Catalog Description
Provides a self-paced, comprehensive review of database fundamentals. Topics include: database classifications, data models with extensive coverage of the relational model, entity-relationship and extended entity-relationship models, normalization, advanced data modeling, and Structured Query Language (SQL) programming. Open only to students with transfer credit comparable to IT 214 who have not attempted IT 194 or IT 214.

Prerequisites
Permission of department. (Students must have transferred a course comparable to IT 214 in order to be eligible to register for this course. For VCCS students, this course is typically ITD 256.)

This requirement will be strictly enforced. Any student who does not meet the prerequisite requirement will not be permitted to enroll in the course.

Rationale
For many businesses, processing information is the key component of their corporate strategy and crucial to their profitability. Databases provide a convenient means of storing large amounts of data, allowing it to be sorted, searched, viewed, and manipulated according to the business needs and goals. Many companies rely so heavily on the functions of databases that their daily business operations cannot be executed if databases are unavailable, making database management and maintenance a vital component of their business models. This course reviews database fundamentals, introduces students to currently available technologies and tools, and examines typical applications of those technologies to real-world situations.
This course provides a pathway for students that have previously taken a course comparable to IT 214, but were denied direct equivalency to IT 214 to review materials and reinforce what was learned in the prior course. From this learning, they should be able to demonstrate a level of proficiency equivalent to students completing IT 214, which will prepare the student for higher level AIT courses.

**Course Outcomes**

1. Understand and work with the relational database model and ERD.
2. Design and create multiple tables, table relationships, and queries using SQL.

**Supported Student Outcomes at the Program Level**

(a) Apply knowledge of computing and mathematics
(c) Design, implement and evaluate a computer-based system, process, component, or program
(j) Ability to use and apply current technical concepts and practices in the core information technologies

**Major Topics**

On successful completion of this course, students will be able to:

− Use modern techniques of data organization and access in a database environment
− Describe the importance of database modeling and design
− Understand and work with the relational database model and ERD
− Design and create multiple tables, table relationships, and queries using SQL
− Understand what transaction management and concurrency control are
− Have solid understanding of different types of databases
Textbooks

There is one required textbook for this course listed below. It is a special GMU edition of the textbook. You can purchase it at the GMU Bookstore at http://gmu.bncollege.com/


The special GMU edition of the textbook listed above was created from two different textbooks:


You can purchase two books that are used for the special GMU edition separately. If you do choose to acquire your textbooks separately, please triple check the ISBN numbers so that you are obtaining the right textbooks and the right editions of the textbooks. You are responsible for obtaining the correct textbooks for the course.
Faculty and Staff

IT 214 Course Coordinator and Instructor:

Ioulia Rytikova, Ph.D.  (Course Coordinator)
Email: irytikov@gmu.edu

IT 214 Teaching Assistants:
None

Administrative Support

Fairfax campus
http://eagle.gmu.edu/map/buildings/engineering.php
Room 5400
Phone: 703-993-3565

Prince William campus
Bull Run Hall, Suite 102
Phone: 703-993-8461
Grading

Grades will be awarded in accordance with the GMU Grading System for undergraduate students. See the university catalog for policies: http://catalog.gmu.edu for more information.

The grading scale for this course is:

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<th>Grade</th>
<th>Percentage</th>
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<tr>
<td>S</td>
<td>73 – 100%</td>
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<td>NC</td>
<td>0 – 72%</td>
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Passing/Satisfactory Failing/No Credit

Raw scores may be adjusted by the instructor to calculate final grades.

Final grades will be determined based on the following components:

<table>
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<th>Graded Activity</th>
<th>Weight</th>
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<tr>
<td>Final Exam</td>
<td>100%</td>
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There are no extra credit opportunities. Students may not do additional work nor resubmit any graded activity to raise a final grade.

The final exam will be conducted on-campus, in a classroom. The date/time/location will be posted on Blackboard as soon as possible. The exam will be written and “closed book, closed notes, closed friends” – no reference materials other than those provided with the exam will be permitted. Exams are retained by the AIT department and will not be returned to students.

Final grades will be posted to PatriotWeb, which is the only vehicle for students to obtain those grades. A student with a "hold" on his/her PatriotWeb account will be unable to access final grades until the hold has been removed by the Registrar.
Course Content

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<thead>
<tr>
<th>Topics</th>
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<tr>
<td>Database Systems</td>
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<td>Data Models</td>
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<tr>
<td>Introduction to Visio</td>
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<tr>
<td>Relational Database Model</td>
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<td>Basic ERD and Relational Diagram in Visio</td>
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<tr>
<td>Entity-Relationship Model</td>
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<td>Crow’s Foot Diagram in Visio</td>
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<td>Normalization</td>
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<td>Dependency Diagrams</td>
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<td>Advanced Data Modeling Techniques</td>
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<td>Review on Database Design</td>
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<td>Introduction to SQL</td>
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<tr>
<td>SQL Practice</td>
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<tr>
<td>Data Definition Language</td>
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<tr>
<td>SQL Practice</td>
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<td>DML: Single-Table Queries</td>
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<tr>
<td>SQL Practice</td>
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<tr>
<td>DML: Multiple-Table Queries</td>
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<tr>
<td>SQL Practice</td>
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<td>Updating Data</td>
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<td>SQL Practice</td>
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<td>SQL Special Topics</td>
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<tr>
<td>SQL Practice</td>
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<tr>
<td>Review on SQL</td>
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<td>Cumulative Review</td>
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Important Dates

Dates for adding, dropping the course, etc. are available via: [http://registrar.gmu.edu](http://registrar.gmu.edu).

Religious Holidays

A list of religious holidays is available on the University Life Calendar page. Any student whose religious observance conflicts with a scheduled course activity must contact the instructor at least 2 weeks in advance of the conflict date in order to make alternative arrangements.
Attendance Policy

This course is a self-paced course with no graded assignments other than a final exam. Students are strongly recommended to follow the course schedule to ensure they remain on target to successfully complete the course.

Departmental policy requires students to take exams at the scheduled time and place, unless there are truly compelling, severe circumstances supported by appropriate documentation. Except in such circumstances, failure to arrive to the exam site on time for a scheduled exam will result in a score of zero (0) for that exam, in accordance with Mason policy on final exams. Students should not make travel plans or other discretionary arrangements that conflict with scheduled classes and/or exams. If the University is closed due to weather or other unforeseen conditions, final exams may be rescheduled – students are strongly advised not to make plans that would prevent them from attending exams that may be rescheduled during the entire exam period.

Communications

Registered students will be given access to a section of the Blackboard Learning System for this course. Blackboard will used as the primary mechanism to disseminate course information, including announcements, lecture slides, and grades.

Communication with the instructor on issues relating to the individual student should be conducted using Blackboard Mail, GMU email, via telephone, or in person - not in the public forums on Blackboard. GMU Mail is the preferred method – for urgent messages, you should also attempt to contact the instructor via telephone. Federal privacy law and GMU policy require that any communication with a student related in any way to a student's status be conducted using secure GMU systems – if you use email to communicate with the instructor you MUST send messages from your GMU email account.

Privacy

Instructors respect and protect the privacy of information related to individual students. As described above, issues relating to an individual student will discussed via email, telephone or in person. Instructors will not discuss issues relating to an individual student with other students (or anyone without a need to know) without prior permission of the student.

Faculty and staff will take care to protect the privacy of each student's scores and grades.
Disability Accommodations

The Office of Disability Services (ODS) works with disabled students to arrange for appropriate accommodations to ensure equal access to university services. Any student with a disability of any kind is strongly encouraged to register with ODS as soon as possible and take advantage of the services offered.

Accommodations for disabled students must be made in advance – ODS cannot assist students retroactively, and at least one week's notice is required for special accommodations related to exams. Any student who needs accommodation should contact the instructor during the first week of the semester so the sufficient time is allowed to make arrangements.

Honor Code

All members of the Mason community are expected to uphold the principles of scholarly ethics. Similarly, graduating students are bound by the ethical requirements of the professional communities they join. The ethics requirements for some of the communities relevant to IST graduates are available via the following links:

ACM Code of Ethics and Professional Conduct
IEEE Code of Ethics
EC-Council Code of Ethics

On admission to Mason, students agree to comply with the requirements of the GMU Honor System and Code. The Honor Code will be strictly enforced in this course. Honor Code cases are heard by a panel consisting of students – students who meet the requirements are encouraged to nominate themselves to serve on the Honor Committee. Any use of the words or ideas of another person(s), without explicit attribution that clearly identifies the material used and its source in an appropriate manner, is plagiarism and will not be tolerated. Within The Volgenau School there is a mandated "zero tolerance" policy for plagiarism. The instructor reserves the right to use all manual and/or automated means (including, but not limited to such services as SafeAssign and MOSS – Measure of Software Similarity) to detect plagiarism in any work submitted by students for this course, and to direct teaching assistants and/or other faculty and/or staff members to do likewise in support of this course. Additional information on the enforcement of the George Mason University Honor Code policy can be found at: http://academicintegrity.gmu.edu.

For this course, the following requirements are specified:

1 Available at www.gmu.edu/catalog/apolicies and related GMU Web pages.
• All work that is to be submitted for a grade must be prepared by the individual student. Students are expressly prohibited from sharing any graded work for this course in any manner with anyone other than the instructor and teaching assistant(s) assigned to this course and the student's section. Specifically, students may not do the following, including but not limited to:

  ▪ Discussing the work specific to an assignment with anyone except the instructor and/or teaching assistant(s)

  ▪ Showing another student their work-in-progress, completed solution, or graded solution

  ▪ Having another person (i.e. current student, former student, tutor, friend, anyone) “walk them through” how to solve an assignment

• Posting or sharing course content (i.e. instructor provided lecture notes, assignment directions, assignment questions, or anything not created solely by the student), using any non-electronic or electronic medium (i.e. web site, FTP site, any location where it is accessible to someone other than the individual student, instructor and/or teaching assistant(s)) constitutes copyright infringement and is strictly prohibited without prior approval from the instructor.

If you have questions on these requirements, please discuss them with your instructor. Any deviation from these requirements is considered a violation of the Honor Code. All suspected violations of the Honor Code will be taken seriously and are required to be reported by the instructor.