IT360 Applied Database Systems

Course Policy, Spring AY19

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Course Description: This course introduces the principles underlying Database Management Systems (DBMS) and will focus on how to use, and develop applications that use, relational databases. Primary Topics include the Relational Model, SQL, normalization, effective DB design, indexing, transaction processing, and creating web applications that utilize backend databases. There will also be topics on protecting data and the RDBMS.

Credits: 2-2-3

Learning Objectives:

1. Explain the main advantages of modern database management systems over file systems. (supports Outcome (1))
2. Design, create, and query relational databases to satisfy user requirements. (supports Outcomes (1 and IT-6))
3. Design, build and deploy database-backed applications with a dynamic website front-end. (supports Outcome (2))
4. Implement data access control mechanisms for database and application security. (supports Outcome (2))
5. Analyze the ethical issues and responsibilities related to records management and its impact on privacy, discrimination, etc. and its local and global impact on society. (supports Outcome (4))

Student Outcomes:

1. Analysis. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Implementation. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the programâs discipline.
3. Communication. Communicate effectively in a variety of professional contexts.
4. Ethics. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Teamwork. Function effectively as a member or leader of a team engaged in activities appropriate to the programâs discipline.
IT-6. Requirements. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing based systems.

Textbook(s):

Students should complete reading assignments prior to the class for which they are assigned. Practical exercises will expand on concepts introduced in these readings.

Recommended:
Database Processing 13/E: Kroenke & Auer, Prentice Hall 2014
PHP and MySQL Web Development, Fourth Edition, L Welling and L Thomson, 2009

Optional:
Beginning PHP and MySQL, Fourth Edition, W. Jason Gilmore, 2010

Extra Instruction: Extra Instruction (EI) is available and encouraged. Since this course continually builds upon material previously presented, it is crucial that you seek EI as soon as you have problems understanding the material. However, you must come prepared with specific questions or areas to be discussed (i.e. have read the assigned readings). You can schedule EI with the instructor using this *calendar*.

Collaboration: The guidance in the Honor Concept of the Brigade of Midshipmen and the Computer Science Department Honor Policy must be followed at all times. See `www.usna.edu/CS/resources/honor.php`. Specific instructions for this course:

- Homework: Collaboration is expected and encouraged to facilitate student learning. Writing code together and having another student show and explain their code to you is acceptable collaboration on homework. However, simply copying another's code is unacceptable. Most homework assignments will be ungraded, however all forms and sources of collaboration must be cited with submission of homework assignments for a grade.
- Labs: Labs will serve as a weekly indicator of students' grasp of the course material. Students are free to discuss concepts and methods for completing problems assigned in labs. However, students should not view another student's code from the lab submissions except when working with a specific lab partner for a team assignment. The only exception to this no collaboration policy is when code is shared with the class and instructor in accordance with the Slack Collaboration Addendum.
- Quizzes and Exams: No collaboration is authorized on quizzes or exams. While it is encouraged for students to study together in preparation for exams, they may not collaborate in making exam "study sheets."

Students must cite all collaboration and outside sources. The same rules apply for giving and receiving assistance. If you are unsure whether a certain kind of assistance or collaboration is permitted, assume it is not, work individually, and seek clarification from your instructor.

Classroom Conduct: The section leader will record attendance and bring the class to attention at the beginning and end of each class. If the instructor is late more than 5 minutes, the section leader will keep the class in place and report to the Computer Science department office. If the instructor is absent, the section leader will direct the class. Drinks are permitted, but they must be in reclosable containers. Food, alcohol, smoking, smokeless tobacco products, and electronic cigarettes are all prohibited. Cell phones must be on silent and shall not be used during class. Sleeping is not permitted and it is expected students will stand up upon beginning to nod off. Students must inform the instructor in advance if they will miss class due to movement order, also an email upon being assigned as sick-in-quarters is appreciated.

Late Policy: Penalties for late submission of graded work may vary among courses or from semester to semester, but they will be the same for all sections of a given course. For *this* course:

- Unless otherwise specified, students will submit all assignments via the online system (submit.cs.usna.edu) before 1330 on the sixth day after the instructor released the assignment. For example, a lab assigned on a Friday will be due at 1330 the following Thursday.

- Students who turn in an assignment past a deadline will immediately incur a 20 percent late penalty. They will incur an additional 20 percent penalty for turning in an assignment greater than 24 hours past a deadline. Students will not receive credit for assignments submitted greater than 48 hours overdue as the instructor will post the solutions for all students' benefit.
- Each student starts with two grace cards at the start of the semester. A grace card can be used to extend an assignment deadline by 24 hours without penalty. Two grace cards can be combined to extend a deadline for a single submission by 48 hours. Students must e-mail the instructor to inform him of their desire to use a grace card within 12 hours of the submission deadline.

Grading:

Projects. There will be one group project. Project must be completed entirely by the students making the submission. The project grade will be based upon the instructor's estimation of the group's collective results, adjusted for each team member based upon the other group members' estimation of the individual's teamwork and contribution.

Quizzes. Expect quizzes weekly, which may be open or closed book/notes as announced by the instructor. Content will come mainly from homework questions and lab assignments.

Exams. The 6 and 12-week exams will primarily focus on the recent material. The final exam will be comprehensive. If for some reason a make-up exam will be required, inform the instructor at least one week in advance. All exams will be closed books, closed notes. Students will be allowed to bring individually prepared "study sheets" with anything handwritten on it (1 sheet for the 6-week exam, 2 sheets for the 12-week exam, and 3 sheets for final).

	6 weeks	12 weeks	16 weeks	Final
HW & Labs	45%	45%	45%	35%
Quizzes	5%	5%	5%	5%
Project				15%
Exams (6wk)	50%	25%	15%	15%
Exams (12wk)		25%	15%	15%
Exams (Final)			20%	15%
Total	100%	100%	100%	100%