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INFO 358-01 Data Modeling and Management

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Recommended Citation

White, Gwen, "INFO 358-01 Data Modeling and Management" (2015). *Management Information Systems Syllabi*. 245.

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INFO 358: Data Modeling and Management Spring Semester, 2015

Instructor

Instructor: Gwen White
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Office Hours*: 5-6pm Monday, Tuesday & Thursday (*Always check Canvas for the latest updates on office hours)

Course Description and Objectives

Among other things, the proliferation of electronic commerce has helped create unprecedented amounts of data. Databases are at the core of most information-based systems with which we interact in our daily lives and help keep track of myriad of details of every transaction that takes place in a business. Database management requires multiple perspectives: understanding an organization as a social system and understanding of database technology.

The purpose of this course is to introduce you to managing data in organizations. This course is designed to be a fundamentals survey course and will be the grounding to other information systems courses such as Data Mining and Systems Analysis and Design.

Students will gain experience with data modeling and Structured Query Language (SQL). The course will cover basic data modeling and SQL concepts. The concepts learnt over the term will enable students to design, implement and analyze a prototype database using a relational database system. The goal is to experience the database development life cycle and explore issues relevant to managing corporate data resources. The course will also cover trends in managing organizational memory technologies such as business intelligence.

Upon successfully completing INFO 358, you should be able to

1. Understand the organizational issues involved in data management;
2. Develop a valid data model for a business system of medium complexity;
3. Build and use a relational database;
4. Formulate complex relational database queries;
5. Be familiar with the principles of managing organizational data;
6. Be familiar with technology used to manage and exploit organizational intelligence.

In so doing, the course reinforces WCB Learning Goals and Objectives:

- Collect, evaluate and synthesize information to offer solutions and support decision making.
- Produce business reports demonstrating their ability to organize and communicate ideas clearly and professionally.
- Make effective presentations, accompanied by the appropriate technology, demonstrating their ability to organize and communicate ideas clearly and professionally, both individually and in teams.

These objectives are met through a combination of class lectures, readings, case studies, outside speakers, projects, and hands-on computer exercises with industry level software and tools.

Mission of the Williams College of Business

“We educate students of business, enabling them to improve organizations and society, consistent with the Jesuit tradition”.

Course Prerequisites & Required Skills

The following prerequisite is required to ensure your success. **YOU MUST DROP** this course if you do not have the prerequisite: INFO 220. I assume you are computer literate. This means you know computer history, computer technology, and some business applications. You are familiar and competent in using IBM PC-compatible computers, the Windows Operating System and the World Wide Web. These prerequisite topics, and others, will be assumed by the instructor, since you are registered in this course.

I will NOT assume that you are familiar with any database management system. We will start at the very beginning and learn the use of a basic database management system package (i.e., Microsoft Access). This will help us focus on learning basic data management concepts using a basic database management package. We may explore other packages given the availability of other reliable database platforms.

Course resources

Text Book : lectures will be given from this book

Database Processing: Fundamentals, Design, and Implementation, 13/E

David M. Kroenke, *University of Washington*

David J. Auer

ISBN-10: 0133058352 • ISBN-13: 9780133058352

©2014 • Prentice Hall • Cloth, 640 pp

**Please be aware that in order to access the text off campus you must be first authenticated to use the Xavier library off campus. Please contact the Xavier library support if you are having trouble logging into this library resources.

Teradata University Network:

The class may use resources on the Teradata Student Network. Please register on TSN. It's URL is <http://www.teradatauniversitynetwork.com>. The instructor will provide the password for the site in class.

Course Grading

Student performance will be evaluated on the following basis:

| | |
|----------------------------------|------------|
| Class Activities & Participation | 10% |
| Homework | 20% |
| Database Team Project | 20% |
| Exams | <u>50%</u> |
| | 100% |

IMPORTANT NOTE: You **MUST** score at least 60% on combined score for the exams in order for the group work points to count toward your final grade. In other words, the group work cannot help you pass the course if you have a failing grade on the exams and exercises/participation.

Class Activities & Participation:

Students are expected to attend all class sessions on time & complete assignments. You are responsible for any material covered, amendments to the syllabus, or announcements made in class, whether you are present or not. Please check with your class/team mates about missed assignments & notes. If you plan to be absent for more than 3 class sessions please drop the course as your overall course grade will be reduced by a letter grade. All students are expected to be present in class on time. Late attendance will count as a partial absence. “A” students must attend all classes and actively provide thoughtful, relevant comments to class discussions.

Group Project:

There will be 1 group assignment.

- Each team must have 3-4 members. Each team will be required to define, elect or volunteer a team leader as the point of contact for the team.
- Most of you will work effectively in teams, each contributing your best effort and proving to be a reliable, productive team member. However, because past experience has proven that team projects always raise the possibility that some team members may not carry their fair share of the load, a confidential peer evaluation will be conducted at the end of the semester. This evaluation will impact your grade.

Exams and Assignment Deliverables:

There will be three exams during the course of the semester. All students must take exams at the scheduled times except for emergencies only. Please inform me of emergencies asap prior to the exam with proper documentation to schedule a makeup exam. Deliverables of assignments are due at the start of class on the due date; your project grade will suffer significantly if a deliverable is not on time (i.e., 20% reduced for each day late). Your grade on the team projects will be based on the quality of the deliverables your team produces.

General Course Philosophies & Policies

The learning environment:

Please turn off your cell phone, PDA, or another gadget that may produce sound while class is in session. Laptop, computer, mobile use during class sessions for any personal work (e.g., email, messaging, etc...) is NOT permitted.

Academic honesty:

Academic dishonesty, in any form, is a serious offense. The University Rules and other documented policies of the department, college, and university related academic integrity will be enforced. Any violation of these regulations, including acts of plagiarism or cheating, will be dealt with on an individual basis according to the severity of the misconduct.

Special needs:

If you have any special needs related to your participation in this course that may influence your performance in this course you should meet with the instructor to arrange reasonable provisions to ensure an equitable opportunity to meet all the requirements of this course.

Evaluation:

The final grade awarded will be based on the percentage of the total possible points awarded as follows:

| Scale | | | | | |
|-------|--------|----|-------|----|--------|
| A | 95-100 | B | 83-86 | C | 73-76 |
| A- | 90-94 | B- | 80-82 | C- | 70-72 |
| B+ | 87-89 | C+ | 77-79 | D | 60-69* |

*Below 60 is an F

Grading:

Every effort will be made to return papers, exams, etc...within one week of submission.

Grade appeals:

If you have a concern about a grade that you receive in this class, you are invited to submit to me a written appeal within one week of receiving the grade in question. The appeal should outline your specific concerns with the grade and provide evidence supporting why the grade should be changed. I will then review your appeal and respond as quickly as possible. I reserve the right to re-grade the entire exam, assignment in question.

Communication:

Email is the best way to communicate with me. Email will be a very important mode of communication in this class. In addition to email, make sure to check Canvas on a regular basis for updates, announcements, or additional course material. Whenever possible, I will announce changes to Canvas course via email.

Please note that I will often have extended office hours to help with lab assignments, etc... It is also possible that official emergencies may require me to change office hours. Please check Canvas for changes in office hours before coming to see me for office hours. Also, please note that in addition to office hours, given adequate notice (a few hours), I can often come to campus to meet you to help.

Teaching Style

The instructional style will primarily consist of lectures based on the text. The lectures are designed to be interactive. Classroom participation is expected and is therefore highly encouraged. Please feel free to ask questions, make observations, and share your relevant real world experiences. It is my intention to make the classroom environment rather informal and relaxed. If you are unsure about a topic PLEASE ASK QUESTIONS. If no one is asking questions, I can only assume that everyone understands the material.

Class/Homework and Assignments

Class work/Homework is to be done individually. You do NOT need to hand in a hard copy of the assignment unless specified. However, I expect that each member of the class will have worked through each assignment. The purpose of the assignments is to reinforce the topics covered in the lecture and to provide you the opportunity to apply that knowledge. I will usually go over the home/class work on the class day following the lecture on the necessary material. Thus, I do not expect that you will be able to work through each of the problems on the first attempt. If you have attempted each of the problems before class, then you should have ample opportunity during class to take any necessary notes. However, I will NOT hand out a solution manual for these problems as we will have worked each of them in class.

Each of the assignments will be handed out in class or can be downloaded from the Canvas. Please let me know in a timely fashion if you have any difficulty downloading the work.

In addition, please note that some of these exercises are quite difficult and may take a while to complete.

Course Schedule:

| Date | Description | Type | Due Date |
|-------------|--|-------------|-----------------|
| 01/20/2015 | Chapter 1 Introduction | Reading | 01/27/15 |
| 01/20/2015 | Chapter 1 Homework Pg 29 – Wedgewood Pacific Corporation | Homework | 01/27/15 |
| 01/27/15 | Chapter 2 Introduction to Structured Query Language | Reading | 02/03/15 |
| 01/27/2015 | Chapter 2 Homework – Marcia’s Dry Cleaning A-T p. 101-106 | Homework | 02/03/15 |
| 02/03/15 | Chapter 3 – The Relational Model and Normalization | Reading | 02/10/15 |
| 02/03/15 | Chapter 3 – Homework Regional Labs Case Questions p. 156 – A-K | Homework | 02/10/15 |
| 02/10/15 | Chapter 4 – Database Design using Normalization | Reading | 02/17/2015 |
| 02/10/15 | Chapter 4 – Marcia’s Dry Cleaning Case Question p. 176 – 177 A-B | Homework | 02/17/15 |
| 02/17/2015 | Exam Chapters 1-4 | | 02/24/2015 |
| 02/17/15 | Chapter 5 – Data Modeling with the Entity- Relationship Model | Reading | 02/24/15 |
| 02/17/15 | Chapter 5 – Washington State Patrol Case Questions p.225 – 226 A - B | Homework | 02/24/15 |
| 02/24/15 | Chapter 6 – Transforming Data Models into | Reading | 03/10/15 |

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|------------|--|----------|------------|
| | Database Designs | | |
| 02/24/15 | Chapter 6 – Washington State Patrol Case Question p.273 – 275 A-E | Homework | 03/10/15 |
| 03/10/15 | Chapter 7 – SQL for Database Construction and Application Processing | Homework | 03/17/2015 |
| 03/10/15 | Chapter 7 – Heather Sweeney Designs Case Questions p.343 – 353 A-T | Homework | 03/17/2015 |
| 03/17/2015 | Chapter 8 – Database Redesign | Reading | 03/24/15 |
| 03/17/2014 | Chapter 8 – Marica’s Dry Cleaning Case Questions p. 389 A - H | Homework | 03/24/15 |
| 03/24/15 | Chapter 9 – Managing Multiuser Databases | Reading | 03/31/2015 |
| 03/24/15 | Chapter 9 – Marica’s Dry Cleaning Case Question p. 425 | Homework | 03/31/2015 |
| 03/31/2015 | Exam Chapter 5-9 | | 04/07/2015 |
| 03/31/2015 | Chapter 10 – Managing Databases with SQL Server 2012, Oracle Database, MySQL 5.6 | Reading | 04/07/2015 |
| 03/31/2015 | Chapter 10 – Install MySQL on Home Computer | Homework | 04/07/2015 |
| 04/07/2015 | Chapter 11 – The Web Server Environment | Reading | 04/14/2015 |
| 04/07/2015 | Chapter 11 – Marcia’s Dry Cleaning Case Questions p. 530 | Homework | 04/14/2015 |

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|------------|---|---------------|--------------------------------|
| | - 531 A-N | | |
| 04/14/2015 | Chapter 12 – Big Data, Data Warehouse and Business Intelligence Systems | Reading | 04/21/2015 |
| 04/14/2015 | Chapter 12 – Marica’s Dry Cleaning Case Questions p. 576 – 577 A-L | Homework | 04/21/2015 |
| 04/21/2015 | Group Project | Group Project | 05/01/2015 |
| 04/28/2015 | Group Project | Group Project | 05/01/2015 (Group Project Due) |
| 04/28/2015 | Exam Chapter 10-12 Exam | | 05/08/2015 |