Databases for Scientists

Course name: CS 495, Dinner and a Database
Semester: Winter, 2015
Instructor: Robert Lawton, technician, third class
Office hours: One hour before class / one hour after class

Course description:
This is a fast paced course designed to teach scientists how to prepare datasets ranging from a few thousand to a few million records for analysis. This course does not include analysis.

Objectives:

0.0 Long term storage and backup topics: format, media, compression
1.0 Create a database
1.1 Define a table with appropriate data types including numeric, text, and date/time
1.2 Apply Hungarian notation naming conventions
1.3 Import data into a table
1.4 Data normalization
2.0 Query a database
2.1 Use SQL to sort, filter, and export data
2.2 Use SQL to join tables
2.2 Use SQL to modify data
2.2 Use SQL to help validate data (Group By)
3.0 Programmatically manipulate and validate data
3.1 Create functions to parse data and calculate values
3.2 Create subroutines to flatten hierarchical data
3.3 Use REGEX to validate data
3.4 Use REGEX to parse data
4.0 Create sophisticated data entry forms
4.1 Use a form and appropriate controls for data entry
4.2 Use a form/subform for relational data entry
4.3 Use a combo box to control data entry, create relational records, and filter another combo box’s contents
4.4 Apply basic data validation to form controls
4.5 Apply function based data validation to form controls
4.6 Automate form navigation for more efficient data entry
5.0 (Graduate students) Create user documentation

Textbook: none

Local resources:
Databases for Scientists

- EduCat.nmu.edu
- Instructor
- Peers

Policies:

- Students must bring a computer with Microsoft Access 2010 or higher to every class.
- Exam dates and times can be rescheduled *only* with prior notice *and* approval except in the case of emergencies where I am notified by the university.
- All email correspondence will be conducted using your NMU e-mail account.
- You may seek and accept help on your assignments (but not exams).
- Exams are open notes/internet, but you are not permitted to receive "live" human help in any form except from the instructor.
- Anyone behaving in a manner that detracts from the learning experience of others will be warned and possibly required to excuse themselves from class.
- Students caught cheating will receive an "F" for the course. Students who cheat but aren't caught may suffer fears of inadequacy later in life resulting in time consuming and expensive therapy.

Final Grade:

- Assignments: 20%
- Exam 1: 20%
- Exam 2: 20%
- Final project: 40%

Grade Scale:

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<tr>
<td>A</td>
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<td>B</td>
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<td>&lt;60%</td>
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Disability Statement:
If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services Office at 2001 C. B. Hedgcock (227-1700). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.