CS410: Database Engineering, Spring 2019
Weisberg Division of Computer Science
Marshall University

Course Information:

- Instructor: Dr. Cong Pu (Ph.D., Assistant Professor)
- Office: Weisberg Applied Engineering Complex (WAEC) 3109
- Phone: (304) 696-6204
- Email: puc@marshall.edu
- Course meetings: Tue/Thu, 2:00 p.m. – 3:15 p.m., WAEC 2119
- Tentative office hours: Mon, 9:00 a.m. – 12:00 p.m., 1:00 p.m. – 3:00 p.m.
  Wed, 9:00 a.m. – 12:00 p.m., 1:00 p.m. – 3:00 p.m.
  Or by appointment.
- Course web page: (MUOnline) http://www.marshall.edu/muonline/. It is important to visit MUOnline regularly for up-to-date course information.

Course Description: From Catalog

- Study of data models, data description languages, query languages including relational algebra and AQL, logical and physical database design, transactions, backup and recovery. Design and implementation of a database application. (PR: CS 305)

Course Student Learning Outcomes: The table below shows the following relationships: How each student learning outcomes will be practiced and accessed in the course.

Course Student Learning Outcomes	**How students will practice each outcome in this course**	**How student achievement of each outcome will be assessed in this course**
OC-1: Students will be able to demonstrate both conceptual understanding of multi-faceted view of relational database systems and theoretical foundations of the relational data model (**a, f, h, i**)	• Lecture • Example • In-class exercise	• Assignment • Quiz • Exam • Presentation
OC-2: Students will be able to perform conceptual data modeling; and develop entity-relationship data models; map conceptual data models to the relational data model (**a, i**)	• Lecture • Example • In-class exercise	• Assignment • Quiz • Exam
OC-3: Students will be able to develop a database application from inception to completion in a team environment (**c, d, f, i**)	• Lecture • Example • In-class exercise	• Assignment • Quiz • Exam • Presentation

ABET a-i: http://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-computing-programs-2017-2018/#outcomes

Preferred Communication Method and Expected Response Time:

- You can always see me during office hours. No appointment is required.
- You can generally expect an email response within 12 hours. If you don't get a response within 12 hours, please forward your previous email to me to remind me.
- You can generally expect the feedback on assignment, review quiz, and exam in one week after submission. If you don't receive the feedback in two weeks, please send an email to me.

Required Textbooks, Additional Reading, and Other Materials:

- A list of reference books will be used. For more information, please refer to the following resources:
    - Thomas Connolly, and Carolyn Begg. Database Systems: A Practical Approach to Design, Implementation, and Management. Pearson. 6 Edition. ISBN-10: 0132943263. ISBN-13: 978-0132943260.
    - Jeffrey D. Ullman, and Jennifer Widom. A First Course in Database Systems. Pearson. 3 Edition. ISBN-10: 013600637X. ISBN-13: 978-0136006374.
    - Paul DuBois. MySQL. Addison-Wesley Professional. 5 Edition. ISBN-10: 0321833872. ISBN-13: 978-0321833877.
- Important concepts/materials will be included in the lecture notes from various sources, and posted on MUOnline.

Course Requirements and Grading Policy:

- **1st Exam: 15%, Feb 14 (Thursday), 2:00 p.m. - 3:15 p.m., WAEC 2119**
- **2nd Exam: 15%, Mar 21 (Thursday), 2:00 p.m. - 3:15 p.m., WAEC 2119**
- **3rd Exam: 15%, May 09 (Thursday), 12:45 p.m. – 2:45 p.m., WAEC 2119**
    - Closed book and closed notes.
    - There will be **NO** make-up for missing exam. Only university excused absences with appropriate and official **DOCUMENTATION** will be accepted for make-up exam. The make-up exam must be taken within two days after the scheduled exam.
    - If you want to take a conflict exam, you must talk to instructor and provide a valid document at least two weeks before the scheduled exam. The conflict exam must be taken within two days after the scheduled exam.
- **Review Quiz: 10%**
    - Review quiz will **NOT** be announced in advance, so **attendance is highly REQUIRED**.
    - There will be **NO** make-up for missing review quiz due to absence, lateness, etc.. Only university excused absences with appropriate and official **DOCUMENTATION** will be accepted for make-up review quiz. The make-up review quiz must be taken within two days after the scheduled quiz.
- **Assignments: 35%**
    - **Five** assignments will be released in the class, each assignment accounts for 7%.
        - **1st assignment requires individual work**.
        - **2nd – 5th assignments** (later team project) **require team work**.
            - In other words, the team project consists of 2nd – 5th assignments.
    - Assignments should be **TYPPED**, **PRINTED** and **SUBMITTED** at the beginning of class on due date. **Handwritten will NOT be accepted. NO** late submission will be

accepted.
    - Source code should be **SUBMITTED** on Blackboard. **NO** email submission will be accepted. **NO** late submission will be accepted.
    - For 2nd – 5th assignments, each team can have a maximum of two members.
    - *Instructor expect and encourage equal contribution and participation to team assignment. However, all the contribution related issues will be solved by team members only, without instructor involvement.*
- **Team Project Presentation: 10%**
    - After the team project (or 2nd – 5th assignments) is (or are) completed, each team should prepare a presentation to present the team project in the class.
    - All team members must be present during the presentation for credits.
- Plagiarism:
    - Plagiarism or cheating will not be tolerated in the class.
        - 1st plagiarism will result in zero point in the suspected work.
        - 2nd plagiarism will result in immediate dismissal (F grade).
- All grades will be posted on Blackboard.
    - Mid-term grade will be posted before Mar 04 (Monday)
        - Mar 22 (Friday), last day to drop an individual course. Spring semester 2019 calendar: https://www.marshall.edu/academic-calendar/spring-semester-2019/
- Grade Scale:
    - A (100 - 90), B (89 - 80), C (79 - 70), D (69 - 60), and F (59 - 0)

Attendance and Classroom Policy:

- Students are expected to attend punctually all class meetings, from the beginning of the semester until the end of the semester. **After THREE unexcused absences, your grade will be decreased by ONE letter grade and for every two absences afterwards.**
- If a student misses a class without university excused absence, the student should not expect individualized instruction what was missed. This will be effective from the beginning of semester.
- Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor, students are prohibited from engaging in any other form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class.
- Inappropriate behaviors include but not limited to:
    - Late for class
    - Sleeping during class
    - Leaving without proper excuse
    - Web surfing, chatting, or gaming on electric devices

Marshall University Policy: By enrolling in this course, you agree to the University Policies. Please read the full text of each policy (listed below) by going to Academic Affairs: Marshall University Policies. (URL: http://www.marshall.edu/academic-affairs/policies/)

- Academic Dishonesty Policy
- Academic Dismissal Policy
- Academic Forgiveness Policy

- Academic Probation and Suspension Policy
- Affirmative Action Policy
- Dead Week Policy
- D/F Repeat Rule
- Excused Absence Policy for Undergraduates
- Inclement Weather Policy
- Sexual Harassment Policy
- Students with Disabilities (Policies and Procedures)
- University Computing Services Acceptable Use Policy

Course Schedule and Important Dates: Topics and/or dates may be changed during the semester at the instructor's discretion because of scheduling issues, developments in the discipline, or other contingencies.

- Jan 15: Welcome & Course Introduction
- Jan 17: Introduction to Database
- Jan 22: Database Environment
- Jan 24: Database Environment
- Jan 29: Relational Model
- Jan 31: Relational Model & Relational Algebra
- Feb 05: Relational Algebra
- Feb 07: Relational Algebra
- Feb 12: Database System Design Lifecycle
- **Feb 14: 1st Exam. Thursday, 2:00 p.m. – 3:15 p.m., WAEC 2119**
- Feb 19: 1st Exam and 1st Assignment Discussion
- Feb 21: Conceptual Database Design
- Feb 26: Conceptual Database Design
- Feb 28: Entity Relationship Modeling & Information Modeling
- Mar 05: Entity Relationship Modeling & Information Modeling
- Mar 07: Logical Database Design
- Mar 12: Logical Database Design
- Mar 14: Normalization
- Mar 19: Normalization
- **Mar 21: 2nd Exam. Thursday, 2:00 p.m. – 3:15 p.m., WAEC 2119**
- **Mar 26: Spring Break Holiday – University closed**
- **Mar 28: Spring Break Holiday – University closed**
- Apr 02: Physical Database Design
- Apr 04: Physical Database Design
- Apr 09: SQL
- Apr 11: SQL
- Apr 16: SQL
- Apr 18: Object Oriented Data Modeling
- Apr 23: Object Oriented Data Modeling
- Apr 25: Other Database Related Topics
- Apr 30: Final Presentation ("Dead Week")
- May 02: Final Presentation ("Dead Week")
- **May 09: 3rd Exam. Thursday, 12:45 p.m. – 2:45 p.m., WAEC 2119**