

# Course Information

CSE 305 – Principles of Database Systems

Fall 2016

Stony Brook University

Instructor: Dr. Paul Fodor

<http://www.cs.stonybrook.edu/~cse305>

# Course Description

- <https://www.cs.stonybrook.edu/students/Undergraduate-Studies/courses/CSE305>
- “The design of database management systems to obtain consistency, integrity, and availability of data. Conceptual models and schemas of data: relational, hierarchical, and network. Students undertake a semester project that includes the design and implementation of a database system.”
- *Prerequisites:* C or higher: CSE 219 or CSE 260; CSE major.

# Course Outcomes

- The following are the official course goals agreed upon by the faculty for this course:
  - An ability to design database management systems through E/R design and the theory of normalization.
  - An ability to use relational query languages.
  - An ability to design and implement a database system, via a significant project.

# Major Topics

- ER-modeling, functional dependencies, normal forms, relational algebra, SQL, constraints and triggers, datalog, data storage, indexes, query processing, simple query optimization.
- Principles of Database Systems
- The Relational Model and SQL DDL
- Conceptual Design Using the ER Model
- Relational Algebra and SQL
- Using SQL in an Application
- Schema Refinement and Normalization
- Storing Data: Disk and Files
- File Organization and Indexing
- Implementation of Relational Operations
- Relational Query Optimization

# Instructor Information

- Dr. Paul Fodor  
214 New Computer Science Building
- Office hours: Tuesdays and Thursdays 5:00PM-6:30PM.
  - I am also available by appointment
- **Class email (forwarded to all the instructors and teaching assistants, fast response): [cse305ta@cs.stonybrook.edu](mailto:cse305ta@cs.stonybrook.edu)**
- Email: paul (dot) fodor (at) stonybrook (dot) edu
  - Please include “CSE 305” in the email subject and your name in your email correspondence

# General Information

- Meeting Information:
  - Lectures: MoWe 4:00PM - 5:20PM, Javits Lecture Hall 109.
- Course Web page:  
<http://www.cs.stonybrook.edu/~cse305>
- Blackboard will be used for assignments, grades and course material

# Textbook

- Michael Kifer, Arthur Bernstein and Philip Lewis, *Database Systems: An Application Oriented Approach, Introductory Version, 2 / E*, Addison-Wesley, 2005. ISBN 0-321-22838-3.
- The next three books are optional, and are listed as handy references.
  - C. Musciano and B. Kennedy, *HTML, The Definitive Guide*, Second Edition, O'Reilly & Associates, Inc. ISBN 1-56592-235-2.
  - D. Flanagan, *Java in a Nutshell*, Second Edition, O'Reilly & Associates, Inc. ISBN 1-56592-262-X.
  - G. Reese, *Database Programming with JDBC and Java*, O'Reilly & Associates, Inc. ISBN 1-56592-270-0.

# Grading Schema

- Homework, projects, and quizzes -- 25%
- Midterm exams (2) -- 40% (20% each)
- Final exam -- 35%



# Exam dates

- Midterm exam 1: Monday 10/10/2016, classtime, in classroom.
- Midterm exam 2: Monday 11/14/2016, classtime, in classroom.
- Final exam: Tuesday, 12/13, 8:30pm-10:30pm, in classroom.

# Assignments

- Homework assignments due on fixed dates and times.
  - **no late submission is permitted**
- All assignments should be submitted electronically
  - Blackboard

# Regrading of Homework/Exams

- Please meet with a TA or the instructor and arrange for regrading.
- **You have one week from the day grades are posted or mailed or announced**
  - Late requests will not be entertained

# Software

- MySQL is used for most homework or projects
  - we will have department accounts, but you should install your own!!!
  - MySQL Workbench: Interface and database development software
- Use git for all the code that you will write: we will have department accounts, but you should also get your own on BitBucket (private) or GitHub (if you sign up with the @StonyBrook.edu email, then you have 2 years of private repositories). Do not develop your homework assignments in public repositories!
- Other software will be presented later

# Class Schedule

Week	Lecture Topics
1	Principles of Database Systems
2	Relational Databases & Transaction Processing
3	The Relational Model & SQL DDL
4	Conceptual Design Using the ER Model
5	Conceptual Design Using the ER Model (cont.)
6	Relational Algebra & SQL
7	Relational Algebra & SQL (cont.)
8	Relational Algebra & SQL (cont.)
9	Schema Refinement and Normalization
10	Schema Refinement and Normalization (cont.)
11	Using SQL in an Application
12	Using SQL in an Application (cont.)
13	File Organization and Indexing
14	Implementation of Relational Operations
15	Relational Query Optimization

# Disability Support Services

- If you have a physical, psychological, medical or learning disability, contact the DSS office at Room 128 ECC. Phone 632-6748/TDD
- If you are planning to take an exam at DSS office, you need to tell me ahead of time for every exam.
- **All documentation of disability is confidential.**

# Academic Integrity

- You can discuss general assignment concepts with other students: explaining how to use systems or tools and helping others with high-level design issues
- You **MAY NOT share** assignments, source code or other answers by copying, retyping, looking at, or supplying a file
  - Assignments are subject to manual and automated similarity checking (We do check! and our tools for doing this are much better than cheaters think)
- If you cheat, you will be brought up on academic dishonesty charges - we follow the university policy:
  - <http://www.stonybrook.edu/uaa/academicjudiciary>

# Catastrophic events

- Major illness, death in family, ...
- Formulate a plan (with your CEAS academic advisor) to get back on track
- Advice
  - Once you start running late, it's really hard to catch up



# Please

- Please be on time
  - Please show respect for your classmates
  - Please turn off (or use vibrate for) your cellphones
- ...
- On-topic questions are welcome

Welcome  
and Enjoy!