Wentworth Institute of Technology

College of Engineering and Technology

COMP355 – Database Management Systems
Spring 2015

Instructor	Nate Derbinsky
Office	Dobbs 140 Monday 2PM-3PM, Wednesday 11AM-12PM, Thursday 2PM-3PM
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Credits/Hours	3/2/4

COURSE DESCRIPTION:

Concepts and methods for the design, creation, querying, and management of relational database management systems. Covers modeling the conceptual and logical organization of databases, including the entity-relationship model; the relational data model and SQL; as well as functional dependencies and normal forms. Students will further strengthen their database skills by developing a substantial project with a team.

COURSE PREREQUISITES:

COMP128 (Computer Science I)

REQUIRED TEXTBOOK(S):

- Elmasri, Ramez and Navathe, Shamkant. *Fundamentals of Database Systems*, 6th ed. Addison-Wesley, 2010 (ISBN-13: 978-0136086208)

THE COLLEGE BOOKSTORE:

Location:	103 Ward Street Boston MA 02115
Telephone:	(617) 445-8814

RECOMMENDED LEARNING MATERIALS:

- Introduction to Databases (`https://class.stanford.edu/courses/DB/2014/SelfPaced/about`)
- w3schools SQL Tutorial (`http://www.w3schools.com/sql/`)

COURSE LEARNING OUTCOMES:

At the completion of this course, the student should be able to:

- Characterize the role of databases and database management systems in the context of enterprise systems; explain the concept of data independence and its importance in a database system.
- Employ a declarative query language (e.g. SQL) to manage and retrieve information from a database.
- Employ a conceptual data modeling technique (e.g. entity-relationship modeling) to capture the information requirements for an enterprise domain.
- Design a normalized relational schema from a conceptual model (e.g. an entity-relationship model).

INSTRUCTIONAL METHODOLOGIES:

This course will combine traditional lecturing with hands-on assignments that reinforce the lecture material. In particular, lectures will focus on concepts and ideas while the assignments will provide concrete experience and skills.

ATTENDANCE POLICY:

Students are expected to attend classes regularly, take tests, and submit papers and other work at the times specified by the instructor. Students who are absent repeatedly from class or studio will be evaluated by faculty responsible for the course to ascertain their ability to achieve the course objectives and to continue in the course. Instructors may include, as part of the semester's grades, marks for the quality and quantity of the student's participation in class. At the discretion of the instructor, a student who misses 15 percent of class may be withdrawn from the course by the instructor. A grade of `WA` will appear on the student's official transcript as a result.

GRADING POLICY:

There will be two in-class exams and a final exam. There will also be approximately six lab assignments, as well as a group project.

All project milestone reports will be due on the dates specified in the class. You will be assigned to a project team to complete your project work. All teams will be required to present their project deliverable to the rest of the class.

The grade distribution for this class is as follows:

Labs/Quizzes	30%
In-class Exams	30%
Final Exam	20%
Project	20%

Homework 0: mandatory, schedule (via e-mail) and attend a 5-minute, one-on-one appointment with the instructor by the end of the second week of class.

WENTWORTH GRADING SYSTEM:

Grade	Definition	Weight	Numerical
A	Student learning and accomplishment far exceeds published objectives for the course/test/assignment and student work is distinguished consistently by its high level of competency and/or innovation.	4.00	96 - 100
A-		3.67	92 - 95
B+	Student learning and accomplishment goes beyond what is expected in the published objectives for the course/test/assignment and student work is frequently characterized by its special depth of understanding, development, and/or innovative experimentation.	3.33	88 - 91
B		3.00	84 - 87
B-	Student learning and accomplishment meets all published objectives for the course/test/assignment and the student work demonstrates the expected level of understanding, and application of concepts introduced.	2.67	80 - 83
C+		2.33	76 - 79
C		2.00	72 - 75
C-	Student learning and accomplishment based on the published objectives for the course/test/assignment were met with minimum passing achievement.	1.67	68 - 71
D+		1.33	64 - 67
D		1.00	60 - 63
F	Student learning and accomplishment based on the published objectives for the course/test/assignment were not sufficiently addressed nor met.	0.00	< 60

ADD/DROP:

Students should check the academic calendar to confirm the add/drop deadline. Dropping and/or adding courses is done online. Courses dropped in this period are removed from the student's record.

Non-attendance does not constitute dropping a course. If a student has registered for a course and subsequently withdraws or receives a failing grade in its prerequisite, then the student must drop that course. In some cases, the student will be dropped from that course by the Registrar. However, it is the student's responsibility to make sure that he or she meets the course prerequisites and to drop a course

if the student has not successfully completed the prerequisite. The student must see his or her academic advisor or academic department chair for schedule revision and to discuss the impact of the failed or withdrawn course on the student's degree status.

MAKE-UP POLICY:

All assignments have a specific due date and time. Submissions will be accepted after the deadline with a 50% penalty. The assignment will be graded and returned as normal, but the grade will be recorded as half of what was earned. For example, an on-time submission might receive a grade of 90 points. The same assignment submitted after the deadline would receive 45 points (90×0.5).

Students who miss scheduled exams will not, as a matter of course, be able to make up those exams. If there is a legitimate reason why a student will not be able to complete an assignment on time or not be present for an exam, then they should contact the instructor beforehand. Under extreme circumstances, as decided on a case-by-case basis by the instructor, students may be allowed to make up assignments or exams without first informing the instructor.

ACADEMIC SUPPORT:

The Learning Center (TLC) assists all Wentworth students in the areas of math, science, technical courses specific to majors, and writing. In this student-based learning environment, students can receive individual help with their studies, meet and work in study groups, attend workshops on a wide variety of subjects and find resources to assist them in meeting their goals for academic success. It includes tutors in many subjects, writing assistance and workshops focused on helping good students become great students. Make appointments at `http://www.wit.edu/tlc` or through LConnect.

ACADEMIC HONESTY STATEMENT:

"Students at Wentworth are expected to be honest and forthright in their academic endeavors. Academic dishonesty includes cheating, inventing false information or citations, plagiarism, tampering with computers, destroying other people's studio property, or academic misconduct'' (Academic Catalog). See your catalogue for a full explanation.

STUDENT ACCOUNTABILITY STATEMENT:

Behavior unbecoming a student is any violation of a published Wentworth policy in an academic environment, and/or any behavior that individual faculty or staff determines is unacceptable in his or her classroom, laboratory, or other academic area or function. Behavior unbecoming a student in an academic environment will not be tolerated. Violations of behavioral expectations may be forwarded to the Office of Community Standards for disciplinary action.

Wentworth takes violations of academic dishonesty and misconduct very seriously. Sanctions for such violations include, but are not limited to, a grade of "F", removal from a course, Institute suspension, or Institute expulsion.

DISABILITY SERVICES STATEMENT:

Any student who thinks s/he may require a disability-related accommodation for this course should contact Disability Services privately to discuss their specific needs. Disability Services coordinates reasonable accommodations for students with documented disabilities. They are located in Watson Hall 003 (the

Center for Wellness and Disability Services) and can be contacted at 617-989-4390 or counseling@wit.edu. For more information on acceptable documentation and the Disability Services process, visit the Disability Services website at `http://www.wit.edu/disabilityservices`.

COLLEGE OF THE FENWAY STUDENTS:

If you are enrolled in this course through COF Cross Registration, notify your course instructor. Please provide her/him with your email address to be sure that you receive course information in a timely way. You should also discuss how to access online applications that might be used in the course.

WEEKLY SCHEDULE:

It will benefit you greatly to complete the assigned reading *before* attending the lecture.

Week	**Topic**	**Reading**	**Assignments/Notes**
1	Introduction, Database Environment	1, 2, 10.1, 10.2	
2	Relational Data Model	3	HW0 due
3	SQL	4, 5	PRJ: teams assigned
4	SQL Programming, Transactions	13, 21.1, 21.2, 21.3	Lab 1 due (SQL.1)
5	Exam Review		Lab 2 due (SQL.2) **Exam 1**
6	Conceptual Modeling, ER Diagrams	7, 8	PRJ: proposal due
7	Logical Design	9	Lab 3 due (ERD)
8	Functional Dependencies, Normalization	15	Lab 4 due (Mapping) PRJ: ERD due
9	Exam Review		Lab 5 due (Normalization) **Exam 2**
10	**Spring Break**		
11	Indexing	17, 18	PRJ: normalized tables, data & queries due
12	Physical Design/Tuning	19, 20	Lab 6 due (Indexing)
13	Database Security	24	PRJ: physical design due, practice presentation due
14	Project Presentations		
15	Final Review		PRJ: reports due (last day)