IST659 Fall 2016 Huang Syllabus
Data Administration Concepts and Database Management
Last Updated Aug 28
This version overwrites all previous versions

Instructor: Yun Huang	M001 (Mon 2:15pm – 5:05pm) Hinds Hall 013
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Office hour: Mon 12:30pm – 13:30pm @ Hinds 013	TA office hour: Thurs or Friday (TBD), iCafe

I. Prerequisites (not required, but preferred)
IST552: Information Systems Analysis: Concepts and Practice
IST352: Information Analysis of Organizational Systems

II. Course Description
IST 659 is an introductory course to database management systems. This course examines data structures, file Organizations, concepts and principles of database management systems (DBMS); as well as, data analysis, Database design, data modeling, database management and database implementation. More specifically, it introduces hierarchical, network and relational data models; entity-relationship modeling; basics of Structured Query Language (SQL); data normalization; and database design. Using Microsoft's Access and SQL Server DBMSs as implementation vehicles, this course provides hands-on experience in database design and Implementation through assignments, lab exercises and course projects. This course also introduces advanced database concepts such as transaction management and concurrency control, distributed databases, multi-tier client/server architectures, web-based database applications, data warehousing, and NoSQL.

III. Learning Outcomes
After taking this course, the students will be able to:

Describe fundamental data and database concepts,

Explain and use the database development lifecycle,

Create databases and database objects using popular database management system products,

Solve problems by constructing database queries using Structured Query Language (SQL),

Design databases using data modeling and data normalization techniques,

Develop insights into future data management tool and technique trends,

Recommend and justify strategies for managing data security, privacy, audit/control, fraud detection, backup and recovery,

Critique the effectiveness of DBMS in computer information systems.

IV. Course Materials

Textbook
Hoffer, Jeffery B, Prescott, Mary B, and McFadden, Fred, Modern Database Management, 11th ed. Upper Saddle River, New Jersey: Prentice Hall, 2009, ISBN: 0-13-978-0-13-600391-5 (9th and 10th editions acceptable)

A desk copy has been deposited to the reserve room at the Bird Library. Students can check it out for two hours each time.

Software
SQL-Server, Visio, and Access

> The above software packages have been installed on the lab computers.
> https://answers.syr.edu/display/ischool/Connecting+to+Microsoft+SQL+Server

Here are some other options to use the above software.

1. Remote access to the Lab from home https://answers.syr.edu/display/ischool/iSchool+Remote+Lab.

2. You can download and install Microsoft Access and Visio onto your own computers through MSDNAA. You can also download SQL Server Express from Microsoft website onto your computer and remotely connect to the class SQL Server. Software access from home is limited for Mac and Unix/Linux users. Please contact iSchool help desk, TA or the instructor for help when necessary.

V. Assessment

Many of the skills taught in this course will be reinforced through in-class discussions and exercises, lab assignments, and course project. These repetitions will help you master the important skills. Accordingly, a variety of assessments will be used to assess student progress. Your final grade is determined by your performance on the items in the table below. An overview of each item is provided in the remainder of this section.

Assessment Item	Weight %
Class participation (class exercises, participation to the advance topics)	11
Lab reports (total 8 labs)	40
Advance Topic Presentation (2-people group presentation)	5
Project proposal	4
Project design report	8
Project demo	10
Project peer evaluation (at least submit 8 reviews of other students' projects)	4
Project final report	8
Two random quizzes	10
Total	**100**

Attendance and class exercises
Class participation is important for this class. Students are required to attend classes and actively participate in class discussions and exercises. Students are required to post their in-class and post-class exercise answers to the corresponding forums in the BlackBoard. Only legitimate excuses with supporting document(s) will be accepted for missing classes, such as job interviews and medical conditions. The instructor may recommend that a student be dropped from a course for poor achievement due to excessive absence.

These exercises are designed to encourage students to practice their newly learned knowledge, and thus the grading is based on participation only, not performance. At the end of the semester, all participations in the exercise forums will be tallied to calculate student grade in the class exercise category.

Lab assignments
Eight lab assignments will be given during the semester. Follow the instructions on the lab manual to complete The assignments. You are free to discuss the assignments with your classmates, but you must write up the report Yourself.

Assignments must be professionally prepared and submitted electronically to the BlackBoard. No hand-writing or

hand-drawing assignments will be accepted. All assignments should be submitted in Word files named as "*Lab_Num_Lastname_Firstname.doc(x)*". Grades for the assignments and the graded assignments with comments will be made available in the BlackBoard.

The main topics of the lab assignments are as follows:

      Data modeling I

      Data modeling II

      Data normalization

      SQL I DDL

      SQL II DML single-table query

      SQL III DML multi-table query

      Views and Transactions

      Client/Server database

Course project

The objective of the project is to use the main skills taught in this class to build a real database system. You will work on an individual project throughout the semester and turn in the updated reports at each checkpoint. You will get feedback from peers at the checkpoints.

    Checkpoint 1: project proposal

Your proposal should include an overview of the data management problem and your proposed solution. You should also provide a project schedule with key deliverables and estimated duration for each sub-task.

    Checkpoint 2: database design report

This report should include the business rules and the normalized tables.

    Checkpoint 3: project demo

Before the end of the semester, you will demonstrate your database systems. Your fellow students will ask questions and give comments. You can still improve your project after the demo.

    Checkpoint 4: database final report

After the demo, each student should submit a final report explain your final report, including what you have implemented and what bugs or problems you have fixed. This report should include (1) SQL statements for data definition and manipulation as well as screen shots of the results; (2) the input data forms and output data reports.

Grading

The following are grade expectations and divisions according to the grading policy of the School of Information Studies. An "A" means the student has the capability to independently build a small-scale database for a client. If a student had a bumpy start at the beginning of the semester but ended up finishing a very high-quality project, his or her project performance will be considered in the final adjustment of the grade. Grades will not be curved in this class.

Grade	Points	Grade	Points	Grade	Points	Grade	Points
A	95.00-100.00	B+	87.00-90.99	C+	77.00-79.99	D	60.00-69.99
A-	91.00-94.99	B	83.00-86.99	C	73.00-76.99	F	0-59.99
		B-	80.00-82.99	C-	70.00-72.99		

Late Submission: All assignments should be turned in on time (please pay attention on the submission window).

Late submission will be penalized 20% for any part of the first 24 hours, 50% for any part of the second 24 hours, and 100% thereafter.

Correction: Grades should not be negotiable. If you find any error, please send your request to the TA and cc the instructor for re-evaluation <u>within one week</u> after the grade is sent out; grades cannot be changed thereafter.

VI. Course Policies

Communications
This course will use the SU BlackBoard System as the main communication platforms. Students are required to check their BlackBoard accounts on a regular basis. Important announcements will be posted to the Announcements board. Failure to read the class announcements will not be considered a suitable excuse for not being informed. The BlackBoard can be accessed at http://blackboard.syr.edu. Questions regarding the BlackBoard should be directed to ilms@syr.edu or Peggy Brown at 315-443-9370. All

emails to the instructor should be sent with subject line starting with "[IST659]".

Academic Integrity
Syracuse University's Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the policy and know that it is their responsibility to learn about course-specific expectations, as well as about university policy. The university policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same written work in more than one class without receiving written authorization in advance from both instructors. The presumptive penalty for a first offense by an undergraduate student is course failure, accompanied by a transcript notation indicating that the failure resulted from a violation of Academic Integrity Policy. The standard sanction for a first offense by a graduate student is suspension or expulsion.

For more information and the complete policy, see http://academicintegrity.syr.edu

Disability-Related Accommodations
If you believe that you need accommodations for a disability, please contact the Office of Disability Services(ODS), http://disabilityservices.syr.edu, located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Religious Observances Policy
SU religious observances policy, found at http://supolicies.syr.edu/emp_ben/religious_observance.htm, recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through
MySlice/StudentServices/Enrollment/MyReligiousObservances from the first day of class until the end of the second week of class.

Ownership of Student Work
In compliance with the Federal Family Educational Rights and Privacy Act, works in all media produced by students as part of course participation at Syracuse University may be used for educational purposes, provided that the course

syllabus makes clear that such use may occur. It is understood that registration for and continued

enrollment in a course where such use of student works is announced constitutes permission by the student. After such a course has been completed, any further use of student works will meet one of the following conditions: (1) the work will be rendered anonymous through the removal of all personal identification of the work's creator/originator(s); or (2) the creator/originator(s)' written permission will be secured. As generally accepted practice, honors theses, graduate theses, graduate research projects, dissertations, or other exit projects submitted in partial fulfillment of degree requirements are placed in the library, University Archives, or academic departments for public reference.

Class Schedule

Week	Date	Topic	Advance presentation video uploaded **BEFORE** the Monday of that week	Items due **after** the class – by Sunday Noon of that week	Recommended Readings before class (additional readings may be provided)
1	08/29	Introduction; project preparation			Ch 1,2
		No Class (09/05) – Labor Day Holiday			
2	09/12	Data modeling I (entity and binary relationship) Access I	Group 1	Lab1, and Project proposal	Ch 3
3	09/19	Data modeling II (unary and ternary relationship)	Group 2	Lab2	Ch 4
4	09/26	Data modeling III (hierarchical relationship)	Group 3	Lab3	Ch 5
5	10/03	data normalization	Group 4	Lab 4, and Design report	
6	10/10	physical database design SQL I	Group 5	Lab 5	Ch 6, 7
7	10/17	SQL II	Group 6	Lab 6	Ch 7,8
8	10/24	SQL III	Group 7	Lab 7	Ch 8
9	10/31	client/server systems; interface design (using Access)	Group 8		Ch 13
10	11/07	SQL Functions, store procedures	Group 9	Lab 8	Ch 9,10
11	11/14	Trigger and Transaction	Group 10		
		No Class (11/21) Thanksgiving Break	Demo slides due before 12/05 9:30am for both groups		
12	12/05	Project Demo	Group 11, 12		
13	12/12	Project Demo	Group 13,14	Final Report	

Acknowledgements