



Course Syllabus  
**Database Theory and Design**  
**ITSE 1346**

<b>Semester with Course Reference Number (CRN)</b>	<b>54004</b>
<b>Instructor contact information (phone number email address Web Page)</b>	Stephen S. Linkin 713-718-6776 <a href="mailto:Stephen.linkin@hccs.edu">Stephen.linkin@hccs.edu</a> <a href="http://tc3.hccs.edu/LinkinS">http://tc3.hccs.edu/LinkinS</a>
<b>Office Location and Hours</b>	Stafford (Scarcella Bldg.) By Appointment
<b>Course Location/Times</b>	<b>ON-LINE</b> <b>24/7 (instructor may not replay on weekends)</b>

<b>Course Semester Credit Hours (SCH) (lecture, lab) If applicable</b>	Credit Hours 3.0 Lecture Hours 2.0 Laboratory Hours 2.0
<b>Total Course Contact Hours</b>	96
<b>Continuing Education Units (CEU): if applicable</b>	None
<b>Course Length (number of weeks)</b>	<b>16 Weeks</b>
<b>Type of Instruction</b>	<b>Distance Education</b>
<b>Course Description:</b>	Introduction to the analysis and use of data requirements and organization using normalized tables
<b>Course Prerequisite(s)</b>	(COSC 1436 or ITSE 1402), (BCIS 1405 or ITSC 1309), MATH 1314 and ENGL 1301
<b>Course Student Learning Outcomes (SLO)</b>	<ol style="list-style-type: none"><li>1. Normalize data tables</li><li>2. Create entity-relationship models and diagrams</li><li>3. Design database tables with relationships</li><li>4. Create and update tables</li><li>5. Retrieve and maintain data</li></ol>

**Learning Objectives**

- Employ SQL functions to generate and retrieve customized data
- Display data from multiple tables using the ANSI SQL 99 JOIN syntax
- Create reports of aggregated data
- Write SELECT statements that include queries
- Retrieve row and column data from tables with the SELECT statement
- Create tables to store data
- Utilize views to display and retrieve data
- Control database access to specific objects
- Write multiple-column sub-queries
- Use the regular expression support in SQL
- Create reports of sorted and restricted data

**SCANS and/or Core Curriculum Competencies**

1. C1: Allocates Time  
Students will learn to allocate time to perform each task (online course will emphasize this task more).
2. C5: Acquires and Evaluates Information  
Student will be able to identify need for data, obtain it from existing sources or create them, and evaluate information.
3. C6: Organizes and Maintains Information  
Students will learn to organize their assignments and manage to complete them with specific deadline.
4. C18: Selects Technology  
Students will use flowcharts to understand the subject.

5. C20: Maintains and Troubleshoots Technology  
Student will be able to prevent, identify or solve problems in machines, computers, and other technologies.
6. F9: Problem Solving  
Students will learn problem-solving methodology (pseudo code).
7. F10: Seeing Things in the Mind's Eye  
Student will be able to organize and process symbols, pictures, graphs, objects or other information...

## Course Calendar

### Key Dates Schedule 2018

Refund 100%	January 12, 2018
Dr. Martin Luther King Jr. Day	January 15, 2018
Start Date	January 16, 2018/
<b>Official date of Record</b>	<b>January 29, 2018</b>
Refund 70%	February 2, 2018
Refund 25%	February 7, 2018
President's Day	February 19, 2018
<b>Spring Break</b>	<b>March 12 – 16, 2018</b>
Spring Holiday	March 30, 2018
<b>LAST DAY to Withdraw</b>	<b>April 3, 2018</b>
Semester ends	May 10, 2018
<b>DE Final Exams</b>	<b>May 11 – May 12</b>

Cut Off Date	Topic(s)
1/27	<p><b>Introduction:</b> Orientation, and e-mail Practice (Failure to complete Orientation will result in and automatic drop)</p>
2/3	<p><b>Zippping-</b> Learning how to Compress and send Files for assignments.</p> <p><b>Chapter 1-</b> Introductory Database Concepts: Why Use a Database? What is a Database Processing System? How to Build a Database. History of Database Processing</p> <p><b>Assignment #1:</b> Following the instructions on the "<a href="#">Course Items</a>" Web site for LAB 1, Place the files in a Zip File, then send it to me as an attachment via e-mail.</p> <p><i>(To get your points it must work on the first try) Practice by sending it to yourself</i></p>
2/10	<p><b>Chapter 2-</b> - 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</p> <p><b>Analysis –</b> Learning to analyze a problem and create a plan for a project</p> <p><b>Assignment #2:</b> Following the instructions on the "<a href="#">Course Items</a>" Web site, for LAB 2, Place the files in a Zip File, then send it to me as an attachment via e-mail.</p>

<b>Self-Paced</b>	<p><b>Chapter 3-</b> The Entity Relationship Model: Understand the Purpose of the ER Model, identify and define Entities and their Attributes, Select Keys, understand and define Relationships</p> <p><b>Chapter 4- The Relational Model</b> Advantages of Relational Modes, Data Structures, Integrity constraints, Schemas, SQL and sub Languages, Views, mapping schemas.</p>
<b>2/18</b>	<p style="text-align: center;"><b>On-Line Test #1</b> <b>Available 2/14</b></p>
<b>2/24</b>	<p><b>Chapter 5-: Relational DBMSs and SQL</b> 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</p> <p><b>Chapter 6 - Normalization</b> Why Normalize, the Normal Forms. The Anomaly classes, Functional Dependencies, More About KEYS, and Decomposition. The Normalization Process, and when to stop</p> <p><b>Assignment #3:</b> Following the instructions on the "<a href="#">Course Items</a>" Web site, for LAB 3, Place the files in a Zip File, then send it to me as an attachment via e-mail.</p> <p><b>REVIEW ACCESS</b></p>
<b>Self-Paced</b>	<p><b>Chapter 7- The Object Oriented Model</b> Rational for this model, Object Oriented Data Concepts. Data modeling with UML; OMG and DDL an Object query language, Developing OO Databases.</p>
<b>3/4</b>	<p style="text-align: center;"><b>On-Line Test #2 (Mid-Term)</b> <b>Available 2/28</b></p>

3/9	<p><b>Chapter 8- 8. The Enhanced ER Model and Object-Relational Model</b>  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</p> <p><b>Assignment #4:</b> Following the instructions on the "<a href="#">Course Items</a>" Web site, for LAB 4, Place the files in a Zip File, then send it to me as an attachment via e-mail.</p>
3/9	<p><b>Project Team Assignments:</b> Application Development</p>
4/28	<p><b>Chapter 9- Introduction to Database Security</b>  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.</p> <p><b>Assignment #5:</b> Following the instructions on the "<a href="#">Course Items</a>" Web site, for LAB 5, Place the files in a Zip File, then send it to me as an attachment via e-mail.</p>
Self-Paced	<p><b>Chapter 10 - Transaction Management</b>  Properties of Transactions and the need for Concurrency Control. Techniques for management. Why we need Recovery and some Techniques</p> <p><b>Chapter 11- 11. Relational Query Optimization</b>  Query Processing and Optimization. Some Algebraic Techniques for Transformation. Processing Techniques and Cost Estimation, Pipelining</p>

<b>Self-Paced</b>	<p><b>Chapter 12- Distributed Databases</b></p> <p>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</p>
<b>Self-Paced</b>	<p><b>Chapter 13- Databases and the Internet</b></p> <p>Fundamental Concepts of the Internet and the World Wide Web. The Tiered Architectures. Web Programming. The Semi-Structured Data Model. XML and Relational Databases</p> <p><b>Chapter 14- Social and Ethical Issues</b></p> <p>Computerization and Society. Intellectual Property laws. Databases and Privacy Issues, the Human Factors</p>
<b>4/8</b>	<p><b>On-Line Test #3</b> <b>Available 4/4</b></p>
<b>Self-Paced</b>	<p><b>Chapter 15-Data Warehouses and Data Mining</b></p> <p>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</p>
<b>4/28</b>	<p><b>Team Project Presentations (ON SITE)</b></p>
<b>5/11 -5/12</b>	<p><b>Final Exam (PROCTORED ON SITE)</b></p>



**Instructional Methods****On-Line Class**

As an instructor, I want my students to be successful. I feel that it is my responsibility to provide you with knowledge and opportunities for critical thinking and applications as appropriate.

As a student wanting to succeed at your academic and career endeavors, it is your responsibility to do the assigned readings, submit assignments on time, participate in discussion forums and other activities,

**Student Assessment(s)**

Knowledge checks are given in most of the online topics sections. Knowledge checks are given in most of the online topics sections. In addition, two interim exams, a project and final exam will be administered.

**Instructor's Requirements**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 appropriate learning environment through class activities, discussions, and lectures or other forms of presenting materials.
- Provide the course outline and class calendar, which will include a description of any special projects or assignments.
- Arrange to meet with individual students as required.
- Inform students of policies, such as participation, withdrawal, and make up.

To be successful in this class, it is the student's responsibility to:

- Participate in class discussions and activities.
- Read and comprehend the textbook.

- Complete the required assignments and exams:
- Ask for help when there is a question or problem.
- Keep copies of all paperwork, including this syllabus, handouts, and all assignments.
- Complete the course with a passing score.

### HCC Grading Scale

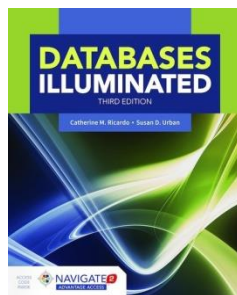
A = 100- 90	4 points per semester hour
B = 89 - 80:	3 points per semester hour
C = 79 - 70:	2 points per semester hour
D = 69 - 60:	1 point per semester hour
59 and below = F	0 points per semester hour
FX (Failing due to non-participation)	0 points per semester hour
IP (In Progress)	0 points per semester hour
W(Withdrawn)	0 points per semester hour
I (Incomplete)	0 points per semester hour
AUD (Audit)	0 points per semester hour

IP (In Progress) is given only in certain developmental courses. The student must re-enroll to receive credit. COM (Completed) is given in non-credit and continuing education courses. To compute grade point average (GPA), divide the total grade points by the total number of semester hours attempted. The grades "IP," "COM" and "I" do not affect GPA.

<http://www.hccs.edu/district/students/student-handbook/>

### Instructor Grading Criteria

<i>Points</i>	<i>Item</i>
45%	Average of 1 <sup>st</sup> three tests
25%	Semester Lab Projects <b>GRADED 0-100 Points</b>
10%	Class Participation and Assignments <b>PASS/FAIL</b>
20%	Final Exam <b>GRADED 0-100 Points</b>
<b>100%</b>	<b>Total</b>

**Instructional Materials**

Databases Illuminated, Third Edition  
Authors: Catherine M. Ricardo, Susan Urban  
ISBN: 978-1-284-05694-5  
Publisher: Jones & Bartlett Learning

**EGLS3 – Evaluation for Greater Learning Student Survey System**

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term.

**HCC Policy Statement:**

**Access Student Services Policies on their Web site:**

<http://www.hccs.edu/district/about-us/policies/d-student-services/>

**Attendance Policy:**

Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences. You may be dropped from a course after accumulating absences in excess of 12.5 percent of the total hours of instruction (lecture and lab) For a 3 credit-hour lecture class meeting 3 hours per week (48 hours of instruction), you can be dropped after 6 hours of absence. The 6 hours includes accumulated minutes for arriving late to class and leaving class early.

## Distance Education Policies:

### Access DE Policies on Their Website:

All students are responsible for reading and understanding the *DE Student Handbook*, which contains policies, information about conduct, and other important information. For the *DE Student Handbook* visit the link below or go to the DE page on the HCC website.

The ***Distance Education Student Handbook*** contains policies and procedures unique to the DE student. Students should have reviewed the handbook as part of the mandatory DE orientation. It is the student's responsibility to be familiar with the handbook's contents. The handbook contains valuable information, answers, and resources, such as DE contacts, policies and procedures (how to drop, attendance requirements, etc.), student services (ADA, financial aid, degree planning, etc.), course information, testing procedures, technical support, and academic calendars. Refer to the *DE Student Handbook* by visiting this link: <http://de.hccs.edu/media/houston-community-college/distance-education/student-services/2013-CDEStudentHandbook-%28Revised8-1-2013%29.pdf>

**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 (713) 718-8271

Director EEO/Compliance

Office of Institutional Equity & Diversity

3100 Main

Houston, TX 77266-7517 or Houston, TX 77266-7517 or [Institutional.Equity@hccs.edu](mailto:Institutional.Equity@hccs.edu)

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including 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/district/students/disability-services/>

**Discrimination**

Students should be aware that discrimination and/or other harassment based on race, sex, gender identity and gender expression, national origin, religion, age, disability, sexual orientation, color or veteran status is prohibited by HCC Policy G.1 Discrimination and Harassment and D.1.1 Equal Educational Opportunities. Any student who feels they have been discriminated against or harassed on the basis of race, sex, gender identity, gender expression, national origin, religion, age, disability, sexual orientation, color or veteran status including sexual harassment, has the opportunity to seek informal or formal resolution of the matter. All complaints/concerns should be directed to the Office of Institutional Equity, 713 718-8271 or [oi@hccs.edu](mailto:oi@hccs.edu). Additional information may be obtained online. Visit <http://www.hccs.edu/district/departments/institutionalequity/> Complaints involving sexual misconduct to include but not limited to: sexual assault, stalking, dating violence, sexual harassment or domestic violence should be directed to the HCC Title IX Coordinator, Renée Mack at 713 718-8272 or [renee.mack@hccs.edu](mailto:renee.mack@hccs.edu)

**Campus Carry**

At HCC the safety of our students, staff, and faculty is our first priority. As of August 1, 2017, Houston Community College is subject to the Campus Carry Law (SB11 2015). For more information, visit the HCC Campus Carry web page at <http://www.hccs.edu/district/departments/police/campus-carry/>.

**Useful Websites**

- Information: [www.hccs.edu](http://www.hccs.edu) ; <http://learning.hccs.edu>
- Tutoring & Support: [www.hccs.askonline.net](http://www.hccs.askonline.net)
- Eagle Online: <https://hccs1.mrooms3.net/login/index.php>
- Purdue OWL: <http://owl.english.purdue.edu/owl/resource/747/01/>