

University of Kentucky
School of Library & Information Science (SLIS)

ICT 301 - 001 Introduction to Databases
Fall 2015
August 27 – December 12, 2015

Instructor

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Preferred method of contact: Email

Office Hours

- TR 9:00am – 11:00am (EST). You will need to make an appointment.
- Contact via email to schedule an appointment
- I will frequently respond to emails as soon as possible, usually within 24 hours weekdays.

Class Information

- TR 11:00am – 12:15am (EST)

COURSE INFORMATION

Course Description

This course is intended to give students a solid background in databases, with a focus on relational database management systems. Topics include data modeling, database design theory, data definition and manipulation languages, storage and indexing techniques, query processing and optimization, and database programming interfaces.

Course Objectives

Students successfully completing the course will be able to:

- Develop a clear understanding of the basic concepts and principles of database systems
- Design a database application using a relational DBMS
- Describe and apply Structured Query Language (SQL)
- Access and manage database information through web technologies.

Course Overview

This course is designed as a hands-on course to develop proficiency in core database concepts. The course will evolve from understanding data traditional tables, then transition to understanding relational databases by designing and building databases using Access and querying using Structured Query Language (SQL). The course also provides an introduction and overview of PHP, including writing basic PHP. Programming projects are required.

Class Information

This is a face-to-face course. You are required to attend scheduled classroom sessions. The Canvas course management system will also be used to facilitate the class. You will need access to an appropriate computer with a broadband Internet connection. ***It is imperative that you have with you in class a laptop computer (tablet can work too as long as they are Windows-based or Unix-based, e.g., Ubuntu, Mac OS X etc.)***. This is a hands-on class with theory presented through practice.

Required Reading

Required Textbook:

Tahaghoghi, S. M. M., & Williams, H. E. (2006). Learning MySQL. O'Reilly Media.

STUDENT EVALUATION

Grading Parameters

- Participation, 10%
- Homework Assignments, 35%
- Midterm Quiz, 20%
- Individual Final Project, 30%
- Project presentation, 5%

Grading Scale

- 90% – 100% = **A (Exceptional Achievement)**
- 80% – 89% = **B (High Achievement)**
- 70% – 79% = **C (Average Achievement)**
- 60% – 69% = **D (Below Average Achievement)**
- 0% – 59% = **F (Failing)**

Participation

Participation involves activity in class. You are expected to communicate and collaborate with your classmates in class. Helping each other will also help simulate problem-solving situations found in a professional workspace.

Submission of Course Assignments

All assignments should be submitted before 12 o'clock midnight on the day of the due date. All due dates are posted on the course calendar. Late assignments will not be accepted.

Competence vs Skills

Technology changes rapidly. When I first touched a computer I was using MS-DOS as my operating system. All the skills that I obtained during that era are almost completely obsolete. The competence of understanding how software is built and structured stayed with me which helped me transition through a variety of operating systems as times and needs changed. Having me spoon-feed you the answers will teach you how to work with the software you are currently learning, while your understanding of other similar or future software and technologies at large will still be at the same or a bit higher level. Computer efficacy is gained through personal effort and sadly frustration. It is through a process of searching and trial and error that competence is gained. Please bare that in mind, that while I will give you breadcrumbs to follow and get you to completing your assignments, I require you to put a personal effort as my goal is to make you competent administrators, not just skilled at "Software X Version 1.0" that you will encounter during your time in this class.

Backups!

It is your responsibility alone to maintain backups of your work. Using services such as cloud (e.g., dropbox) or flash drives to maintain backups will prevent you from losing your

work due to unfortunate circumstances such as computer theft etc., and, it is a good habit for both personal and professional affairs. Lost work will not account for an excuse in this course.

Asking for Help!

Since this is a technical course you are most likely to encounter issues or get stuck with an assignment. The optimum process for addressing these issues and resolving them (similar to that followed by many professional today) is in the following order:

1. Use a search engine such as Google to search for the issue using a variety of keywords (you can also use descriptive terms related to your problem)
2. Attempt to read the search results and try out their solutions
3. Ask your classmates
4. Post your issue on a forum or community such as stackexchange.com or stackoverflow.com
5. Email Michael about the issue. In your email you should demonstrate that you have attempted to resolve the issue on your own by including what you have found through a search engine or your post on a forum. Please be specific about your problem. Descriptions like "I have a problem with MySQL" are hardly informative about what your problem may be.

Note: Contact me far enough in advance so that I can respond and you can make adjustments or corrections. While I may respond the same afternoon for emails I receive in the morning, I may not respond until the next weekday (excluding holidays). Do not email me on the due date of the assignment. Get assignments done as far in advance as possible to avoid problems or to give you time to contact me with questions that might arise. You never know when you might need clarification before an assignment is due. This is also a good way to avoid any issues with technology that can and will happen.

Group Work and Collaboration

Although you will be individually evaluated, group collaboration is allowed and encouraged. You are advised to ask questions and collaborate to solve any issues you may encounter with the website development.

TECHNOLOGY INFORMATION & RESOURCES

This course will be conducted asynchronously via the Blackboard course management system. There are also synchronous classroom sessions which is advisable to have laptop/tablet. Please visit the links below to learn about this system and the login requirements:

- <http://www.uky.edu/DistanceLearning/current/technology/blackboard.html>
- <http://www.uky.edu/Blackboard/>

In order to have a successful educational experience, there are minimum technology requirements that should be met. You can review the minimum recommendations and guidelines for your computer at

<http://www.uky.edu/ukit/hardwareguide>.

You are also encouraged to acquire the following hardware, software, and Internet connection to ensure that all systems used will function properly:

- Internet Connection
- The latest version of Java (Available through <http://java.com/en/>)
- The latest version of Adobe Flash (Available through <http://get2.adobe.com/flashplayer/>)
- The latest version of Adobe Acrobat Reader (Available through <http://get.adobe.com/reader/>)
- Microsoft Office (Available free to students through <http://download.uky.edu>)
- 1 MBPS Connection

To test your Internet connection to see if it is sufficient, run the speed test at <http://www.uky.edu/DistanceLearning/current/technology/techReqs.html>.

Students are expected to have a minimum level of technological acumen and the availability of technological resources. Students must have regular access a computer with a reliable Internet connection.

Please be certain that your computer and/or browser allows you to view Adobe Reader documents (.pdf). Microsoft Office and other software products are free for students: <https://iweb.uky.edu/MSDownload/>.

As your instructor, I am your first go-to person for technology problems. If you need more immediate assistance, please contact UKIT.

Information Technology Customer Service Center (UKIT)

<http://www.uky.edu/UKIT/>; 859-218-4357

Library Services

Distance Learning Services

<http://www.uky.edu/Libraries/DLLS>

- Carla Cantagallo, DL Librarian
- Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6)
- Email: dllservice@email.uky.edu
- DL Interlibrary Loan Service:
http://www.uky.edu/Libraries/libpage.php?lweb_id=253&lweb_id=16

Course Reserves

http://www.uky.edu/Libraries/page.php?lweb_id=23&lweb_id=3

GENERAL COURSE POLICIES

Policies concerning academic integrity, excused absences and academic accommodations due to disability are available online at:

<http://ci.uky.edu/lis/sites/default/files/policies.pdf>

COURSE CALENDAR

(Schedule and readings is subject to change. Changes will be posted in the Announcements.)

Modules & Dates	Topics & Readings	Due
Aug 27 - Aug 30	Introduction to Relational Databases and Setting up MySQL and PhpMyAdmin on Openshift.com	
Aug 31 - Sep 6	Accessing MySQL through terminal, Accessing through PhpMyAdmin, Basic Commands	<ul style="list-style-type: none"> • Homework 1 (H1)
Sep 7 - Sep 13	Entity Relationship Diagrams	
Sep 14 - Sep 20	SELECT statement	<ul style="list-style-type: none"> • H2
Sep 21 - Sep 27	INSERT INTO statement, DELETE, UPDATE statements	<ul style="list-style-type: none"> • H3
Sep 28 - Oct 4	Working with Database Structure, Part 1	
Oct 5 - Oct 11	Working with Database Structure, Part 2	<ul style="list-style-type: none"> • H4
Oct 12 - Oct 18	Working with Database Structure, Part 3	<ul style="list-style-type: none"> • H5 • Midterm quiz
Oct 19 - Oct 25	Advanced Querying, Inner Join	
Oct 26 - Nov 1	Advanced Querying, Nested Queries	
Nov 2 - Nov 8	DISTINCT, EXPLAIN, INSERT IGNORE statements	<ul style="list-style-type: none"> • H6
Nov 9 - Nov 15	User and Privileges Management	<ul style="list-style-type: none"> • H7
Nov 16 - Nov 22	Backup and Restore MySQL	
Nov 23 - Nov 29	Tuning Up Your Server	
Nov 30 - Dec 6	Final Project Presentation and Feedback	<ul style="list-style-type: none"> • Project Presentations
Dec 7 - Dec 11	Anything goes	<ul style="list-style-type: none"> • Individual Final Project (Due Dec 14)

COURSE ASSIGNMENTS

Homework Assignments

Assignments can be uploaded as txt, doc, docx, rtf, odf files. Make sure that your solutions work. Each week's assignment should take between 15 to 45 minutes of your time to complete.

Midterm mini quiz

Once the date for the mini-midterm quiz is announced you will have to go to the canvas homepage where under the assignments section you will be given a specific window of time in which to complete the quiz. Make sure you have a stable Internet connection since you won't be able to retake the exam.

Individual Final Project

As a requirement of the course, you will develop a small, but fully functional database system. You need to find a real world situation that you can use as a basis for the project such as a CD collection management system, a personal book management system and so on. One table is definitely not enough. Keep in mind that the data in the table serves as a showcase and does not count towards your grade. Structure and data types on the other hand do count towards your grade. In general, the project requires you to design and build

tables and queries that will be used to demonstrate transactions. Assume that the interface already exists, what queries would you need for an individual to interact with the system? Further information will be posted on Canvas.