CSCI320: Principles of Data Management

Spring 2235

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Class Times/Locations (follow SIS for your meeting time):

- Section 02: TR 11:00am - 12:15pm SHD-4350

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Class Times/Locations (follow SIS for your meeting time):

- Section 01: TR 2:00pm - 3:15pm SHD-3350
- Section 02: TR 11:00am - 12:15pm SHD-4350

Course Format

This class is a "flipped" class, lecturers will be given via video asynchronously. You are expected to watch the video and read the book every week before your scheduled class time. Class time will be used for activities/quizzes/group project; attendance is required for the activities/quizzes. Activity day will be small group work and the activities will be discussed and reviewed in class.

Course Objective

This course provides a broad introduction to the principles and practice of modern data management, with an emphasis on the relational database model. Topics in relational database systems include data modeling; the relational model; relational algebra; Structured Query Language (SQL); and data quality, transactions, integrity and security. Students will also learn approaches to building relational database application programs. Additional topics include object-oriented and object-relational databases; semi-structured databases (such as XML); and information retrieval. A database project is required.

Court Outcomes

After taking this course, a student will be able to demonstrate these outcomes

- Describe the basic concepts underlying the management of data, especially in the context of database systems. Assessment: Quizzes and Exam
- Analyze a data domain, develop a data model, and map it to appropriate relational tables. Assessment: Project
- Explain the basic concepts of relational algebra, and apply these concepts to develop queries. Assessment: Exams and project
- Use basic features of SQL to design and develop contemporary software applications that use a relational DBMS for data storage and retrieval, applying concepts such as data quality, integrity, transactions, and security. Assessment: Project
- Explain basic concepts underlying contemporary data management topics. Assessment: Quizzes and Exams

Textbooks and other resources

- Principles of Data Management, by Lemahieu, Broucke, Baesens (ISBN-13: 978-110718612)

Prerequisites/Corequisites

- Prerequisite by courses:
  - MATH-190 Discrete Mathematics for Computing or equivalent, AND
  - CSCI-142 Computer Science II or equivalent
- Prerequisite by content:
  - Programming ability (Java/C#/C++/Python)
  - knowledge of discrete math concepts

Assessment and Grading

Course assignments come in these forms: a final exam, quizzes, activities, and a project.

- **Components**
  - **In-Class Activities - 20% (Weekly)**
    * There will be in-class problem-solving/worksheet sessions. These will be graded and gone over in class. See your instructors schedule for the activities schedule. Your attendance is required, and failure to show up on time will result in a penalty.

- **Quizzes- 20% (Weekly)**
  - Quizzes will be in class once a week, unless otherwise indicated. The quiz will be in the next class period after the activity.
  - Time will be limited to 15 minutes
  - You are allowed one 8.5" x 11" hand-written one sided note sheet for quizzes.
  - Academic integrity violations on quizzes are considered minor infractions.
  - If you arrive more than 5 minutes late you will not be able to take the quiz.
- **Final Exam - 30%**
  - The final exam is in-person and will be given during the scheduled final exam time. If you have a conflict, you must inform your instructor by the end of week 11 per RIT policy so accommodations can be made. After this point accommodations will not be considered.
  - The exam is comprehensive.
  - The final exam is closed books/closed notes.
- **Project - 30% (4 parts)**
  - There are no formal lab sessions for this course. You will develop and submit solutions to all assignments independently, outside of class.
  - All Project parts will be submitted via myCourses
  - All project phases will have a 72 late window. During this window there will be a penalty on the grade, and no questions will be answered. See details below that outline the penalty.

• Course Materials

All course materials, except for in class activities, will be posted to myCourses.

• Late and Emailed Submissions

In general, no late submissions will be accepted, except on project phases where there is a late window.

During the 72 late window the following deductions will apply:

- Less than or equal to 24 hours (5% deduction)
- Greater than 24 hours but less than or equal to 47 hours (1% per hour additional)
- Greater than 48 hours but less than or equal to 72 hours (2% per hour additional)
- No submissions accepted after 72 hours

Partial hour is considered the same as a full hour. For instance if you submit 24 hours and one minute late it will be the same penalty as if you submitted 24 hours and 59 minutes late. In this case the penalty will be 6% (5% for the first 24 hours and 1% for one hour beyond that).

Submissions must be made on time and in the correct myCourses dropbox (assignment). There are no questions answered during the late window. Emailed submissions are never accepted.

All programming submissions are due electronically by 11:59pm (just before midnight) on their due date. Dropbox closes at exactly 11:59:00pm ET.

No extensions on deadlines will be granted, unless accommodations are made prior to the due date, and the instructor agrees that the circumstances are extenuating.

- **Extra Credit**

  There is NO extra credit.

- **Make-up Exams**

  Typically, there are NO MAKE-UP EXAMS - unless you have a serious written medical excuse (e.g., hospitalization) or family emergency.

  In the event that a situation could arises that would prevent you from taking an exam (severe illness, accidents, etc.), you must inform your instructor ***PRIOR*** to the exam if physically possible. You may email them, call them or leave a message with the staff in the Computer Science Department office (70-3000, telephone 475-2995 or 475-6179). When you return, we will make arrangements for a makeup exam.

  Please note that oversleeping, cars that don't start, and other excuses of this kind are not acceptable. It is your responsibility to complete the exam when scheduled. If you miss an exam and did not make prior arrangements for a makeup, you will receive a zero for it.

- **Grading Policy**

  Letter grade conversions from total scores will done as follows:

  - 92.50 - 100 is A
  - 89.50 - 92.49 is A-
  - 86.50 - 89.49 is B+
  - 82.50 - 86.49 is B
  - 79.50 - 82.49 is B-
  - 76.50 - 79.49 is C+
  - 72.50 - 76.49 is C
  - 69.50 - 72.49 is C-
  - 60 - 69.49 is D
  - less than 60 is F.

- In courses with in-class quizzes/tests/exams/etc., your course grade will not be more than two +/- letter grades, or 10% (whichever is lower) higher than the syllabus-defined weighted average of these scores in-class scores.
- In courses with group work (e.g., projects, posters, activities, discussions, or presentations), your course grade will not be more than two +/- letter grades, or 10% (whichever is lower) higher than the syllabus-defined weighted average of your individual work. See the Group Work section below to understand this grading policy better.
- Requests for final grade rounding will not be considered. The grading scheme has rounding built in already. Example: An A- is typically above a 90%. This course lists it as above an 89.49%.

- **Returning of Materials**

  For in person classes, exams and quizzes will be returned in class. If you are not in class when the assignment is handed back, you have one week from the date they were handed back to collect them during from your instructor's office before they are recycled.

  For online classes, or situations when quizzes are online, solutions will be posted for 1 week after the assignment is graded, after which they will not be made available again. It is your responsibility to check the the solutions and take notes on them during that week.

- **Grade Appeals**

  All requests to regrade any assignment must be made within one week of the date on which the assignment was returned, except as noted below.

  After that time, the grade becomes permanent. As an example, you may not ask for a regrade of a assignment returned to you in week 4 when it is week 9.

  In this course all grades will be posted on myCourses. All assignments are considered "returned" when the grade and feedback is posted to myCourses.

  In person exams are considered "returned" the class they are first handed back in. If you are not present to receive your exam you must go to your instructor's office to claim it, but the one week time frame starts when the class receives the exam, not when you pick it up.

  If exams are reviewed in class, appeals must be submitted by the end of class during the review session. No appeals on grades may be made after the end of class; even if you are not present during the review.

- **Class Attendance**

  Attendance in this class is required and graded. You are responsible for all materials presented in a class you have missed. Your instructor will not re-present the lecture during office hours.

  Getting an exemption from class attendance (missing activity/quiz) will be at the discretion of the instructors and will be limited one each for quiz and activity.

- **Grading Time Frame**

  All effort will be made to grade all student work within two weeks of the assignment being due; in other words, if you complete assignments early, you may not receive feedback until the assignment was due, weeks later.

- **In-person Office Hours**

  There will be in-person office hours for this class. Office hours will be conducted via in person methods at the times indicated above; Zoom, or other electronic method are at the discretion of the instructor.

- **Group Work**

  Many courses taught by this instructor utilize group work because of benefits such as intra-group learning from peers, experience with collaborations, and scope for larger projects.

  Each group member is expected to understand the group work in its totality, e.g., all parts of a software project design and implementation, even if parts were assigned to other group members. While some grading for group work is collective, the final score is individual based on the collective work, exam questions, peer evaluation, and instructor observation of individual contributions to group work. If needed, the instructor may schedule individual meetings to discuss each member's contribution to the group work.

  While group work is typically beneficial, the instructor recognizes that groups sometimes become dysfunctional. If you are in such a group, inform the instructor privately ASAP so that corrective action can be taken. If you wait too long, it then becomes your own problem!

  A student's individual score on group work may differ from others on the same group.

- **W and I Policy**

  – RIT policy allows you to withdraw from a course with a grade of W on or before the date shown in the current RIT semester calendar. After this date, your instructor cannot give you a W, but must assign you a grade based on your work completed in the course.

  - Incomplete grades, therefore, will be given only in truly exceptional circumstances, and only by prior arrangement with your lecture instructor, who has the final say in this matter.

Email Policy

- **Sending messages to the instructor:**
  - You must use a RIT email account for all email (or an email account with your real name.
  - The subject MUST have the course number; CSCIXXX where XXX is the course number.
  - Adhere to this policy as your instructor receives many emails daily: using an RIT email account and with an appropriate subject title will prevent your message from getting removed as spam or missed by the instructor.
  - For courses where there is a blogging requirement, using the blog post for sending messages to the instructor is the preferred option as these messages cannot be lost!

- **Responses from instructor:**
  - Replies will typically be sent to your official RIT email account.
  - While the instructor will respond to messages as quickly as possible, delays are possible based on workload, schedule, and the number of messages - which increases as deadlines approach! Responses outside of regular working hours, especially weekends, are not guaranteed.
  - If you don't get a reply to a message you sent from an RIT account, please raise the question in class. Some messages may be responded to via announcements in class or on myCourses.
  - Messages about program errors or problems must include all relevant information. Assignments and email:
  - Assignments must be submitted per instructions in each assignment handout. Note: email submissions are never accepted.

Coding Style

We expect you to follow a reasonable programming style. While we do not mandate a specific style, we require that your code be neat, clear, documented and above all consistent.

See your instructor for details on the expected formatting style and documentation standards. Below are the things we expect regarding style.

- reasonable length function bodies;

- reasonable length lines of code;
- program file header comment block describing the file content and your name;
- function and class header documentation describing purpose, parameters, return values, etc. of the function;
- in-line documentation of complex sections of code;
- clear, consistent indentation (no mixing TABs and spaces);
- and your complete name, including your RIT username, in every document and file you deliver! (e.g. 'Joe' is not a complete name.)

Failure to following basic coding style can result in penalty points if the instructor cannot understand or easily follow the code.

Miscellaneous Policy Notes

While the intent is to maintain the policies and schedules posted initially, the instructors reserve the right to make changes to any facet of the course based upon the events of the term. If such a change must be made, you will be notified in class, via electronic mail, and in myCourses.

Unless otherwise specified in an assignment, all work you submit for grading must be your own, individual production. Code or ideas (specific algorithms, optimizations, etc.) obtained from or inspired by other sources must be properly attributed. Enter attributions of those sources of inspiration/knowledge in comments inside the code at the appropriate point.

We set due dates for assignments in order to provide adequate time to complete the assignments, while allowing sufficient remaining time in the term to complete the remaining assignments. Should it become necessary, we reserve the right to change due dates; this, in turn, may require modification of due dates for other assignments during the term, or, in some cases, elimination of some assignments.

System downtime on or near the due date for an assignment is not usually grounds for an extension. An exception to this is extended system downtime (on the order of multiple days, not just hours); if this occurs, we may consider modifying a due date, but this is not guaranteed.

For programming assignments no questions will be answered the day it is due. For the semester group project no questions will be answered within two days of a due date. This includes via email or in office hours.

Common Course Policies

A number of policies apply to all CS courses.

Disability Services

RIT is committed to providing reasonable accommodations to students with disabilities. If you would like to request accommodations such as special seating or testing modifications due to a disability, please contact the Disability Services Office. It is located in the Student Alumni Union, Room 1150; the Web site is www.rit.edu/dso . After you receive accommodation approval, it is imperative that you see the instructor during office hours to work out whatever arrangement is necessary.

Academic Integrity and Academic Dishonesty

As an institution of higher learning, RIT expects students to behave honestly and ethically at all times, especially when submitting work for evaluation in conjunction with any course or degree requirement. The Department of Computer Science encourages all students to become familiar with the RIT Honor Code and with RIT's Academic Integrity Policy.
RIT Honor Code: https://www.rit.edu/academicaffairs/policiesmanual/p030
RIT Academic Integrity Policy: https://www.rit.edu/academicaffairs/policiesmanual/p080

Academic dishonesty will be dealt with in accordance with DCS and RIT policies.

RIT's Academic Honesty Policy defines the basic forms of academic dishonesty (cheating, duplicate submission, and plagiarism) and explains the official RIT policy regarding academic dishonesty.

All Lab, Homeworks, and Projects must be the result of individual effort, not teamwork. Development of code for Labs, Homeworks, or other graded work is an individual responsibility; unless an instructor approve group activity.

Submitting individual work written by others or as an unsanctioned team is considered an act of academic dishonesty. In cases where a student is suspected of cheating or copying material, the instructor shall notify the students involved and act in accordance with
http://www.rit.edu/academicaffairs/policiesmanual/d080.

Although students may discuss assignments with others, all individually submitted writings and code must be created independently by the student and not copied from others or other sources (e.g. web pages). This includes copying from public repository sites such as github.

Work copied from github or other, similar sources will be subject to prosecution for breach of academic integrity. You must not use a public repository such as github. Be sure that any version control repository you use is private.

Team-developed work also must be created solely by the team members and not copied from others or other sources unless with prior instructor approval.

The CS Department Student Academic Integrity document explains the official Department policy regarding incidents of academic dishonesty, and contains references to the relevant RIT policy

documents.

Major violations of this policy will result in an immediate failing grade for this course and will be reported to the Computer Science department for further review.
Minor violations will result in a 0 grade on the assignment. More than one minor offense will be considered a major violation and will process as so.

Statement on Title IX

Title IX violations are taken very seriously at RIT. RIT is committed to investigate complaints of sexual discrimination, sexual harassment, sexual assault and other sexual misconduct, and to ensure that appropriate action is taken to stop the behavior, prevent its recurrence and remedy its effects. Please view the Title IX Rights & Resources at RIT

Other Policies

- Other RIT policies may be found at the provost's governance library, http://www.rit.edu/academicaffairs/policiesmanual/policies/governance.
- RIT's Final Exam Policy
- The RIT policy on harassment is covered in http://www.rit.edu/academicaffairs/policiesmanual/c060.