

Maryland in Europe Graduate Programs  
Bowie State University

**Database Management and Decision Systems**  
**INSS 550**

April 5/6,26/27; May 10/11,18 2003  
Kapaun  
0900-1700

**Instructor:** Chris Payne PhD  
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**Consultation:** Before or after class or out of class hours by appointment

**Course Description:** *Prerequisite: Either INSS 510, INSS 520, INSS 530, or permission of the instructor.* Examines database concepts and practices as they relate to business environments. Various database structures including relational and object-oriented are discussed. Concepts of distributed database architecture are explored. Design, development, and implementation of databases are examined. Organizational issues concerning the implementation of databases and the role of data in the decision-making process are examined. Decision support system architecture is reviewed with emphasis on the database component. Issues of intelligent databases are discussed. A database project is required.

**Course Goals/Objectives:** At the conclusion of this course the student will understand and be able to explain:

1. Database concepts and practices
2. The relational database model
3. Other database models – hierarchical, network, object-oriented etc.
4. Design development and implementation
  - a. Entity Relationship Diagrams (ERD)
  - b. Relational schema
  - c. Table normalization
  - d. Structured Query Language (SQL)
  - e. ANSI/SPARC 3-level architecture - subschemas
  - f. Other design methods
5. Concepts of distributed database architecture
6. Two- and three- tier database architectures
7. Internet database development
8. Concurrency control and transaction management
9. Security of databases
10. Organizational issues – database administration
11. Role of data and information in decision making

**Text:** Rob, P., and Coronel, C. (2002). *Database Systems: Design, Implementation, and Management* (5<sup>th</sup> ed.). Boston: Course Technology.

**Grading Information:** Grades for this course will be assigned as follows:

|   |          |   |   |
|---|----------|---|---|
| A | 92% +    | C | 70 – 79%                                      |
| B | 80 – 91% | F | Below 70% F(a) or regular non-attendance F(n) |

**Course Requirements:**

|                      |     |
|----------------------|-----|
| Midterm Examination: | 35% |
| Final Examination:   | 35% |
| Project:             | 30% |

**Project Description:** The assignment will be to set up a web-based database system for the sale and purchase by auction of motor vehicles to members of a closed group.

The software for this assignment is open source and consists of the tools :- Apache web server, the MySQL database management system and the PHP4 'glue' language to connect the SQL to web pages. There is also a data administration package - phpMyAdmin for schema creation etc. It is available as a free download from <http://www.nusphere.com/> or on CD-ROM from the instructor. It runs on Windows 95/98/ME/2000/XP, Linux or Solaris. Users of Windows 95 will need a software fix from Microsoft which the instructor can also make available.

Optionally, students can use an alternative technology such as Java applets/servelets, JSP, Perl or ASP.

You will also, of course need a web browser such as Internet Explorer 5 or Netscape Navigator and a web authoring tool for building HTML web pages if you want them to look pretty. Mostly, though, the editing of the pages will use a simple ASCII text editor such as NotePad.

A complete specification will be handed out on the first day of class

**Course Schedule:**

| Module | Topics                        | Assigned readings/assignments due |
|--------|-------------------------------|-----------------------------------|
| 1      | File Systems and Databases    | Ch. 1                             |
| 2      | The Relational Database Model | Ch 2                              |
| 3      | Entity-Relationship Modeling  | Ch 3                              |
| 4      | Database Table Normalization  | Ch 4                              |
| 5      | SQL                           | Ch 5                              |
| 6      | Database Design Methods       | Ch 6                              |
| 7      | Transaction Management        | Ch 9                              |

|    |                                       |       |
|----|---------------------------------------|-------|
| 8  | Midterm Examination                   |       |
| 9  | Distributed Databases                 | Ch 10 |
| 10 | Object-Oriented Databases             | Ch 11 |
| 11 | Client-Server Systems                 | Ch 12 |
| 12 | Data Warehouses                       | Ch 13 |
| 13 | Databases and the Internet            | Ch 14 |
| 14 | Web Database Development              | Ch 15 |
| 15 | Database Administration               | Ch 16 |
| 16 | Final Examination and Project Hand-in |       |

**Academic Policies:** Please refer to the UMUC Maryland in Europe Graduate Catalog, available online at [http://www.ed.umuc.edu/visit/pubs/catalog/grad\\_02-03.pdf](http://www.ed.umuc.edu/visit/pubs/catalog/grad_02-03.pdf) or from your local Education Center, for information on the following:

**Academic Integrity**  
**Course Load**  
**Exception to Policy**  
**Grade Appeal Process**  
**Make-up Examinations**  
**Nondiscrimination**  
**Students with Disabilities**

## **CODE OF CIVILITY**

To promote a positive, collegial atmosphere among students, faculty, and staff, Maryland in Europe has developed the following Code of Civility:

### **Respect**

Treat all students, faculty, and staff with respect and in a professional and courteous manner at all times and in all communications, whether in person or in written communication (including e-mail).

### **Kindness**

Refrain from using profanities, insults, or other disparaging remarks.

### **Truth**

Endeavor to cite only the truth and not knowingly misrepresent, mischaracterize, or misquote information received from others.

### **Responsibility**

Take responsibility for our own actions instead of blaming others.

### **Cooperation**

Work together with other students, faculty, and staff in a spirit of cooperation toward our common goals of seeking and providing quality education.

### **Privacy**

Strive to uphold the right to privacy and not talk about others.

### **Nondiscrimination**

Respect the differences in people and their ideas and opinions and reject bigotry.

**About Your Instructor:** I am Chris Payne, a Collegiate Professor with the University. I have been involved with the Graduate Program in Management Information Systems since 1994 . In all, I have worked for UMUC-Maryland in Europe since 1986 and I spent a year as a visiting associate professor at the University of Maryland in Baltimore between 1985 and 1986. My degrees include a Bachelor's in Math from the University of London, a Masters in Applied Math and a PhD in Computer Modeling from the University of Liverpool. I worked for nearly 30 years as a college professor in the UK interspersed with periods of work in the steel and oil industries. For a few years I ran a small company to market my own software which included a successful program for computer-aided garden design.

*Dr. Chris Payne  
Plésidy, France  
February 2003*