

# IST 365 Database Systems<sup>1</sup>

## Course Syllabus – FALL 2014

5279 –W 16:00p – 18:20p PH 200

**Instructor:** Dr. SeungJin Lim

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**Office hours:** TR 12:30 – 3:30 pm by appointment.

**Course Description:** This course covers the logical and physical structures of data stored and retrieved from a relational database. Exposure to distributed databases, database administration and structured query language will also be provided.

**Required Text, Additional Reading, and Other Materials:** Database Systems Design, Implementation and Management (11th ed.), by Coronel and Morris; Course Technology; ISBN: 978-1-285-19614-5, 2015.

**Recommended Materials:** A relational database tool: MySQL, PostgreSQL, SQLite, etc. A database modeling tool: MySQL Workbench, ER Assistant, Google drive.draw.io

### Course Student Learning Outcomes and Assessment Measures:

| <i>Course student learning outcomes:<br/>Students will</i>   | <i>How practiced in this<br/>course</i>                                 | <i>How assessed in this<br/>course</i>                      |
|--|---|---|
| Students will Identify problems for which database solutions are suitable  | In-class examples, discussions, Ch 1 review questions                   | Exam 1; Project Deliverable 1                               |
| Students will construct conceptual and logical data models based upon a set of information requirements  | In-class examples, discussions, Chs 2, 3, and 4 review questions        | Homeworks 1, 2, and 3; Exams 1 and 2; Project Deliverable 2 |
| Students will translate data model specifications for a relational database  | In-class examples, discussions, Chs 3 and 4 review questions            | Homeworks 3 and 4; Exams 1 and 2; Project Deliverable 2     |
| Students will discuss and show and understanding of the fundamentals of SQL  | In-class examples, discussions, Chs 7 and 8 review questions            | Homework 5; Exam 3; Project Deliverable 3                   |
| Students will discuss the significance of database security and integrity  | In-class examples, discussions, Chs 10, 11, 12, and 15 review questions | Exam 4  |
| Students will implement a database application using MySQL and/or Access   | In-class examples, discussions  | Project Deliverable 3                                       |
| Students will identify requirements for and analyze a problem, implement a solution for that problem, and verify their solution, using computer and information technology | In-class examples, discussions, Chapters 1 through 15 examples          | Project Deliverables 1, 2, and 3                            |

### Course Requirements and Grading:

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<sup>1</sup>Last modified: Friday 22<sup>nd</sup> August, 2014 14:29

|                   |     |
|-------------------|-----|
| Assignments       | 20% |
| Semester Projects | 30% |
| Exams             | 50% |

Grades from assignments and exams are posted to Blackboard. Final letter grades are determined based on the following grading scale:

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| [0,60)   | [60,70)  | [70,80)  | [80,90)  | [90,∞)   |
| <i>F</i> | <i>D</i> | <i>C</i> | <i>B</i> | <i>A</i> |

The instructor reserves the right to change these values depending on the overall class performance and/or extenuating circumstances.

Late assignments will be penalized at the rate of 10% per day, up to two days (including weekends) after the due date.

There will be no make-up chances for missed assignments and exams unless a proper action has been taken for an Excused Absence<sup>2</sup>. It is the student's responsibility to make up the missing exam within a week.

### **Assessment of Projects:**

The grading of all homework assignments and projects will take into account:

1. Although the most important attribute of an assignment is correctness, grading will take into consideration efficiency, documentation, etc.
2. Although interactions with other students are encouraged, you must compose your own answers, unless otherwise noted.

Individuals who utilize other peoples thoughts or ideas must provide appropriate references to said resources, including any and all web resources consulted. Failure to provide such documentation will result in a failing grade for the assignment, and may result in a failing grade for the course.

### **Effort Required:**

As a 300-level course, a considerable amount of work and research effort is required of the student. For every one hour in class, the student is expected to put in an effort of at least 3 hours outside the class for studying and completing assignments and projects. Upon background and preparedness, some students may have to put in additional effort. PLEASE DO NOT PROCRASTINATE. Procrastination and the placing of blame on other factors than yourself have become very large problems in my classes. Prioritize, schedule, and take responsibility for your actions and you should do very well in this class.

**Attendance Policy:** Attendance is strongly encouraged. If necessary, quizzes will be given to ensure your interest in attending. Students generally perform much better if their attendance is consistent. Low attendance is often a strong indication to a failing grade. Exams may cover the subjects which are discussed only in class (not in textbook).

For each topic discussed in the textbook, specific experience of other students and the instructor will be discussed to enhance the characteristics involved. Hands-on projects for the course will be based on creating databases for either real-world or fictitious needs. Additional material may also be covered in the class.

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<sup>2</sup>Defined in the Undergraduate Catalog.

If you are absent, it is your responsibility to find out what you missed, e.g. announcements, assignments, etc.

**Course Outline:** (subject to changes)

| <i>Week of</i> |       | <i>Topics to be covered</i>                          | <i>Assignment</i>   |
|----------------|-------|--|---|
| 1              | 8/25  | Syllabus; Ch 1 Database Systems                      |   |
| 2              | 9/1   | Ch 2 Data Models                                     |   |
| 3              | 9/8   | Ch 3 The Relational Database Model                   | Assignment 1 Due (Ch 2 Problems (pages 64–66), #'s 6, 7, 14, 15, 16)  |
| 4              | 9/15  | Ch 4 ER Modeling; <i>Exam 1 (9/17)</i>               |   |
| 5              | 9/22  | Ch 4 ER Modeling                                     | Assignment 2 Due (Ch 3 Problems (pages 109–112), #'s 10, 11, 13, 14, 15, 25 from Fig. 3.24)   |
| 6              | 9/29  | Ch 6 Normalization                                   |   |
| 7              | 10/6  | Ch 6 Normalization; <i>Exam 2 (10/8)</i>             | Assignment 3 Due (Ch 4 Problems (pages 152–154), #'s 1, 2, 7)   |
| 8              | 10/13 | Ch 7 Structured Query Language (SQL)                 | Assignment 4 Due (Ch 6 Problems (pages 226–228), #'s 3, 4, 6 (a, b, and d))   |
| 9              | 10/20 | Ch 8 Advanced SQL                                    | Assignment 5 Due (Ch 7 Problems (pages 304–311), #'s 44, 45, 46, 47, 48, 49, 50, 51, 54, 55, 57, 60, 64 - See pp. 303–304 for the database) |
| 10             | 10/27 | Ch 9 DB Design; <i>Exam 3 (10/29)</i>                |   |
| 11             | 11/3  | Ch 10 Transaction Management and Concurrency Control | Project Deliverable 1 (Data Dictionary) Due   |
| 12             | 11/10 | Ch 12/13 Distributed DBMS/Data Warehouses            |   |
| 13             | 11/17 | Ch 15 Admin.; <i>Exam 4 (11/19)</i>                  | Project Deliverable 2 (ER Diagram) Due  |
| 14             | 11/24 | <i>Thanksgiving</i>                                  |   |
| 15             | 12/1  |  |   |
| 16             | 12/8  |  | Project Deliverable 3 (Implemented Database) Due  |

**University policies:** By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to [http://www.marshall.edu/academic-affairs/?page\\_id=802](http://www.marshall.edu/academic-affairs/?page_id=802).

Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

**Contact:** Students are encouraged to visit with me. Most problems can be resolved more efficiently and effectively by personal visit. In particular, it may not be the best way to send an e-mail on the due day of an assignment asking a help for the assignment.

Should e-mails are preferred, students should use the e-mail address of the instructor at the beginning of this syllabus. Only the e-mails sent to this account will be responded.

The subject line of any e-mails sent to the instructor should start with “[IST236]”. Otherwise, the e-mails may not be responded properly in a timely manner. Emails sent after hours or weekend will be responded on the following school day.