91-802: Information Systems for Managers
The Heinz College of Public Policy and Management
Carnegie Mellon University

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Teaching Assistant: Khanh Quoc Nguyen <quocnguyen@cmu.edu>

Meeting Times:
Lecture: Thursday 1:00 p.m. - 3:00 p.m. – classroom 1
Lab/Project Session: Friday 6:00 p.m. – 7:00 p.m. – classroom 3

Class Resources: CMU Shared Folder. BB will be used for email announcements.
(\student\Faculty Course Resources\91802-IS for Managers)

Textbooks:

2. Harvard Business Cases & Articles (will be available for purchase)


Course Rationale

Most organizations depend on databases for delivery of goods and services, allocation of resources, and support of policy analysis. Policy analysts and managers also find database packages like Microsoft Access valuable for personal use, especially for importing and processing data.

Almost all databases used in organizations today are “relational”, because that kind of database is the most flexible and easiest to use. The first half of the course covers design and implementation of relational databases using a 50 - 50 mix of lectures and practical lab work using Microsoft Access 2010.

Information systems have become integrated with all aspects of business – operations, marketing, accounting, finance and managers are thus expected to manage and use information systems effectively if their organizations are to succeed in today’s digital economy. Although most organizations maintain entire departments dedicated to the management of information systems (MIS), managers outside of MIS must lead the changes driven by IS. To do this they must be knowledgeable participants in the decision-making process for leveraging information & information technology to achieve organizational goals. The second half of the course therefore examines selected technological features of IS that are essential to
the information literacy of the general manager. The course takes the perspective of a general manager, not a computer programmer, systems analyst, IS manager, or computer scientist.

**Course Objectives**

First, students completing this course will have developed two complementary database-oriented skills, which can be used to their advantage in managerial positions. The first is the ability to design and use so-called “service delivery system” databases. As opposed to scientific databases, service delivery systems are designed to contribute to the effectiveness and efficiency of organizations. Common examples include invoice and inventory systems, and cataloging systems used in libraries and museums. Understanding how such systems are conceived and built will enable students to oversee and contribute to the development of innovative systems in their own work. Students will gain a working knowledge of related concepts:

- (a) the relational database model,
- (b) the entity-relationship model, and
- (c) the data normalization.

The second skill, which reinforces the first, is the ability to use specific database management system software (Microsoft Access 2013). Facility in using such software is a transferable skill, because of the widely used relational database technology. Students will become proficient in the techniques used to:

- (a) create and use tables,
- (b) query the database, and
- (c) generate reports.

The second half of the course will provide students with the theoretical foundation and practical skills required for the selection, deployment and management of information systems in the private, non-profit and public sectors. Specifically, the course seeks to provide students with the following:

- understanding the benefits and limitations of different kinds of computer-based information systems commonly used in business, such as database management systems, decision support and enterprise systems,
- a sophisticated awareness of the rich variety of managerial issues raised by information systems, and knowledge of key IS applications and their technical & business architectures,
- information literacy by attending to the managerial implications of selected additional topics, such as the utilization of information systems for competitive advantage and the process of systems development (building an IS).

The focus is not only with information technology alone. Our objective is to understand technological issues and then proceed to examine the more difficult matter of how a business organization can use the technology in efficient and effective ways (for instance, in increasing revenue and gaining a competitive edge).

**Labs and Review Sessions**

During the first part of the semester, class will be divided between lectures and lab work. There will be two lectures each week covering theory and practice in database design and development. During the lab/project session, the TA will be available to provide help with the "hands-on" work in the computer lab and assignments. In the second half of the semester we will have lectures on information systems and discuss real-world case studies.

It's possible that you may not finish all of the lab work in the time allocated. You will need to finish the lab work within a week and demonstrate the lab assignment no later than the following lab meeting.

Review sessions will be conducted during the lecture sessions.
Grading

The assessment for this course will consist of lab work, several assignments, two exams, and a group-based database design and implementation project. All assignments are individual assignments. No collaboration on the assignments is allowed. Solution sets will be distributed when the assignments are returned. The assignments are to be submitted at the beginning of the class on the day they are due. No late homework will be accepted, unless permission is granted. No marks will be allotted for late submissions. For most lab sessions, I will have you turn in a print from the lab session to demonstrate your MS Access skills. The database project will be done in groups of about 4 to 5 students.

In the first part of the course you will complete several components including the MS Access labs, database homework, and the midterm exam. The database project will be completed over the full semester. The second half of the course will cover the remaining 40% of the assessment. Every week we will have class discussions based on case readings allotted for that week. The readings have to be completed prior to the lecture. You will be expected to write a research paper on impact of certain specific technologies in the workplace. The last assessment component is a final exam based on the case studies.

The final assessment is thus divided into the following components:

Each component of the grade will be weighted using the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>DB Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Access Lab</td>
<td>10%</td>
</tr>
<tr>
<td>Database Project</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Examination</td>
<td>20%</td>
</tr>
<tr>
<td>Research Paper</td>
<td>20%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The letter grades will be assigned based on percentage points using the following values:

- 97% – 100%: A+
- 93% – 97%: A
- 89% – 93%: A–
- 85% – 89%: B+
- 81% – 85%: B
- 77% – 81%: B–
- 73% – 77%: C+
- 69% – 73%: C
- 65% – 69%: C–
- Below 65%: R
**Academic Integrity**

The Heinz School takes very seriously its mission to produce graduates who are committed to ethical behavior in all phases of their professional lives. In this regard, the school views any cheating and plagiarism as serious offences. You are required to review the material on academic integrity presented in the master’s program handbook and to monitor your own actions carefully to prevent even the appearance of violations of academic integrity guidelines. Any violations of academic integrity in this class will have the following consequences: (a) at the minimum, no credit for assignment in question, (b) lowering the final grade by one letter, and (c) in more serious offences, failing the class.

**Policy on Cheating and Plagiarism**

Cheating includes but is not necessarily limited to:

1. Submission of work that is not the student's own for papers, assignments, lab exercises, or exams.
2. Submission or use of falsified data.
3. Theft of or unauthorized access to an exam.
4. Use of an alternate, stand-in or proxy during an examination.
5. Use of unauthorized material including textbooks, notes or computer programs in the preparation of an assignment or during an examination.
6. Supplying or communicating in any way unauthorized information to another student for the preparation of an assignment or during an examination.
8. Plagiarism which includes, but is not limited to, failure to indicate the source with quotation marks or footnotes where appropriate if any of the following are reproduced in the work submitted by a student:
   a. A graphic element.
   b. A proof.
   c. A phrase, written or musical
   d. Specific language.
   e. An idea derived from the work, published or unpublished, of another person.

The penalty for cheating on an individual assignment is the loss of all points on that assignment. The penalty for cheating on an exam is 0 points for the exam.
## 91-802 Information Systems for Managers – Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture/Lab Topic</th>
<th>Lab &amp; Homework Assignments</th>
<th>Due</th>
</tr>
</thead>
</table>
| Week 1 | Overview of Database Systems & the Relational Model | *Lab:* Unit A (Getting Started with MS Access)  
Lab assignment #1 |  |
| Week 2 | The Relational Model (cont.); Entity Relationship (ER) Models | *Lab:* Unit B (Building and Using Queries)  
Lab assignment #2  
HW#1 handed out |  
Project: Group membership proposed |
| Week 3 | Entity Relationship Models (cont.) | *Lab:* Unit C (Using Forms) & Unit D (Using Reports)  
Lab assignment #3  
HW#2 handed out |  
HW 1  
Project: Group membership finalized |
| Week 4 | Mapping ER Models into Relational Tables | *Lab:* Unit E (Modifying the Database structure)  
Lab assignment #4 |  
Project: Topic definition due (no more than one page) |
| Week 5 | Normalization | *Lab:* Unit E  
Lab assignment #5  
HW#3 handed out |  
HW 2  
Project: Initial Database Study |
| Week 6 | SQL Queries | *Lab:* Unit F  
Lab assignment #6  
Research Paper Assignment handed out |  
HW 3  
Project: Initial ER Diagram and Schema |
| Week 7 | In-Class Midterm Examination – closed books/notes | *During the Lab/Project Session* |  |

### SUBMISSION GUIDELINES FOR ASSIGNMENTS

1. Lab assignments need to be demonstrated to the Teaching Assistant. No submission required.
2. Database homework, project reports and the research paper needs to be submitted by hardcopy in the class before the start of lecture on Wednesdays.
3. Teaching Assistant will assist with the database project throughout the semester.
<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
<th>Readings &amp; Assignments (read case study &amp; prepare answers to questions prior to class)</th>
<th>Due</th>
</tr>
</thead>
</table>
| Week 7 | Systems Analysis and Design                       | Mastering the 3 Worlds of IT  
Team New Zealand  
Case reading questions 1                                      |                      |
| Week 8 | IS Frameworks  
IT Capabilities and Managerial Roles  
Functional IT  
Case Discussion: Team New Zealand | Harley Davidson  
Case reading questions 2                                      | Project: Database Design |
| Week 9 | Process Integration & Enterprise Systems & Change  
Case Discussion: Team New Zealand | Putting the Enterprise into the Enterprise System  
Case reading questions 3                                      |                      |
| Week 10| Data Integration – Data Warehouse and Business Intelligence  
Case Discussion: Putting the Enterprise into the Enterprise System | Carnival Cruise Lines  
Case reading questions 4  
Additional reading on “Big Data”                         | Paper due before lecture |
| Week 11| Internet, Web 2.0 and NIT  
Case Discussion: Carnival Cruise Lines | Wikis at Dresdner  
Case reading questions 5                                      | Project: Implementation |
| Week 12| E-Commerce                                        |                                                                                       | Project: Final Report |
| Week 13| Lecture: IT ROI and Governance                    |                                                                                       |                      |
|        | Guest Lecture                                     |                                                                                       |                      |
| Week 14| Final Exam (open book)                            | Covers Case Material from Week 7 – Week 13                                           |                      |