

Course Syllabus – CIS 208

Database

Fall Semester (2016)

Instructor Information

Instructor: James Habermas
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Office Hours: Mon. & Wed 11:50am – 12:20pm
Tue. & Thur. 2:00pm – 3:30pm
Thursday night 5pm – 6pm

Course Description

A presentation of the fundamental concepts used in data modeling and database implementation. The data modeling process, basic relational concepts, and the process of normalization, relational algebra, SQL, and guidelines for mapping a data model into a relational database will be covered. Students will model a multimedia and/or text-only problem and implement it on a single machine with a commercially available database package.

Prerequisite: CIS 112, or CIS113, or CIS 125, or CIS 215, or CIS 219.

Student Learning Outcomes

Upon successful completion of this course as documented through writing, objective testing, case studies, laboratory practice, and/or classroom discussion, the student will be able to:

1. Read and interpret an entity-relationship (ERD) model diagram, and map it into a relational model.
2. Apply the technique of normalization to a relational model that results in a set of normalized relations to the level of BCNF.
- *3. Map a relational model into a DBMS product through SQL DDL statements.
- *4. Query a relational database implemented in a DBMS product through SQL DML statements.

* This course objective has been identified as a student learning outcome that must be formally assessed.

Course Outline

1. Conceptual Foundation of the DBMS
 - 1.1 Terminology
 - 1.2 DBMS components and basic architecture
2. Conceptual Foundation of the Relational Model
 - 2.1 Terminology
 - 2.2 Keys and Referential Integrity
 - 2.3 Functional Dependencies and normalization
3. Data Modeling Techniques
 - 3.1 The motivation for Data Modeling
 - 3.2 Basic E-R elements and components
 - 3.3 Basic relationships
 - 3.4 Reading and Interpreting an E-R diagram
4. Relational Mapping and Normalization
 - 4.1 Rules for representing E-R relationships with the relational model
 - 4.2 Constructing a relational model from an E-R diagram
5. Relational Algebra review and SQL
 - 5.1 General syntax rules
 - 5.2 SQL DDL statements
 - 5.3 Introduction to a DBMS product
 - 5.4 Using SQL DDL statements to create a DB
 - 5.5 SQL DML statements
 - 5.6 Using SQL DML statements to query a DB

Important Dates and Deadlines

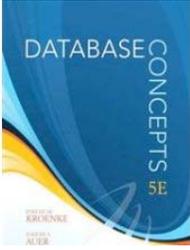
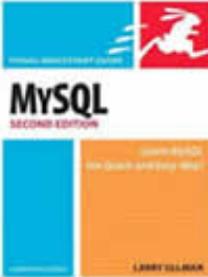
- Last day to withdraw with a grade of “W”: October 22, 2016
- Last day of classes: December 7, 2016
- Objective M/C & T/F Final Exam: Monday December 5, 2016
- Practical Final Exam: Wednesday December 7, 2016

Important: As a student in this course, we expect you to attend all classes and exams. Please make any travel plans accordingly.

Students will not be allowed to “make up” the final exam/midterm exam (or equivalent activities) except in the most extenuating (and documented) circumstances.

Texts and Materials

There are 2 required textbooks for the course.

	<p>Kroenke, David M., <i>Database Concepts</i> (5th Edition), Pearson Prentice-Hall, Upper Saddle River, NJ, 2010. ISBN: 9780138018801</p>
	<p>Ullman, Larry, <i>MySQL Visual QuickStart Guide</i> (2nd Edition), PUBLISHER: PEARSON ISBN: 9780321375735</p>
<p><i>Important</i></p>	<p>You will also need to bring a storage device (USB Memory Stick, etc.) to every class.</p>

Course Organization

Class Attendance and Responsibilities:

Attendance in lectures is documented with practice exercises and sign-in sheets. You are required to attend all lectures and avail yourself of class time to participate in course discussions and activities. Your actions in the classroom and the lab should reflect the standards of behavior expected in a professional environment: you should be respectful of the professor, your classmates, and any course support personnel (notetakers, interpreters, etc). Plus you should willingly participate when asked to do so.

If you must miss a class, please remember it is your responsibility to find out what happened during the missed class and to make up any work related to that class.

Coming to class late, counts the same as an absent, in a computer lab, you must be ready to take notes, and start promptly.

A student's final semester average will be lowered by 3 points for each class they are absent.

Practice Exercises:

Working with databases and SQL requires skills that are best mastered through practice. Following each lecture there will generally be a Practice Exercise designed to reinforce lecture concepts. These exercises will be collected and reviewed by your instructor. It may be possible to complete these exercises during the class session. If the student does not complete them in class, they are due at the beginning of the next class session. Not handing in a Practice Exercise for any reason will result in a grade of zero for that exercise. *There are no make-ups for missed Practice Exercises; practice exercises cannot be submitted late.*

Homework:

Generally, homework assignments will be assigned weekly. This work is to be done outside of class hours. Homework assignments are due the following week.

Late Homework Policy:

Homework assignments will be assigned as an integral part of this course. This work is to be done outside of the usual class hours. Homework assignments will be assigned each week and are due the following week.

A penalty of 25% per day late will be assessed for late submission of homework. Also, you will NOT be able to re-do an assignment once it is turned in for grading. The penalty of 25% off per day counts every day, including Friday, Saturday, Sunday and holidays. 4 days beyond the assigned due date the project is not permitted to be turned in for a grade.

No homework assignments will be accepted after December 1.

Examinations:

Exams are designed to test (1) your mastery of terms and concepts, and (2) the successful application of concepts. There will be two (2) exams during the semester. The use of notes, textbooks, and calculators will not be allowed during these exams.

The Midterm and Final Exams will be a written examination covering material discussed during class, from the reading, and from your lecture notes. The Midterm and Final Practicals will be an applied examination where each student will work with a database and execute DDL, DML, and DCL SQL statements to address a given problem or scenario.

The Midterm Exam and Practical will measure fundamental skills. If a student does not do well on this exam, s/he may still continue in the course, but should see the instructor immediately to discuss the situation. **The Final Exam and Practical** measures more advanced topics that are key to the student's understanding of databases and success in future database courses.

Anticipated test dates are shown on the schedule later in this syllabus. Requests to take a test at a different time will not be honored except in exceptional circumstances such as a documented medical excuse, a serious family emergency, or conflicts with a SUNY Genesee-approved off-campus event. You may be asked to provide documentation to support your request. In this case, arrangements must be made with the instructor at **least 24 hours in advance**. Missing an exam will result in a grade of zero (0), unless special arrangements have *already* been made with the instructor prior to the exam.

Extra Credit Work:

No extra credit assignments or bonus work will be given; plan accordingly.

Notice of Accommodation

If you have a *Notice of Accommodation*, you must provide a copy of the notice to your instructor within one (1) week of the start of this course. A *Notice of Accommodation* cannot be applied retroactively. (That is, you cannot use an *NOA* to retake an exam or practical you performed poorly on.)

Classroom Policies

As your instructor, I want our classroom to be a comfortable environment for learning. While I tend to be fairly laid-back and enjoy having fun with my students, I do have some "rules" for my classroom.

These rules are:

- Out of courtesy to everyone in the classroom, ***all ringers for cell phones, pagers, or any other electronic devices will be turned off while in class***. Repeat offenders may, at my discretion, be penalized. If you ***absolutely must*** take a phone call during our class period (due to a personal or professional emergency), please step into the hallway first.
- Please bring your own materials to class. This means, obviously, pens, paper, textbooks, etc. This also means storage media to save your work.
- Please do not bother neighboring students with off-topic conversations.
- Please ***do not use your workstations/laptops for Instant Messaging, web surfing (back-channeling), game playing, Facebook, shopping, personal e-mail, etc. during class***. I have a responsibility to help you learn this course's content. I cannot satisfy that responsibility if you are not paying attention. In addition, use of your workstation for non-course-related activities can be extremely distracting to neighboring students.
- Please arrive on time for class and plan to stay for the entire class session. Students who persistently arrive late to or leave early from class may be asked to withdraw.

Plagiarism and Cheating

Plagiarism and Cheating: Cheating is obtaining or intentionally giving unauthorized information to create an unfair advantage in an examination, assignment, or classroom situation. Plagiarism is the act of presenting and claiming words, ideas, data, programming code or creations of others as one's own. Plagiarism may be intentional - as in a false claim of authorship - or unintentional - as in a failure to document information sources using MLA (Modern Language Association), APA (American Psychological Association) or other style sheets or manuals adopted by instructors at the College. Presenting ideas in the exact or near exact wording as found in source material constitutes plagiarism, as does patching together paraphrased statements without in-text citation. Disciplinary action may include a failing grade on an assignment or test, a failing grade for the course, suspension or expulsion from the college, as described in the Code of Conduct.

Plagiarism will not be condoned and will result in a failing grade for the course.

Evidence of cheating or copying would result in a failing grade being given for the course.

I DO NOT condone working together in groups.

During an exam you are NOT permitted to view your fellow classmates exams. During an exam, keep your eyes on your own work or you will receive a failing grade for the course.

Important Note: This is a "single instance" policy — there are no second chances!

Policy – Dealing with Students who Misuse Computing Resources

Misuse of the GCC mail system or the Internet or any file on the local network will result in a failing grade being given for the course.

Our computers in our classroom for EDUCATIONAL purposes ONLY!

Genesee Community College is very strict in enforcing the above policies.

Check out the link

<http://hd.genesee.edu/index.php/article/policy-dealing-with-students-who-misuse-computing-resou> for more information on Genesee Community College Academic Computing Policies. Any violations in any of the schools Academic Computing policies will receive a failing grade for the entire semester.

Genesis Conference

A course area within Genesis is available for your use throughout this course. This “conference” will be used to provide you with materials, allow you to submit work, and the ability to review your grades. You can access Genesis using your SUNY Genesee user ID and password.

All homework assignments, lecture notes, and other distributable course materials will be made available through Genesis’s course management system. Unless otherwise indicated, all student homework assignments will be submitted via *Genesis* drop boxes. You are expected to check the course

conference **daily**. Your instructor will use this conference to disseminate information relevant to this course. **Failing to read information posted in the course conference is not an excuse for late or incomplete work.**

Course Communication

Electronic Mail Communicate with your instructor using the e-mail address given on the first page of this document. Please begin your subject-line with "208," followed by your chosen subject title. Instructors receive large amounts of e-mail daily. Following this subject-line guideline will keep your message from getting "lost in the shuffle." When necessary, attach appropriate documentation to your e-mail message. You are expected to check for e-mail related to this course on a **daily** basis. **Failure to check your e-mail is not an excuse for late or incomplete work.**

Grading

Your final grade will be based on the work you submit, your demonstration of knowledge on exams, and your participation in the course.

Component	Weight
Practice Exercises (equally weighted)	15 %
Homework Projects (equally weighted)	25 %
Midterm Exam	15 %
Midterm Practical	15 %
Final Exam	15 %
Final Practical	15 %
-3 points from overall average for each absence	

Letter grade and Numerical semester average

- "A" — 90 and above, "B" — 80 to 89.9, "C" — 70 to 79.9, "D" — 60 to 69.9, "F" — below 60

Saving/Back-up Copies

You **must** bring a storage device to every class. I **strongly** recommend the purchase of multiple storage devices and that you perform a full backup of your work to multiple locations/devices. Be sure you write your name clearly on any storage device so it can be returned to you in the event you leave it in the lab or classroom.

NOTE: The loss of your work because you did not keep multiple backups is **NOT** an acceptable excuse for turning your work in late nor will you receive any extensions or special accommodations if you lose your work!

Course Schedule

The estimated course schedule is shown below. All dates, lecture topics, and assignments are subject to reasonable change at the discretion of your instructor. Changes will be announced.

Reading assignments are shown for the Larry Ullman's text MySQL Second Edition.

Week	Topic	Assignments
1	Introduction/Installing MySQL Development	Chap. 1 HW 1
2	Simple Tables Relations and Keys	HW 2 Chap. 4
3	Data Definition Language Data Manipulation Language Scripts versus Command-line	Chap. 5 pages 104-113
4	Constraints Normalization Many-to-Many, WHERE clause	HW 3 Chap. 3
5	More normal form examples	
6	Relationships Cardinality Foreign Keys (FK)	HW 4
7	Regexp Like Midterm Review	Chap. 5 pages 114-115 Chap. 10 pages 297-298
8	Midterm –October 12, 2016	
9	Relational Algebra, Subqueries Transposing ER	HW 5
10	Transposing continued Two-Table Joins Multi-Table Joins	Chap. 5 pages 117-122,140 HW 6

11	Additional Entity Types Derived attributes Referential Integrity – review Strong entities VS. Weak entities	
12	Subtypes and Supertypes	HW 7
13	Backup / Restore Functions	Chap. 13 pages 392, 396
14	Atomic, Consistent, Isolated, Durable Stored Procedures	Chap. 11 pages 314-329
15	Abstract Tables Review	HW 8
Dec 5	Final – Part I: Objective Multiple choice / True & False	
Dec 7	Final – Part II: Practicum	

Instructional Support Services (view links below for additional information)

Center for Academic Progress (testing, tutoring, disabilities support service): [CAP](#)

Library: [GCC Library](#)

Computer Labs: [GCC Student Computer Labs](#)

Internet access procedures and policies: [Internet Procedures](#)

GCC Help Desk Knowledge Base: [GCC Help Desk](#)

Student Support Services (academic, financial, transfer, career services) [Student Support Services](#)

GCC Contact Information (within GCC or community): [GCC Contact Information](#)

GCC Student Code of Conduct: [GCC Student Code of Conduct](#)