semester.

NOTE: The third exam covers the implementation techniques used in the database project and in the labs. Those students doing the research topics will want to review for the third exam by redoing some of the labs involving implementation.

RESEARCH PROJECT AS ALTERNATIVE TO DATABASE PROJECT (LIMITED!)

A limited number of research projects will be granted to students to research a data-related topic. The student is to pretend they have been tasked to explain a new technology or data-related concept or information management technique to a non-technical audience (such as a committee in a business) The student will need to prepare a **30 minute presentation** including a demo of either custom or third-party software to help the "committee" understand the topic. The presenting student must also **prepare a white paper** that would act as a primer to the committee to get them up to speed on terminology, major vendors and/or standards, expected trends, business risks, etc. so that they can make an informed decision on whether to implement whatever the topic is about. A full outline of the expectations of the research project will be available later in the semester.

Students can request the research project AFTER submitting Part 1 of the database project. The selection of who will be able to do the research project is primarily based on the number of requests, the attendance of the requesting students and the topic chosen.

NOTE: The third exam includes information from the research topics presented. Those students doing the database project will want to attend the presentations and take notes.

GRADUATE CREDIT – ADDITIONAL REQUIREMENTS

Students taking this course for graduate credit must complete an additional project which will be determined after meeting with the instructor.

TEXT-BASED SCHEDULE

Jan. 27
- No quiz
- Syllabus
- Set up Amazon Web Services

Jan. 29
- No SQL quiz
- Lab (extra time)
- Moodle picture and bio due

Feb. 3
- Content quiz
- Lab

Feb. 5
- SQL quiz
- Lab

Feb. 10
- Content quiz
- Lab

Feb. 12
- SQL quiz
- Lab

Feb. 17
- Content quiz
- Lab

Feb. 19
- Exam (40 minutes)
- SQL Assessment Practice (35 min)

Feb. 24
- Content quiz
- Lab

Feb. 26
- SQL quiz
- Lab

Mar. 3
- Content quiz
- Lab

Mar. 5
- SQL quiz
- Lab

Mar. 10
- Content quiz
- Lab
- PROJECT PART 1

Mar. 12
- SQL quiz
- Lab

Mar. 17
- Content quiz
- Lab

Mar. 19
- SQL quiz
- Lab

Mar. 24
- Content quiz
- Lab

Mar. 26
- Exam (40 minutes)
- SQL Assessment Try 1 (35 min)

SPRING BREAK

Apr. 7
- Content quiz
- Lab

Apr. 9
- SQL quiz
- Lab
- PROJECT PART 2

Apr. 14
- Content quiz
- Lab

Apr. 16
- SQL quiz
- Lab

Apr. 21
- Content quiz
- Lab

Apr. 23
- SQL quiz
- Lab

Apr. 28
- Two research project presentations

Apr. 30
- Two research project presentations

May 5
- Content quiz (over research projects)
- Group Project Work Day

May 7
- Exam (40 minutes)
- SQL Assessment Try 1 (35 min)
- DB Project: Implementation Due
- DB Project: Peer Evaluations Due

TABLE-BASED SCHEDULE

DATE	QUIZ	LAB/OTHER	EXAM	SQL ASSESS	ASSIGNMENT
Tue, Jan 27		Set up AWS Account			
Thu, Jan 29		Lab			Moodle Bio/Pic
Tue, Feb 03	Content	Lab			
Thu, Feb 05	SQL	Lab			
Tue, Feb 10	Content	Lab			
Thu, Feb 12	SQL	Lab			
Tue, Feb 17	Content	Lab			
Thu, Feb 19			EXAM 1	SQL Practice Try	
Tue, Feb 24	Content	Lab			
Thu, Feb 26	SQL	Lab			
Tue, Mar 03	Content	Lab			
Thu, Mar 05	SQL	Lab			
Tue, Mar 10	Content	Lab			Project Part 1
Thu, Mar 12	SQL	Lab			
Tue, Mar 17	Content	Lab			
Thu, Mar 19	SQL	Lab			
Tue, Mar 24	Content	Lab			
Thu, Mar 26			EXAM 2	SQL Try 2	
Tue, Mar 31		SPRING BREAK			
Thu, Apr 02					
Tue, Apr 07	Content	Lab			
Thu, Apr 09	SQL	Lab			Project Part 2
Tue, Apr 14	Content	Lab			
Thu, Apr 16	SQL	Lab			
Tue, Apr 21	Content	Lab			
Thu, Apr 23	SQL	Lab			
Tue, Apr 28		Watch presentations			2 Research Projects
Thu, Apr 30		Watch presentations			2 Research Projects
Tue, May 05	Content	Group Project Work Day			
Thu, May 07			EXAM 3	SQL Try 3	DB Implementation
FINALS					

ACADEMIC INTEGRITY

It is your duty to abide by the University's academic policies, and it is the instructor's duty to enforce those policies. Cheating of any sort will not be tolerated. Cheating, failure to follow instructions, and/or failure to follow course policies may result in a reduced grade or a failing grade at the instructor's option.

The following message about academic integrity comes from the Provost's office: *"All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. The University of Montana Student Conduct Code specifies definitions and adjudication processes for academic misconduct and states, "Students at the University of Montana are expected to practice academic honesty at all times." (Section V.A., available at http://www.umt.edu/vpsa/policies/student_conduct.php). All students need to be familiar with the Student Conduct Code. It is the student's responsibility to be familiar the Student Conduct Code.*

In addition, the School of Business has a Code of Professional Conduct at
http://www.business.umt.edu/Soba/SoBAEthics/CodeofProfessionalConduct.aspx

DISABILITY ACCOMMODATIONS

Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, please consult http://www.umt.edu/disability.

MISSION STATEMENTS AND ASSURANCE OF LEARNING

The University of Montana's School of Business Administration enhances lives and benefits society by providing a world-class business education in a supportive, collegial environment.

We accomplish this mission by acting on our shared core values of creating significant experiences, building relationships, teaching and researching relevant topics, behaving ethically, and inspiring individuals to thrive.

As part of our assessment process and assurance-of-learning standards, the School of Business Administration has adopted the following learning goals for our undergraduate students:

- Learning Goal 1: SoBA graduates will possess fundamental business knowledge.
- Learning Goal 2: SoBA graduates will be able to integrate business knowledge.
- Learning Goal 3: SoBA graduates will be effective communicators.
- Learning Goal 4: SoBA graduates will possess problem solving skills.
- Learning Goal 5: SoBA graduates will have an ethical awareness.
- Learning Goal 6: SoBA graduates will be proficient users of technology.
- Learning Goal 7: SoBA graduates will understand the global business environment in which they operate.

ELECTRONIC DEVICES

Cell phones and other electronic devices should be turned off and put away. **If I see any electronic devices in use, I will give a pop quiz for the entire class.** This will increase the total points possible for the class.