LIS S511
Database Design

Department of Library and Information Science
School of Informatics and Computing, IUPUI
Spring 2015

Section No.: 32026
Credit Hours: 3
Location: OnCourse
First Class: January 12, 2015
Last Class: May 9, 2015

Instructor: Jingfeng Xia, Ph.D., Associate Professor
Office Hours: By Appointment
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Phone: (317) 278-2178 (Office)
Email: xiaji@iupui.edu

Prerequisites: None

COURSE DESCRIPTION
The goal of this course is to provide students with knowledge and basic skills necessary to design a database for use in a relational database management system (DBMS). The entity-relationship model and normalization are introduced, and the structured query language (SQL) is presented.

Upon completion of this course students will be able to:
1. Understand fundamental database concepts and terminology
2. Conceptually model the relationship of the data
3. Implement the database by transforming the conceptualization into a relational data model
4. Become familiar with the MySQL environment
5. Query the database using SQL

REQUIRED TEXT
Title: Database Systems: Design, Implementation, and Management
Author(s): Carlos Coronel, Steven Morris, and Peter Rob
Edition: 11th Edition
Publisher: Boston, Mass.: Course Technology/Cengage Learning, 2013

Available at the campus student bookstore and also can be found online

DATABASE
Students will have access to MySQL database provided by the school. Detailed information will be available once the class has started.
CLASS PLAN

- The course is completely online so students can follow their own schedule
- It consists of 15 instructional weeks
- OnCourse is used to deliver class materials and for class interactions
- Each week begins on Monday and ends on Sunday midnight
- Class assignments include weekly exercises, a project, and a peer evaluation
- Each exercise is due by Sunday at the midnight
- Late submission policy is in the following section of this syllabus

EXPECTATIONS, GUIDELINES, AND POLICIES

Class delivery:

Online courses are providing great convenience for students who live in different locations or have different schedules. Therefore, there is no requirement for students in this class to meet at a specific time – you can take your own time to log onto OnCourse and learn class materials within a week because each week is considered to be a learning with unit a unique topic.

The negative side of online interactions is that they will demand extra effort for both students and instructors. Also, the interactions cannot be taken directly. However, I will try to post weekly class materials as early as possible and respond to students’ questions promptly.

All communications will be taken on OnCourse asynchronously. I will provide slides and reading materials, if any, on important points for each week. Class discussions will be taken in the forums on OnCourse; and class assignments will be made available and submitted through OnCourse’s assignments tool.

Deliverables:

You are responsible for completing each deliverable (e.g., exercise and project) by its deadline and submitting it by the specified method. Deadlines are outlined in the syllabus or in supplementary documents accessible through OnCourse. In fairness to the instructor and students who completed their work on time, a grade on a deliverable shall be reduced 10% if it is submitted late, and a further 10% for each 24-hour period it is submitted after the deadline.

Class assignments:

- There are totally 10 exercises (see Weekly Schedule below). Students will be asked to provide answers to questions about issues in database design or data management pertaining to what have been learned in a particular week. Each week exercise questions will be posted on OnCourse on Monday or Tuesday so that students will have time to work on them.
- There is a final project which is due in two phases (see Weekly Schedule below). Phase 1 will include database initial analysis and conceptual design for a special purpose established by students. Students need to conduct a detailed analysis of data requirements in order to develop an appropriate topic to work with. Phase 2 will include physical design of a database.
- There is a peer evaluation for the logical design of students’ projects. Each student will be asked to critically evaluate at least one logical database design completed by his/her classmate.
Grading Information:

- Exercises: 50 points (5 points each)
- Project: 40 points
- Peer Evaluation: 10 points

The total score is 100 points. At the end of the semester, everybody’s score is mapped to one of the letter grades according to the grading scale below:

Grading Scale:

A  95–100%  Extraordinarily high achievement, quality of work; shows command of the subject matter
A– 90–94%  Excellent and thorough knowledge of the subject matter
B+ 87–89%  Above average understanding of material and quality of work
B  83–86%  Mastery and fulfillment of all course requirements; good, acceptable work
B– 80–82%  Satisfactory quality of work
C+ 77–79%  Modestly acceptable performance and quality of work
C  73–76%  Minimally acceptable performance and quality of work
C– 70–72%  Unacceptable work (Core course must be repeated for credit)
D+ 67–69%  Unacceptable work (Course must be repeated for credit)
D  63–66%  Unacceptable work
D– 60–62%  Unacceptable work
F  Below 60  Unacceptable work

A+ is not granted in this class.

No credits toward major, minor, or certificate requirements are granted for a grade below C. No credits toward general education or elective requirements are granted for a grade below C–.

WEEKLY SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 1/12 - 1/18</td>
<td>Introduction to class</td>
<td>Available on Oncourse</td>
<td>Self-Introduction On OnCourse</td>
</tr>
<tr>
<td>Week 2 1/19 - 1/25</td>
<td>Introduction to data</td>
<td>Available on Oncourse</td>
<td>(No exercise)</td>
</tr>
<tr>
<td>Week 3 1/26 - 2/1</td>
<td>Fundamentals of DBMS</td>
<td>Chapter 1</td>
<td>Exercise 1 Due on 2/1</td>
</tr>
<tr>
<td>Week 4 2/2 - 2/8</td>
<td>Database Design Process</td>
<td>Chapter 9</td>
<td>Exercise 2 Due on 2/8</td>
</tr>
<tr>
<td>Week 5 2/9 - 2/15</td>
<td>Relational Database Model (I)</td>
<td>Chapter 2</td>
<td>Exercise 3 Due on 2/15</td>
</tr>
</tbody>
</table>
| Week 6  
| 2/16 - 2/22 | Relational Database Model (II) | Chapter 3 | Exercise 4 Due on 2/22 |
| Week 7  
| 2/23 - 3/1 | Conceptual Design: ERM (I) | Chapter 5 | Exercise 5 Due on 3/1 |
| Week 8  
| Week 9  
| 3/9 - 3/15 | Conceptual Design: Extended ERM & Normalization (I) | Chapter 6 | Project - Phase 1 Due on 3/15 |
| Week 10  
| 3/16 - 3/22 | Spring Break | (No class) | (No exercise) |
| Week 11  
| Week 12  
| 3/30 - 4/5 | Logical Design: SQL (I) | Chapter 7 | Exercise 7 Due on 4/5 |
| Week 13  
| 4/6 - 4/12 | Logical Design: SQL (II) Select | Chapter 7 | Exercise 8 Due on 4/12 |
| Week 14  
| 4/13 - 4/19 | Logical Design: SQL (III) Join & Functions | Chapter 8 | Exercise 9 Due on 4/19 |
| Week 15  
| 4/20 - 4/26 | Logical Design: SQL (IV) Operators, Stored Procedures | Chapter 8 | Exercise 10 Due on 4/26 |
| Week 16  
| 4/27 - 5/3 | Trends and Issues in DBMS | Chapters 12, 13, & 14 | Project - Phase 2 Due on 5/1 |
| Week 17  
| 5/5 - 5/9 | Final Examination Week | (No class) | (No exam) |
CODE OF CONDUCT

All students should aspire to the highest standards of academic integrity. Using another student’s work on an assignment, cheating on a test, not quoting or citing references correctly, or any other form of dishonesty or plagiarism shall result in a grade of zero on the item and possibly an F in the course. Incidences of academic misconduct shall be referred to the Department Chair and repeated violations shall result in dismissal from the program. All students are responsible for reading, understanding, and applying the Code of Student Rights, Responsibilities and Conduct and in particular the section on academic misconduct. Refer to The Code > Responsibilities > Academic Misconduct at http://www.indiana.edu/~code/. All students must also successfully complete the Indiana University Department of Education “How to Recognize Plagiarism” Tutorial and Test. https://www.indiana.edu/~istd You must document the difference between your writing and that of others. Use quotation marks in addition to a citation, page number, and reference whenever writing someone else’s words (e.g., following the Publication Manual of the American Psychological Association). To detect plagiarism instructors apply a range of methods, including Turnitin.com. http://www.ulib.iupui.edu/libinfo/turnitin

Academic Misconduct:

1. Cheating: Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.
   a. A student must not use external assistance on any “in-class” or “take-home” examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, calculators, computers, and wireless communication devices.
   b. A student must not use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare work, without advanced authorization from the instructor to whom the work is being submitted.
   c. A student must not use materials from a commercial term paper company, files of papers prepared by other persons, or submit documents found on the Internet.
   d. A student must not collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student’s individual work.
   e. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
   f. A student must not steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
   g. A student must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor or program to whom the work is being submitted.
   h. A student must not, without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.
2. **Fabrication:** A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citation to the sources of information.

3. **Plagiarism:** Plagiarism is defined as presenting someone else’s work, including the work of other students, as one’s own. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered “common knowledge” may differ from course to course.
   
a. A student must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
   b. A student must give credit to the originality of others and acknowledge indebtedness whenever:
      1. directly quoting another person’s actual words, whether oral or written;
      2. using another person’s ideas, opinions, or theories;
      3. paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
      4. borrowing facts, statistics, or illustrative material; or
      5. offering materials assembled or collected by others in the form of projects or collections without acknowledgment

4. **Interference:** A student must not steal, change, destroy, or impede another student’s work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any student’s grade or the evaluation of academic performance. Impeding another student’s work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.

5. **Violation of Course Rules:** A student must not violate course rules established by a department, the course syllabus, verbal or written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.

6. **Facilitating Academic Dishonesty:** A student must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct, nor allow another student to use his or her work or resources to commit an act of misconduct.

**OTHER POLICIES**

1. **Right to revise:** The instructor reserves the right to make changes to this syllabus as necessary and, in such an event, will notify students of the changes immediately.

2. **IUPUI course policies:** A number of campus policies governing IUPUI courses may be found at the following link: http://registrar.iupui.edu/course_policies.html

3. **Classroom civility:** To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, group work, and other classroom exercises. Thus, unnecessary disruptions should be avoided, such as ringing cell phones engagement in private conversations and other unrelated activities. Cell phones, media players, or any noisy devices should be turned off during a class. Texting, surfing the Internet, and posting to Facebook or Twitter during class are
generally not permitted. Laptop use may be permitted if it is used for taking notes or conducting class activities. Students should check with the instructor about permissible devices in class. IUPUI nurtures and promotes “a campus climate that seeks, values, and cultivates diversity in all of its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included, and valued” (IUPUI Strategic Initiative 9). IUPUI prohibits “discrimination against anyone for reasons of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or [veteran] status” (Office of Equal Opportunity). Profanity or derogatory comments about the instructor, fellow students, invited speakers or other classroom visitors, or any members of the campus community shall not be tolerated. A violation of this rule shall result in a warning and, if the offense continues, possible disciplinary action.

4. **Bringing children to class:** To ensure an effective learning environment, children are not permitted to attend class with their parents, guardians, or childcare providers.

5. **Course Evaluation Policy:** Course evaluations provide vital information for improving the quality of courses and programs. Students are required to complete one course and instructor evaluation for each section in which they are enrolled at the School of Informatics and Computing. This requirement has three exceptions: (a) The student has withdrawn from the course; (b) only one student is enrolled in the section (in which case anonymity is impossible); and (c) the section is a laboratory that must be taken with a course having a different section number. Course evaluations are completed at [https://soic.iupui.edu/app/course-eval/](https://soic.iupui.edu/app/course-eval/). Course evaluations are open from the eleventh week. Course evaluations are anonymous, which means that no one can view the name of the student completing the evaluation. In addition, no one can view the evaluation itself until after the instructor has submitted the final grades for the course. In small sections, demographic information should be left blank, if it could be used to identify the student. A course evaluation must close before the grade for that course can be released. To ensure students have had ample opportunity to complete the evaluation, an uncompleted course evaluation could delay the release of the grade for up to a week.

6. **Communication:** The instructor should respond to emails within 48 hours, excluding weekends and holidays, and announce periods of extended absence in advance. The instructor should provide weekly office hours or accept appointments for face-to-face, telephone, or teleconferenced meetings.

7. **Email:** Indiana University uses your IU email account as an official means of communication, and students should check it daily for pertinent information. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from your IU email account.

8. **Disabilities Policy:** In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to reasonable accommodations. Please notify the instructor during the first week of class of accommodations needed for the course. Students requiring accommodations because of a disability must register with Adaptive Educational Services (AES) and complete the appropriate AES-issued before receiving accommodations. The AES office is located at UC 100, Taylor Hall (Email: aes@iupui.edu, Tel. 317 274-3241). Visit [http://aes.iupui.edu](http://aes.iupui.edu) for more information.
9. **Administrative Withdrawal:** A basic requirement of this course is that students participate in all class discussions and conscientiously complete all required course activities and/or assignments. If a student is unable to attend, participate in, or complete an assignment on time, it is the student’s responsibility to inform the instructor. If a student misses more than half of the required activities within the first 25% of the course without contacting the instructor, the student may be administratively withdrawn from this course. Administrative withdrawal may have academic, financial, and financial aid implications. Administrative withdrawal will take place after the full refund period, and a student who has been administratively withdrawn from a course is ineligible for a tuition refund. Contact the instructor with questions concerning administrative withdrawal.

10. **Emergency Preparedness:** Safety on campus is everyone’s responsibility. Know what to do in an emergency so that you can protect yourself and others. For specific information, visit the emergency management website. [http://protect.iu.edu/emergency](http://protect.iu.edu/emergency)

**MISSION STATEMENT**

The Mission of IUPUI is to provide for its constituents excellence in
- Teaching and Learning;
- Research, Scholarship, and Creative Activity; and
- Civic Engagement.

With each of these core activities characterized by
- Collaboration within and across disciplines and with the community;
- A commitment to ensuring diversity; and
- Pursuit of best practices.

IUPUI’s mission is derived from and aligned with the principal components—Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices—of Indiana University’s Strategic Directions Charter.

**STATEMENT OF VALUES**

IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning. IUPUI values the opportunities afforded by its location in Indiana’s capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community, both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.