HCC | **HOUSTON COMMUNITY COLLEGE**

**Division of Digital and Information Technology
Computer Programming Department**
https://www.hccs.edu/programs/areas-of-study/science-technology-engineering--math/computer-programming/

ITSE1346: Database Theory and Design | Lecture| #16955
Fall 2019 | 16 Weeks (8.26.2019-12.15.2019)
Distance Learning | On-Line | 24 x7
3 Credit Hours | 96 hours per semester

Instructor Contact Information

Instructor: Stephen Linkin.   Office Phone: N/A
Office: As needed   Office Hours: By Appointment
HCC Email: stephen.linkin@hccs.edu   Office Location: Southwest College (Various)

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear the concerns and just to discuss course topics.

Instructor's Preferred Method of Contact
The Internal CANVAS mail is preferred for class communications. Communications of private matter require HCC Email. The subject block for any e-mail should contain:
ITSE1346 DE Last-named, First-name - Topic

I will usually respond to emails within 24 hours Monday through Friday except for holidays; I will reply to weekend messages on Monday mornings.

What's Exciting About This Course

This course is an introduction to databases, the hidden storehouse for information on computers. It introduces student to the art of analysis and use of data requirements for organization and building normalized tables. Students will design database tables with relationships, create entity-relationship models and diagrams, create and update tables, normalize data tables, retrieve and maintain data. Demonstrate skill in a project

My Personal Welcome

Welcome to Professor Stephen Linkin's ITSE-1346 class. I hope you will have an enjoyable learning experience. The rules for DE are very important, especially for this class as we emulate a working business environment for much of this ter. We have rules requiring you to use the correct mail system which should be the HCC-Webmail not the CANVAS mail. The subject line is important.

As its title indicates, this is an introductory course to databases. The course starts with an overview of terminology, and culminates with a business model of a database design in teams

Please read the rest of this syllabus for course description, pre-requisites, students learning outcomes, required textbook and instructional material, course assignments/assessments, as well as other course policies (participation, makeup, etc.). See also the **Course Calendar on Canvas** for assignments/assessments and due dates

As the course progresses, you may experience challenging ideas or difficulties completing your coursework. I am available to support you. The best way to reach me is through Canvas e-mail. If, for any reason, you can't access Canvas, you can reach me at my HCC e-mail (stephen.linkin@hccs.edu). Another way to really discuss issues is in person and I am available by appointment at selected sites to tackle the questions. You should complete the course with a solid understanding of database design. So please visit me or contact me by email whenever you have a question.

Prerequisites and/or Co-Requisites

Must be at college-level skills in reading and writing, place into MATH 1314 College Algebra or higher, Computer classes you should have completed include COSC1436 or ITSE1402, BCIS1405 or ITSC1309), and ENGL1301. If you have enrolled in this course having satisfied these prerequisites, you have a higher chance of success than students who have not done so. Please carefully read and consider the repeater policy in the HCCS Student Handbook.

Canvas Learning Management System

This section of ITSE 1346 will use Canvas (https://eagleonline.hccs.edu) as the primary location for class assignments, exams, and activities. Follow instructions carefully. It is important that you follow the sequence outlined in the Course material on the web site for CANVAS if you have problems, HCCS has Open Lab locations that may be used to access the Internet and Canvas. For best results **USE FIREFOX OR CHROME AS THE INTERNET BROWSER**.

HCC Online Information and Policies
Here is the link to information about HCC Online classes including the required Online Orientation for all fully online classes: http://www.hccs.edu/online/

Scoring Rubrics, Sample Assignments, etc.
Look in Canvas for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course. https://eagleonline.hccs.edu/login/ldap

Instructional Materials

Textbook Information

The textbook listed below is *required* for this course.
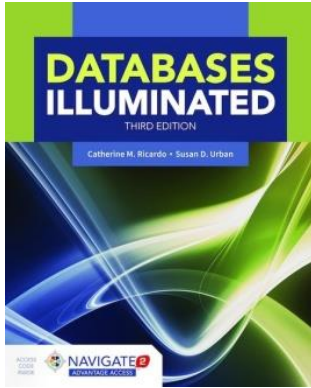
"**Databases Illuminated**", Third Edition
Authors: Catherine M. Ricardo, Susan Urban
ISBN: 978-1-284-05694-5
Publisher: Jones & Bartlett Learning

The book is available at the HCC Bookstore. Order your book here: HCC Bookstore.

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Tutoring
HCC provides free, confidential, and convenient academic support, including writing critiques, to HCC students in an online environment and on campus. Tutoring is provided by HCC personnel in order to ensure that it is contextual and appropriate. Visit the HCC Tutoring Services website for services provided.

Libraries
The HCC Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries' resources and services is the HCCS library web page at http://library.hccs.edu.

Supplementary Instruction
Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at http://www.hccs.edu/resources-for/current-students/supplemental-instruction/.

Course Overview

ITSE 1346 Introduces the fundamental concepts of the art and science of database design and Introduction to the analysis and use of data requirements and organization using normalized tables. (This course assumes computer literacy. This in the Computer Science Field of Study course list.)

Core Curriculum Objectives (CCOs)

ITSC1346 satisfies Component Area Option in the HCCS core curriculum. The HCCS Core Curriculum Committee has specified that the course address the following core objectives:

- *Critical Thinking*: Students will demonstrate the ability to engage in inquiry and analysis, evaluation and synthesis of information, and creative thinking by completing programming assignments that involve analyzing a problem, designing a solution to solve the problem, and implementing the solution including testing it against problem specifications and debugging it.
- *Communication Skills*: Students will demonstrate effective development, interpretation and expression of ideas through written, oral, and visual communication by analyzing the merits and drawbacks of alternative approaches to solving problems through online or in-class discussions and/or answering questions on quizzes and exams.
- *Quantitative and Empirical Literacy*: Students will demonstrate the ability to draw conclusions based on the systematic analysis of topics using observation, experiment, and/or numerical skills by completing assignments, and answering questions on quizzes and exams.

Program Student Learning Outcomes (PSLOs)

Can be found at:
https://www.hccs.edu/programs/areas-of-study/science-technology-engineering--math/computer-programming/

Course Student Learning Outcomes (CSLOs)

Upon completion of ITSE1364, the student will be able to:

- Describe how data are represented, manipulated, and stored in a computer.
- Categorize different database structures.
- Understand and use the fundamental concepts of database design to construct a 3rd Normal form relational database model
- Demonstrate a fundamental understanding of SQL to build a prototype database
- Develop projects that utilize logical algorithms from specifications and requirements statements.
- Demonstrate appropriate design, modeling, testing, and documenting of database objects that implement project specifications and requirements.

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Learning Objectives

Learning Objectives for each CSLO are under development.

Student Success

Expect to spend at least twice as many hours per week outside of class as you do in class studying the course content. Additional time will be required for programming assignments. The assignments provided will help you practice the concepts discussed in class lectures and hone your programming hand-on skills. Successful completion of this course requires a combination of the following:

- Reading the textbook
- Attending class in person and/or online
- Completing assignments
- Participating in class activities

There is no short cut for success in this course; it requires reading and studying the material and more importantly completing the programming assignments.

Instructor and Student Responsibilities

As your Instructor, it is my responsibility to**:**

- Provide the grading scale and detailed grading formula explaining how student grades are to be derived
- Facilitate an effective learning environment through learner-centered instructional techniques
- Provide a description of assignments
- Inform students of policies such as attendance, withdrawal, tardiness, and making up assignments
- Provide the course outline and class calendar
- Arrange to meet with individual students ss as needed

As a student, it is your responsibility to**:**

- Attend class in person and/or online
- Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me
- Read and comprehend the textbook
- Complete the required assignments and exams as scheduled
- Ask for help when there is a question or problem
- Keep copies of all paperwork, including this syllabus, handouts, and all assignments
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook
- Work with other students as assigned to complete projects

Assignments, Exams, and Activities

Assignment

There will be related design and modeling assignment in each module. Unless indicated otherwise, all assignments will be assigned and submitted using the Canvas mail with correct file names. Each assignment will consist of a set of tasks requiring independent analysis of a business problem. Your solution will consist of appropriate lists, charts and diagrams as described.

Exams

There will be Three on-line exams (True/False Multiple Choice) and a final exam. All exams will be closed-book, closed-notes. The Final is a proctored exam to be taken in-person. Please see Grading formula for the weight of each exam toward your course grade and see the Course Calendar on Canvas for scheduled exam dates and the time limit for each.

In-Class Activities

A term project which is peer graded will be presented on a campus site to be designated. The assignment Will be submitted by the team leader using HCCS Webmail as a zipped Archive Project to be presented in person by the team on the designated date., etc.

Final Exam

The final exam will be administered on campus (i.e. must be taken in person). It will be closed book, closed notes and a comprehensive exam.

Make-up exams will be given *only* in cases of extenuating circumstances. Extenuating circumstances are **unexpected and unavoidable** situations such as hospitalization or auto accident. They do not include forgetting about the date of the exam, busy work schedule, etc. You would need to provide documentation to your instructor as soon as possible after the missed assignment/assessment for consideration. Extenuating circumstances will be evaluated by your instructor on a case by case basis. It is your responsibility to contact your instructor with documentation of your situation as soon as possible, schedule a makeup exam, and submit the proper documentation to the department. All missed grades will be recorded as zeros.

Grading Formula

Item	Points
Average of 1st three tests and Semester Project	45%
Semester Lab Projects GRADED 0-100 Points	25%
Class Participation and Assignments PASS/FAIL	10%
Final Exam GRADED 0-100 Points	20%
TOTAL	100%

Grade	Total Points
A	900+
B	800-899
C	700-799
D	600-699
F	< 600

Incomplete Policy:
In order to receive a grade of Incomplete ("I"), a student must have completed at least 85% of the work in the course. In all cases, the instructor reserves the right to decline a student's request to receive a grade of Incomplete.

HCC Grading Scale can be found on this site under Academic Information:
http://www.hccs.edu/resources-for/current-students/student-handbook/

Course Calendar

Date	Event	Semester	
Aug 25	Registration Ends	Fall	
Aug 26	16 WK: Classes Begin	Fall	
Sep 2	Labor Day		
Sep 9	**Official Day of Record**	**Fall**	
Oct 31	Halloween		
Nov 1	**Last day to withdraw**	**Fall**	
Nov 11	Veterans Day		
Nov 28-30	Thanksgiving		
Dec 2	**Project Presentations**	**Fall**	
Dec 5	Last day of instruction	Fall	
Dec 6-7	**DE Final**	Fall	
Dec 15	Semester Ends		Fall

Wk.	Cut Off Date	Topic(s)
	8/26	**Introduction:** Orientation, and e-mail Practice (Failure to complete Orientation will result in and automatic drop
1.	**8/31**	**Zipping-** Learning how to Compress and send Files for assignments. **Chapter 1**- Introductory Database Concepts: Why Use a Database? What is a Database Processing System? How to Build a Database. History of Database Processing **Assignment #1:** Following the instructions on the "Course Items" Web site for LAB 1, Place the files in a Zip File, then send it to me as an attachment via e-mail. *(To get your points it must work on the first try) Practice by sending it to yourself*
2.	**9/7**	**Chapter 2-** - Database Planning and Architecture: Data as a resource, The Characteristics of Data, Stages in Database Design, Design tools, Database Administration, Three Level Architecture, Database Models **Analysis –** Learning to analyze a problem and create a plan for a project **Assignment #2:** Following the instructions on the "Course Items" Web site, for LAB 2, Place the files in a Zip File, then send it to me as an attachment via e-mail.
3.	**Self Paced**	**Chapter 3-** The Entity Relationship Model: Understand the Purpose of the ER Model, identify and define Entities and their Attributes, Select Keys, understand and define Relationships **Chapter 4- The Relational Model** Advantages of Relational Modes, Data Structures, Integrity constraints, Schemas, SQL and sub Languages, Views, mapping schemas.

4.	9/21/19	**On-Line Test #1** **Available 8/18/19**
5.	9/28	**Chapter 5-**: **Relational DBMSs and SQL** History of SQL and DBMSs; the Architecture of a relational system, SQL its DDL and DML. Processing Active Databases with Commit and Rollback. Programming in SQL **Chapter 6 - Normalization** Why Normalize, the Normal Forms. The Anomaly classes, Functional Dependencies, More About KEYS, and Decomposition. The Normalization Process, and when to stop **Assignment #3:** Following the instructions on the "Course Items" Web site, for LAB 3, Place the files in a Zip File, then send it to me as an attachment via e-mail. **REVIEW ACCESS**
6.	Self Paced	**Chapter 7- The Object Oriented Model** Rational for this model, Object Oriented Data Concepts. Data modeling with UML; OMG and DDL an Object query language, Developing OO Databases.
7.	10/5	**Chapter 8- 8. The Enhanced ER Model and Object-Relational Model** Rationale for Extending the ER Model, Generalization and Specialization. The Union construct, Using (min, max) Notation for Cardinality and Participation. Mapping the EE-R Model to a Relational Model. Extending the Relational Model, and Converting an EE-R Diagram to an Object-Relational Database Model **Assignment #4:** Following the instructions on the "Course Items" Web site, for LAB 4, Place the files in a Zip File, then send it to me as an attachment via e-mail.
8.	10/13/19	**On-Line Test #2 (Mid-Term)** **Available 10/10/19**
9.	10/19	**Project Team Assignments:** Application Development
10	Self Paced Before Project	**Chapter 9- Introduction to Database Security** Issues in Database Security, Physical Security and User Authentication. Using Views for Access Control. Security Logs and Audit Trails. Data Encryption and SQL Authorization Language. Statistical Database Security and the Internet. **Assignment #5:** Following the instructions on the "Course Items" Web site, for LAB 5, Place the files in a Zip File, then send it to me as an attachment via e-mail.

11	Self Paced	**Chapter 10 - Transaction Management** Properties of Transactions and the need for Concurrency Control. Techniques for management. Why we need Recovery and some Techniques **Chapter 11- 11. Relational Query Optimization** Query Processing and Optimization. Some Algebraic Techniques for Transformation. Processing Techniques and Cost Estimation, Pipelining
12	Self Paced	**Chapter 12- Distributed Databases** Rationale for Distribution. The Architectures for a Distributed System. Components of a Distributed Database System. Determining Data Placement, Transparency. The need for Transaction Control with Distributed Databases. Distributed Query Processing
13	Self Paced	**Chapter 13- Databases and the Internet** Fundamental Concepts of the Internet and the World Wide Web. The Tiered Architectures. Web Programming. The Semi-Structured Data Model. XML and Relational Databases **Chapter 14- Social and Ethical Issues** Computerization and Society. Intellectual Property laws. Databases and Privacy Issues, the Human Factors
14	11/9/19	**On-Line Test #3** **Available 11/6/19**
15	Self-Paced	**Chapter 15-Data Warehouses and Data Mining** Origins of Data Warehouses. Operational Databases vs. Data Warehouses. The Architecture of a Data Warehouse. Developing a Data Warehouse and the Models used. Data Warehouse Queries and SQL. Optimization and Index Techniques. Views and View Materialization. The process of Data Mining. Purpose of Data Mining Models and Methods Used
16	12/2/19	**Team Project Presentations (ON SITE TBA)** **Submission of material by Midnight 11/30/19**
	12/6/19 12/7/19	**Final Exam (PROCTORED ON SITE TBA)**

Syllabus Modifications

The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes. The date of thee last update made in in the header upper right corner

Instructor's Practices and Procedures

Missed Assignments

Assignments sent after the due date are reduced in grade by 10% for each day the exam is late. Exams may not be submitted late If an Exam is missed it will be graded at 90% of the next lowest grade received If multiple exams missed the grade is zero (0). The reason for missing and exam must be clearly documented

Academic Integrity

Except where specifically indicated students are expected to produce independent work product. Students found cheating or plagiarizing will be referred to the Dean of Student Services. See the link below for details.

Here's the link to the HCC information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance): http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/

Attendance Procedures

Students are expected to sign into the Web site at least once each day to receive mail, instructor notices etc. Attendance at on campus events is mandatory and may result in a reduced grade when peer groups are meeting. Students who do not complete the On-Line Orientation before Date-Of-Record will be automatically dropped from the class. Student who do not withdraw themselves before the final withdrawal date but have stopped logging on will not be dropped. You are responsible to withdraw from the class before the final date of withdrawal or you may receive a grade of Fx.

Student Conduct

Students are expected to act in an appropriate businesslike manner respecting the rights of others. Bullying will not be tolerated. Violations of this simple code will be reported to the dean of students

Electronic Devices

Electronic devices may not be used in class without the express permission the instructor. Cell phones are to be turned off before entering the room.

HCC Policies

Here's the link to the HCC Student Handbook http://www.hccs.edu/resources-for/current-students/student-handbook/   In it you will find information about the following:

- Academic Information
- Academic Support
- Attendance, Repeating Courses, and Withdrawal
- Career Planning and Job Search
- Childcare
- disAbility Support Services
- Electronic Devices
- Equal Educational Opportunity
- Financial Aid TV (FATV)
- General Student Complaints
- Grade of FX
- Incomplete Grades
- International Student Services
- Health Awareness
- Libraries/Bookstore
- Police Services & Campus Safety
- Student Life at HCC
- Student Rights and Responsibilities
- Student Services
- Testing
- Transfer Planning
- Veteran Services

EGLS³

The EGLS3 (Evaluation for Greater Learning Student Survey System) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS3 surveys are only available for the Fall and Spring semesters. EGLS3 surveys are not offered during the Summer semester due to logistical constraints.
http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/

Campus Carry Link

Here's the link to the HCC information about Campus Carry:
http://www.hccs.edu/departments/police/campus-carry/

HCC Email Policy

When communicating via email, HCC requires students to communicate only through the HCC email system to protect your privacy. If you have not activated your HCC student email account, you can go to HCC Eagle ID and activate it now. You may also use Canvas Inbox to communicate.

Housing and Food Assistance for Students

Any student who faces challenges securing their foods or housing and believes this may affect their performance in the course is urged to contact the Dean of Students at their college for support. Furthermore, please notify the professor if you are comfortable in doing so.

This will enable HCC to provide any resources that HCC may possess.

Office of Institutional Equity

Use the link below to access the HCC Office of Institutional Equity, Inclusion, and Engagement (http://www.hccs.edu/departments/institutional-equity/)

disAbility Services

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including long and short term conditions, mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to:
http://www.hccs.edu/support-services/ability-services/

Title IX

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross
Director EEO/Compliance
Office of Institutional Equity & Diversity
3100 Main
(713) 718-8271
Houston, TX 77266-7517 or Institutional.Equity@hccs.edu
http://www.hccs.edu/departments/institutional-equity/title-ix-know-your-rights/

Office of the Dean of Students

Contact the office of the Dean of Students to seek assistance in determining the correct complaint procedure to follow or to identify the appropriate academic dean or supervisor for informal resolution of complaints.

https://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-complaints/speak-with-the-dean-of-students/

Department Chair Contact Information

Reni Abraham reni.abraham@hccs.edu 713)718-2067