IT 414: Database Administration

Syllabus

Catalog Description

**IT 414: Database Administration (3 credit).**
Explores advanced concepts of database administration using enterprise-level database management system. Topics include: backup, recovery, corruption, automatic management, resource management, job scheduling, space management, memory management, storage management, diagnosis and corresponding tools.

Prerequisites

*Prerequisites: (IT 314) and (IT 214 or 194).*

- \(^c\) Requires minimum grade of C.
- \(^b\) Requires minimum grade of B.
- Limited to two attempts.

Expected Outcomes

The outcomes expected for a student passing this course are:

- Understand the structure and management of a database
- Perform backups and recoveries using Recovery Manager
- Understand the Flashback Technologies in Oracle 11g
- Tune the Oracle 11g database
- Deal with block corruption
- Understand the advisors available in Oracle 11g
- Monitor and manage storage and memory
- Understand the Automated Storage Management (ASM) feature in Oracle 11g
- Understand the functions of the Scheduler
- Understand globalization support
- Understand the functions of the listener and its vulnerabilities
- Understand the Oracle Enterprise Manage (OEM) product as a management tool for Database Administrators

Supported Student Outcomes at the Program Level

(6) An ability to identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.
Section

The course has one section IT 414-DL1 (CRN: 11746)

• Online asynchronous sessions

Course EMAIL Communication

When you use email communication in the course it is important to follow the rules below:

• IN BLACKBOARD:
  o Do not use ALL INSTRUCTORS or ALL GTAS option as there are other persons recorded on such positions

• OUTSIDE BLACKBOARD:
  o SUBJECT: Start with "IT414-DL1" then follow with the issue
  o CC: all responsible parties (i.e. for a GTA grading issue that you escalate to instructor, include the GTA)

Course Instructor and Office Hours

Course Instructor: Dr. James Bondra.
Email: jbondra@gmu.edu Phone: 216-533-2867
See Syllabus folder on Blackboard for Office Hours.

GTA

Course GTA: Sravya Pagadala.
Email: spagada@gmu.edu
See Syllabus folder on Blackboard for Office Hours.

Course Coordinator

Dr. Mihai Boicu

• You must contact the course coordinator only after you contacted and tried to resolve an issue with your course instructor and/or assigned GTA.
• You may contact the course coordinator for general feedback related to the course or for specific complains.
• Phone: (703) 993-1591 (M-F 9AM-3PM)
• Email: mboicu@gmu.edu (start email subject with IT414-section COORDINATOR)
• Office hours by appointment, send me 5 large time intervals.
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Syllabus

Spring 2020

Administrative Support

Fairfax campus
Engineering Building, Room 5400
Phone: 703-993-3565

Prince William campus (Science & Technology)
Bull Run Hall, Suite 102
Phone: 703-993-8461

Textbook

There is one required textbook for this course:

Sam Alapati's Expert Oracle Database 11g Administration

- 1400 Pages
- User Level: Beginner to Advanced
- Publication Date: November 14, 2008
- Available eBook Formats: PDF

The book is not available in the bookstore.

It can be ordered online at:
http://www.apress.com/9781430210153 (PDF format, Paperback)

Schedule

Detailed weekly schedule is posted on the Blackboard. However, the instructor may change the schedule based on the specific teaching objectives and remedial learning. Changes will be announced to the class.
Grading

Final grades will be determined based on the following components:

- Homework and practices 25%
- Project 25%
- Midterm 25%
- Final Exam 25%

These components are outlined in the following sections.

Homework

Homework will be assigned every class during the semester. Each homework assignment is to be prepared and submitted as specified by the Instructor. Late homework may not be accepted – if accepted, a penalty may be applied. Acceptance of late homework and/or application of penalties will be at the sole discretion of the Instructor.

Mid-term exam

The mid-term exams will be “closed book” – no reference materials other than those provided with the exam paper will be permitted. Mid-term exams will be retained by the Department of Applied Information Technology and will not be returned to students. The mid-term will be in person. A classroom will be scheduled at 5 pm to 7 pm in approximately week 7 of class.

Final exam

The final exam will be held during the scheduled final exam session (see http://registrar.gmu.edu/ ). The final exam will be “closed book” – no reference materials other than those provided with the exam paper will be permitted. Final exams will be retained by the Department of Applied Information Technology and will not be returned to students. The final exam will be in person. A classroom will be scheduled at 5 pm to 7 pm in final week of class.

Project

The project will be related to an advanced topic in databases. The topic needs to be pre-approved by the instructor. The project will be prepared with powerpoint and recorded video of yourself presenting.

Final Grade

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.

Grading Scale

The grading scale for this course is:
Hardware and Software Requirements

For all sections you must have a personal computer with internet connection. It is strongly recommended that you have a powerful enough laptop on which you can perform code development that you can bring to class.

For the online section you must have a personal computer with internet connection, with speakers and microphone.

We require either a Mac OS X or Windows 10 computer.

Course Delivery Methods

The course will be delivered using various methods. You must have your MASON email account activated and you must check your email daily for announcements related to the course. You must have access to Blackboard Learning System and to know how to use its features.

There are video presentations posted on the Blackboard. You must have an environment in which you can watch these videos.

You will have several assignments and assessments to be performed each week. A summary of weekly requirements will be sent at the beginning of the week.

COURSE CANCELED (SNOW DAYS)

If the courses are canceled the first option is to have a synchronous meeting online during the same times. If you cannot be online the course will be recorded and posted on the course Blackboard site.
Classroom Conduct (if applicable)

Students are expected to conduct themselves in a manner that is conducive to learning, as directed by the Instructor. Any student who negatively impacts the opportunity for other students to learn will be warned – if disruptive behavior continues, the student will be asked to leave the classroom.

Electronic devices are potential distractions in the classroom environment. Cell phones, pagers and other handheld devices must be turned off or set to "silent" mode and not used while class is in session. Laptop computers and similar devices may be used only if such use is directly related to the classroom activity in progress – for some activities the Instructor may require that such devices not be used in order to maximize student engagement.

Communication

Registered students will be given access to a section of the Blackboard Learning System for this course. Blackboard will used as the primary mechanism (outside of lectures) to disseminate course information, including announcements, lecture slides, homework and other assignments, and scores for homework and exams.

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

Intellectual Property

There is a strong recommendation that all work in the class projects to be done based on an open source license (e.g. Academic Free License http://en.wikipedia.org/wiki/Academic_Free_License). This will allow a rich, shared exchange of ideas and will allow each member of the class to further benefit with no restriction from the work performed in the class.

Privacy

Instructors respect and protect the privacy of information related to individual students. Specific issues relating to an individual student will be 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. There is no guarantee related to the security of email and telephone conversations.

Assessable work other than final exams will be returned to individual students directly by the Instructor (or by a faculty or staff member or a Teaching Assistant designated by the Instructor, or via another secure method). Under no circumstances will a student's graded work be returned to another student.
Faculty and staff will take care to protect the privacy of each student's scores and grades.

Because of the nature of this class, some work performed by the student will be published and discussed in the class. Other students will be able to make comments and suggestions related to the published work, without seeing the actual grade the student earned for the work.

**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 Applied IT graduates are available via the following links:

- [ACM Code of Ethics and Professional Conduct](http://www.acm.org/about/ethics)
- [IEEE Code of Ethics](http://www.ieee.org/web/aboutus/ethics.htm)
- [EC-Council Code of Ethics](http://www.computerprofessional.net/)

On admission to Mason, students agree to comply with the requirements of the Mason Honor System and Code\(^1\). 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. There is a "zero tolerance" policy for plagiarism within The Volgenau School. The Instructor reserves the right to use manual and/or automated means (including such services as Turnitin.com) 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.

For this course, the following requirements are specified:

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All assessable work is to be prepared by the individual student, unless the Instructor explicitly directs otherwise.

All work must be newly created by the individual student for this course for this semester. Any usage of work developed for another course, or for this course in a prior semester, is strictly prohibited without prior approval from the instructor.

For team work a summary at the end of the submission must identify mutually agreed individual contributions.

Students may seek assistance with assigned work (and are encouraged to do so if they feel the need), provided:

- The directions for the assigned work do not prohibit such assistance.
- Such assistance is acknowledged in the submitted work, clearly identifying the person(s) giving assistance and the nature of the assistance given.
- Any work to be submitted is prepared entirely an exclusively by the student submitting it. Students are expressly prohibited from sharing any assessable work for this course in any manner with other students (except students assigned as Teaching Assistants or Undergraduate Peer Mentors to this course and the student’s section), unless all students involved have had their work graded and returned by the Instructor, or the Instructor has explicitly approved such sharing.