IINF 202: Introduction to Data and Databases (3 credit hours)
Tuesday & Thursday, 4:15-5:35
Spring 2013

Instructor: M. Alexander (Alex) Jurkat
Office location LI-85
Office hours T/Th 5:35-6:00 and by appointment
Contact information: mjurkat@albany.edu; 518-229-8390 (c); @malexkat

Course Content

Course Description
This course presents an introduction to data and databases. It begins with the ubiquitous nature and importance of data and databases in all sectors (public and private) of society. Subsequent sections address the nature of data and data problems, the database system lifecycle, various types of databases, and the interplay between databases. More time is devoted to the most prevalent database type—relational—but other types are also discussed, including spreadsheets, key-value, column-family, document, and graph. Understanding database features and querying them will be the main focus, but some background on designing them will also be included.

Course Goals
By the end of the semester, you should be able to
- Recognize the importance of data and its organization and manipulation in business, government, and society as a whole.
- Distinguish between types and forms of data, and the potential uses of that data.
- Notice security and privacy issues in any data collection and dissemination.
- Distinguish between types and forms of databases, and the types of data problems such databases are useful (and not so useful) in addressing.
- Analyze a data collection/discovery/extraction problem, highlighting its most important challenges.
- Identify one or more database solutions to address a given data collection/discovery/extraction problem.
- Design, in the broadest terms, a database solution, once identified.
- Query, at a basic level, a database solution once implemented.

Readings
Readings will be assigned from the following books.

Beginning Database Design: From Novice to Professional

Excel as Your Database

NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence
Other readings will be added as the semester progresses.

The following book may be helpful in understanding the concepts covered by this course: *The Manga Guide to Databases*  
Available: Online. Price: $19.95 (new, Amazon)

**Additional Materials**

You may find access to a PC or Mac computer with Excel/Calc and/or Access/Base useful in completing assignments. Those more technologically oriented may find a *nix (Unix-like) machine useful when manipulating non-relational databases.

**Instructional Methodology—Team-Based Learning (TBL)**

On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on in-class assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable. Second, each individual’s contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

TBL courses are divided into sections. This course will have six (6) two- or four- week sections (see Course Schedule/Timeline). Each section begins with a reading assignment. The first class includes an individual then group test on that material. The next several classes are filled with activities which highlight the important features of the material covered in that section. Each section culminates with an assignment drawing together and applying the covered content.

**Reading in INF 202**

This course is designed to be “experiential-reflective” for students rather than “content-receptive.” This means that the readings (which may include text book pages, articles, videos, or audio files) are not an end in themselves, but rather the material that will be used for in-class analysis, discussion, and assignments. The readings may prove difficult and complex, and will require persistence on your part. In order for you to be able to be productive in the in-class activities and assignments, you will need to prepare each reading carefully before class. This means reading (and re-reading) for understanding, taking notes in the margins, and coming to class being able to explain in your own words the stream of ideas in each reading.

**How Grades Will Be Earned (A+=97-100; A=93-96, A-=90-92, B+=87-89; B=83-86, B-=80-82, C=70-79; D=60-69; E/F=<60)**

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<thead>
<tr>
<th>Points</th>
<th>Percentage</th>
<th>Description</th>
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<tr>
<td>30</td>
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<td>Readiness Assurance Tests (5 points each; individual part 30%; team part 70%)</td>
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<td>End-of-Section Individual Assignments (4 points each)</td>
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<td>14</td>
<td>14%</td>
<td>In-class Attendance/Work on Group Activities</td>
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<td>6</td>
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<td>Individual Final Project (group projects may be approved on case-by-case basis)</td>
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8 points (8%) Community Commentary
8 points (8%) Peer-Graded Assessment of Team Member Performance (helping behavior)
100 points (100%)

Due Dates
Evaluations (assignments, projects, commentaries, assessments) delivered via email, via Blackboard, or via application by midnight will be deemed handed in that day. You are responsible for handling course due dates.

Full Credit: Evaluations turned in on or before the due date are eligible for full credit. For example, if you turn in your Community Commentary on time, you are eligible to receive up to 8 points (100% or a maximum grade of A).

Partial Credit: Evaluations turned in up to 48 hours after the due date are eligible for partial credit. For example, if you hand in your Community Commentary 2 days late, you are eligible to receive up to 6 points (80% or a maximum grade of B-; most grades will be C or lower).

Passing: Evaluations that arrive more than two 48 hours after the due date, but before the final due date of the semester (May 13, 2013) will be accepted, but will not receive feedback. Unless obviously fraudulent or frivolous, they will receive the lowest possible passing grade (the equivalent of a 60/D).

Final Project
Your final project will describe a data problem, recommend a solution, and implement a prototype. You might want to think of your final project as a resume-building artifact—something that you can show off to potential employers. The problem, solution, and prototype are up to you, accomplishing whatever task you wish. Some general suggests are below, but you should not feel limited by them:

- Personal Database: Solve a data concern with a solution that resides on your personal computer or device.
- Web-based Database: Devise a technological solution that uses web technologies. You may have the opportunity to work with a student in the INF 346 Intermediate Web Development class.
- TBL Enhancement: The TBL methodology of this course could be enhanced by technology. Your project could involve researching, conceptualizing, designing, and implementing a technological enhancement to this course.

The final project will be turned in in stages. The first stage involves your concept and plan of work. The second shows your data model. The third covers the implementation of your database. The final reveals the querying capacity of your project. Each stage will be graded, but may be improved in later stages (unless you fail to turn in a stage, in which case you will receive 0 points for that stage).

Community Commentary
Supporting your community and profession will be expected of you throughout your career. At present, CCI is one of your communities. At one point during the semester (sign-ups for due dates will occur via Blackboard), you will write a blog post for the CCI blog web site. It's super easy (like writing an email). Instructions are found at http://ccistudentcenter.posterous.com/pages/blog-for-cci. The blog post should be 5 or more paragraphs and should report on/give your impressions of a story in the news that concerns databases (an ineligible example: http://gigaom.com/cloud/why-the-days-are-
numbered-for-hadoop-as-we-know-it/), one of the CCI Spring 2013 events (http://ccistudentcenter.posterous.com/cci-spring-2013-events), developments in an IINF 362 GitHub community, or some other topic of interest to the CCI community.

A Community Commentary must be completed during one portion of the semester and all topics must be approved by the instruction before you submit your blog post. More information on this to come.

**Peer Evaluation**

Three times during the course of the semester, you will be asked to evaluate the “helpfulness” of your team members and assign a grade that counts as part of their grade for INF 202. The first two times are intended as feedback to your teammates and to familiarize you with the online system. Your participation in this process counts toward your grade, but the final evaluation given by your teammates forms the lion’s share of this grade for you.
Course Policies

Cell Phones & Laptops
Laptops and other personal devices may be helpful for accessing reading assignments or other in-class activities. Out of respect for your classmates and the in-class activities, please refrain from e-mailing, gaming, and surfing during class time.

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week. For this three-credit course, you should expect to work 9 hours (3 x 3 = 9) outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Attendance
In-class activities are a vital—perhaps the most vital—part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means you earn an automatic zero for the activities or assignments missed. Each class counts for roughly 1% of your grade; missing more than a handful of classes will make it very difficult to receive a good grade in the class.

Tardiness: Missing an assignment or activity that happened before you arrive or after you leave also earns a zero. If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late/leaving early frequently will guarantee a low grade for the course.

Safety Values
Readiness Assurance Tests and class attendance cannot be made up. Since there will be occasions in your life when missing a class is simply unavoidable, this course has a no-fault safety valve.

Safety Valves: You may miss TWO classes and their associated in-class grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your safety valves on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve(s) for missed classes, you will be able to use your safety valve(s) to improve your grade by dropping your lowest two assignment scores. Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc.—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade opportunity to cover the class you need to miss.

Disaster: If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don’t wait until it’s too late to see me when you get in trouble.

Withdrawal
The first drop date for the Spring semester is Tuesday, February 5 for undergraduate students. That is the last date you can drop a course and have it removed from your
permanent record. It is your responsibility to file papers and otherwise complete the requirements for meeting this date.
The last drop date for the Spring semester is Monday, April 8 for undergraduate students. That is the last date you can drop a course and receive a “W”. It is your responsibility to take action by this date if you wish to drop the course. Grades of "incomplete" will not be awarded to students because they missed the drop deadline.

**Incomplete**
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time. **Important:** Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course.

**Academic Integrity**

*It is every student’s responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity.* See [http://www.albany.edu/undergraduate_bulletin/regulations.html](http://www.albany.edu/undergraduate_bulletin/regulations.html)

**Responsible Use of Information Technology**

Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site: [http://www.albany.edu/its/policies_responsible_use_of_IT.htm](http://www.albany.edu/its/policies_responsible_use_of_IT.htm)

**Available Support Services**

**Reasonable accommodation**

Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student’s responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

**College of Computing and Information**

Visit the CCI Facebook page for more details about the College and upcoming events: [http://www.facebook.com/CollegeofComputingandInformation](http://www.facebook.com/CollegeofComputingandInformation)

**Curriculum Advisement**

If you have questions about your INF major or minor, contact IS advisor Caroline Buinicky at [isug@albany.edu](mailto:isug@albany.edu), or Informatics/Information Science Undergraduate Program Director Jennifer Goodall at [jgoodall@albany.edu](mailto:jgoodall@albany.edu).
CCI Student Center
The College of Computing and Information Student Center (LI-84) offers tutoring, career development, social events and academic advising. Please stop by or email at ccistudentcenter@gmail.com.

CCI Women In Technology (CCIWIT)
The College of Computing and Information Women In Technology is dedicated to supporting, empowering, and building community among female faculty, graduate, and undergraduate students. The program also encourages girls in middle school and high school to pursue undergraduate and graduate studies in the fields related to computer science, informatics, and information science. CCIWIT initiatives are designed to address the critical need to bridge the achievement gap and increase access for women to enter the male-dominated computing and information technology fields. CCIWIT events are open to both women and men. More information can be found at CCI Women in Technology: http://cciwit.posterous.com/ and CCI Women in Technology on Facebook: http://www.facebook.com/groups/cciwit/.