Common Syllabus

This syllabus contains information common to all sections of IT 414 for the Spring 2019 semester. For each section, a customized syllabus with information specific to that section will be made available to registered students via the Blackboard Learning System.

Logistics

001         Dr. James Bondra         PW BRH 252
            (As needed)                Office Hours – by appointment
            (jbondra@gmu.edu)

Course Description

IT Information Technology
IT 414 - Database Administration (3:3:0)

Explores advanced concepts of database administration using enterprise-level database management system. Topics include: Architecture, backup, recovery, corruption, automatic management, resource management, job scheduling, space management, memory management, storage management, diagnosis and corresponding tools.

From http://www.gmu.edu/catalog/courses/it.html

Prerequisites

The prerequisite for this course is IT 314 (or an approved equivalent course). A grade of "C" or better must be achieved in the prerequisite course before a student is qualified to take this course. The prerequisite course must be completed prior to, not concurrently with, this course.

This requirement will be strictly enforced. Any student who does not meet the prerequisite requirement will be dropped from the course by the Instructor at the start of the semester and the student will be responsible for any consequences of being dropped.
Rationale

The large volumes of data that businesses and individuals store have made the database one of the most important building blocks of modern IT infrastructure. Oracle Database 11g is an object-oriented database that allows enormous quantities of data to be stored and managed with ease. That’s the first database that provides the most flexible and cost-effective way to manage and process data. Many new features, automated management capabilities, and performance enhancements in Oracle 11g help to reduce IT management costs and enhance user productivity. This course is intended to develop understanding of advanced database concepts, introduce students to currently available technologies, and examine typical applications of those technologies in “real-world” business environment.

Objectives

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

− 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
References

Textbooks (PDF FORMAT)

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](http://www.apress.com/9781430210153) (PDF format, Paperback)

Faculty and Staff

**Course Instructor:**
Dr. James Bondra, Ph.D.
Email:  jbondra@gmu.edu
Phone:  216-533-2867

**Course Coordinator:**
Dr. Mihai Boicu, Ph.D.
Email:  mboicu@gmu.edu (start email subject with  IT414)
Phone:  703-993-1591
Office hours: use department appointment system

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
Grading

Grades will be awarded in accordance with the Mason Grading System for undergraduate students. See [http://www.gmu.edu/catalog/apolicies/](http://www.gmu.edu/catalog/apolicies/) under Grading System for more information.

The grading scale for this course is:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>97% - 100%</td>
<td>Passing</td>
</tr>
<tr>
<td>A</td>
<td>93% - 96%</td>
<td>Passing</td>
</tr>
<tr>
<td>A-</td>
<td>90% - 92%</td>
<td>Passing</td>
</tr>
<tr>
<td>B+</td>
<td>87% - 89%</td>
<td>Passing</td>
</tr>
<tr>
<td>B</td>
<td>83% - 86%</td>
<td>Passing</td>
</tr>
<tr>
<td>B-</td>
<td>80% - 82%</td>
<td>Passing</td>
</tr>
<tr>
<td>C+</td>
<td>77% - 79%</td>
<td>Passing</td>
</tr>
<tr>
<td>C</td>
<td>73% - 76%</td>
<td>Passing</td>
</tr>
<tr>
<td>D</td>
<td>60% - 72%</td>
<td>Passing</td>
</tr>
<tr>
<td>F</td>
<td>0% - 59%</td>
<td>Failing</td>
</tr>
</tbody>
</table>

* Grades of "D" are considered passing grades for undergraduate courses. However, a minimum grade of "C" is required in the BSIT program for any course that is a prerequisite for one or more other courses. This course is a prerequisite for several courses in BSIT Concentrations – see [http://www.gmu.edu/catalog/courses/it.html](http://www.gmu.edu/catalog/courses/it.html) for more information on those courses.

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

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 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.
Schedule

Note: A detailed schedule will be publish on the Blackboard. As many factors may affect the development and progress of a class, the instructor reserves the right to alter the schedule as may be required to assure attainment of course objectives.

The reading assignment shown for each lecture is to be completed prior to that lecture.

Registered students should see the Blackboard Learning System for the latest class schedule.

Important Dates

From http://registrar.gmu.edu/calendars/
See that Web page for more information.

Classroom conduct (when 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.

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 (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.

Lecture slides are complements to the lecture process, not substitutes for it - access to lecture slides will be provided in Blackboard as a courtesy to students provided acceptable attendance is maintained.

All course materials (lecture slides, assignment specifications, etc) are published.
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.

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.

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
- IEEE Code of Ethics
- EC-Council Code of Ethics

On admission to Mason, students agree to comply with the requirements of the Mason 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.

1 Available at www.gmu.edu/catalog/apolicies and related Mason Web pages.
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. Dean Griffiths has mandated 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:

- 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.

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 and 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.