

MIS5122 – Enterprise Architecture for IT Auditors Fall 2019

About the Instructor:

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Office hours: By Appointment (please e-mail)

Class Locations and Time:

Alter Hall 602 5:30 pm - 8:00 pm, Thursday (section 002)

On the web: <https://community.mis.temple.edu/mis5122sec002fall2019/>

Course Description:

This course surveys the technology concepts and components that are critical for the IT auditor to understand. It uses an enterprise architecture framework to explore issues of business process, business data, applications and the infrastructure that are necessary to run those applications.

Course Objectives:

By the end of this course students will be able to:

- Understand the major components which comprise any computing system.
- Explain system software and to contrast system software from application software.
- Identify the connections between each technical topic and its relation to IT Auditing
- Understand the major components of a computer network.
- Illustrate how organizations manage and work with data.
- Explain applications software and to contrast application software with systems software.
- Identify common security vulnerabilities within the web security discipline.
- Comprehend Operating System, Web Server and Database auditing concepts.
- Properly understand how to use the command line.

Required Text and Reading:

- **Systems Architecture seventh edition by Burd, 2016, Cengage Learning, ISBN-13 978-1-305-08019-5 or Systems Architecture sixth edition by Burd, 2011, Course Technology, Cengage Learning, ISBN-13 978-0-538-47533-4.**

Note: The seventh edition of this book was just published. It is very expensive, \$172 on Amazon. Since it is new, inexpensive used copies are not yet available. While the sixth edition is not as current it is just fine for what we will be doing with it. You can also get used copies for about \$48 on Amazon. I would strongly encourage you to pick up an inexpensive, used copy of the sixth edition of this book vs. a new copy of the seventh edition.

- **Murach's MySQL 2nd edition by Joel Murach, 2015, Mike Murach & Associates, Inc., ISBN-13 978-1-890774-82-0**

This is also a fairly new book but there are used copies available. The first edition of this book is almost identical to the second edition so that would be acceptable for this class and you can pick up a used copy of the first edition for about \$10.

- **Murach's C# 2015 by Joel Murach, 2016, Mike Murach & Associates, Inc., ISBN-13 978-1-890774-94-3**

Course Materials:

All other course materials including this syllabus, assignments, and slides are available on my course site.

Technology Requirements:

A number of the Tech Challenges will require the use of VMware

VMware will be installed on the machines in the classroom and on the machines in the MIS labs in Alter 602 and 603. Students will be required to have a fairly high speed external storage device (i.e. USB 3.0 flash drive) with at least 32GB of available storage. They will use this storage device to copy their virtual machines to/from the machines in the classroom and labs.

As an alternative to using an external storage device, students with laptops that have enough capacity and available storage to run VMware will be permitted to use their own laptops. It should also be noted that it is highly recommended that students have a laptop for working on technologies at home. The lab workstations are Microsoft Windows based.

The class will require software to be downloaded such as VMWare, Windows Server 2008/2012, Visual Studio, MySQL etc... All of software that is not freeware can be downloaded under the Temple MIS software agreement at: https://e5.onthehub.com/WebStore/ProductsByMajorVersionList.aspx?cmi_mnuMain_child=aa5891-884f-e511-940f-b8ca3a5db7a1&cmi_mnuMain=2b44b80c-dfc9-e111-971c-f04da23e67f6&ws=933e35a0-db9b-e011-969d-0030487d8897&vsro=8

If you cannot access the site please let me know so I can ensure your temple account is added.

Evaluation and Grading:

Item	Percentage
Attendance/Participation	35%
Class Activities/Assignments	35%
Final Exam	30%

Scale			
94 – 100	A	73 – 76	C
90 – 93	A-	70 – 72	C-
87 – 89	B+	67 – 69	D+
83 – 86	B	63 – 66	D
80 – 82	B-	60 – 62	D-
77 – 79	C+	Below 60	F

Once a grade is communicated to you electronically you will have a 2-week window of time to approach me and question the grade you received. I will not consider grade adjustments after this window has closed. Of course, during the last week of the semester, study days, and finals week, this 2-week window shortens and I will not consider grade adjustments 48 hours after the last day of final exams.

Participation

Much of your learning will occur as you prepare for and participate in discussions about the course material. The activities/assignments and readings have been carefully chosen to bring the real world into class discussion while also illustrating fundamental concepts.

To encourage participation, 35% of the course grade is earned through preparation before class, and participation during and between classes. Evaluation is based on a consistent demonstrated engagement with the process of learning. Assessment is based on what you contribute, not simply what you know.

Participation during class – We will typically start each discussion with “opening” questions about the assigned readings and activities/assignments. I may ask for volunteers, or I may call on you. Students called on to answer should be able to summarize the key issues, opportunities, and challenges in the case study. All students should be prepared to answer these questions.

Another important aspect of in-class participation is completion of in-class assignments and contribution to break-out group activities.

The criteria for class participation includes attendance, punctuality, level of preparation, professionalism, answering questions, discussing readings, contributing to group activities, and contributing to a positive learning environment.

Exams

There will be a final exam for this course. The exam will be comprised of short-answer and longer open-ended questions. Check the schedule for dates.

A missed exam can only be made up in the case of documented and verifiable extreme emergency situations.

Activities/Assignments

Each class will involve at least one in-class activity. We will start most activities in-class, however, they must all be completed and submitted to me for a grade before the next class. Some activities may require to be completed outside of class and in which case the assignment must be completed by the student and submitted to the instructor before the next class for a grade. **All activities/assignments must be submitted to the instructor for a grade before the next class.**

Late Assignment Policy

An assignment is considered late if it is turned in after the assignment deadlines stated above. No late assignments will be accepted without penalty.

- You must submit all assignments, even if no credit is given. **You will lose one letter grade from your assignment for each day after the assignment deadline has passed.**
- Plan ahead and backup your work. ***Equipment failure is not an acceptable reason for turning in an assignment late.***

Classroom Etiquette

The environment you and your fellow students create in class directly impacts the value that is gained from the course. To that end, the following are my expectation of your conduct in this class:

- Arrive on time and stay until the end of class.
- Turn off cell phones, pagers and alarms while in class.
- Limit the use of electronic devices (e.g., laptop, tablet computer) to class-related usage such as taking notes. Restrict the use of an Internet connection (e.g., checking email, Internet browsing, sending instant messages) to before class, during class breaks, or after class.
- During class time speak to the entire class (or breakout group) and let each person “take their turn.”
- Be fully present and remain present for the entirety of each class meeting.

Grading Criteria

The following are the criteria used for evaluating assignments. You can roughly translate a letter grade as the midpoint in the scale (for example, an A- equates to a 91.5).

Criteria	Grade
The assignment consistently exceeds expectations. It demonstrates originality of thought and creativity throughout. Beyond completing all of the required elements, new concepts and ideas are detailed that transcend general discussions along similar topic areas. There are no mechanical, grammatical, or organization issues that detract from the ideas.	A- or A
The assignment consistently meets expectations. It contains all the information prescribed for the assignment and demonstrates a command of the subject matter. There is sufficient detail to cover the subject completely but not too much as to be distracting. There may be some procedural issues, such as grammar or organizational challenges, but these do not significantly detract from the intended assignment goals.	B-, B, B+
The assignment fails to consistently meet expectations. That is, the assignment is complete but contains problems that detract from the intended goals. These issues may be relating to content detail, be grammatical, or be a general lack of clarity. Other problems might include	C-, C, C+

not fully following assignment directions.	
The assignment constantly fails to meet expectations. It is incomplete or in some other way consistently fails to demonstrate a firm grasp of the assigned material.	Below C-

Class attendance policy

Attendance is required for all scheduled class meetings. If a student has a truly compelling case for missing a class, this must be discussed with the instructor in advance. Any unexcused absences will result in a reduction of the student's attendance grade.

Citation Guidelines

If you use text, figures, and data in reports that was created by others you must identify the source and clearly differentiate your work from the material that you are referencing. If you fail to do so you are plagiarizing. There are many different acceptable formats that you can use to cite the work of others (see some of the resources below). The formats are not as important as the intent. You must clearly show the reader what is your work and what is a reference to someone else's work.

Plagiarism and Academic Dishonesty

Plagiarism and academic dishonesty can take many forms. The most obvious is copying from another student's exam, but the following are also forms of this:

- Copying material directly, word-for-word, from a source (including the Internet)
- Using material from a source without a proper citation
- Turning in an assignment from a previous semester as if it were your own
- Having someone else complete your homework or project and submitting it as if it were your own
- Using material from another student's assignment in your own assignment

Plagiarism and cheating are serious offenses, and behavior like this will not be tolerated in this class. In cases of cheating, both parties will be held equally responsible, i.e. both the student who shares the work and the student who copies the work. Penalties for such actions are given at my discretion, and can range from a failing grade for the individual assignment, to a failing grade for the entire course, to expulsion from the program.

Student and Faculty Academic Rights and Responsibilities

The University has adopted a policy on Student and Faculty Academic Rights and Responsibilities (Policy # 03.70.02) which can be accessed through the following link:

http://policies.temple.edu/getdoc.asp?policy_no=03.70.02

Disability disclosure statement:

Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific situation as soon as possible. Contact Disability Resources and Services at 215-204-1280 in 100 Ritter Annex to coordinate reasonable accommodations for students with documented disabilities.

Schedule:

Keep in mind that all dates are tentative – check the Community site regularly for changes in the schedule.

Week	Date	Topics	Readings and tasks due
1	8/29/19	MIS Careers and Intro to IT Architecture <ul style="list-style-type: none">• Introductions• Review Syllabus• Presentation: Module 1 - MIS Careers and Intro to IT Architecture• Activity: What tech skills do IT Auditors need?	Burd Chapters 1 & 2

Week	Date	Topics	Readings and tasks due
2	9/5/19	<p>Computing Systems</p> <ul style="list-style-type: none"> • Presentation: Module 2 – Computing Systems • Activity: Building a Computer 	Burd Chapters 4 & 6
3	*9/12/19	<p>Operating Systems</p> <ul style="list-style-type: none"> • Presentation: Module 3 – Operating Systems • Activity: <ul style="list-style-type: none"> ○ Create a Windows Virtual Machine – Vmware ○ Create a Linux Virtual Machine - Vmware ○ Operating Systems Lab 	Burd Chapter 11
4	9/19/19	<p>Storage</p> <ul style="list-style-type: none"> • Presentation: Module 4 - Storage • Activity: <ul style="list-style-type: none"> ○ Storage Exercise (Vmware) 	Burd Chapters 5 and 12
5	9/26/19	<p>Networking</p> <ul style="list-style-type: none"> • Presentation: Module 5 - Networking • Activity: Building a LAN and a Backbone Network Lab 	Burd Chapter 9

Week	Date	Topics	Readings and tasks due
6	10/3/19	<p>Systems Administration</p> <ul style="list-style-type: none"> • Presentation: Module 6 – Systems Administration • Activity: <ul style="list-style-type: none"> ○ Tech Challenge 2 - Active Directory - Accounts, Groups, and Machines ○ Tech Challenge 3 - File Services and Login Scripts.docx ○ Tech Challenge 4 – Audit your Server 	<p>Burd Chapter 14</p> <p>IT Chapter 6 Auditing Windows Operating Systems (See community site for materials)</p>
7	10/10/19	<p>Command Line Interface</p> <ul style="list-style-type: none"> • Presentation: Module 7 - Command Line • Activity: <ul style="list-style-type: none"> ○ Activity – Using the Command Line 	<p>Go through tutorial:</p> <p>http://www.cs.princeton.edu/courses/archive/spr05/cos126/cmd-prompt.html</p>
8	10/17/19	<p>Databases- Database Server Auditing</p> <ul style="list-style-type: none"> • Presentation: Module 8 – Intro to MySQL Server • Activity: Tech Challenge 6 - MySQL Server Installation and Audit 	<p>Murach’s MySQL Chapters 1, 2, 17, 18</p> <p>IT-Audit-Checklist_Databases (See community site for materials)</p>

Week	Date	Topics	Readings and tasks due
9	**10/24/19	Application Server Auditing <ul style="list-style-type: none"> • Presentation: Module 10 – Intro to Programming and Application Servers • Activity: <ul style="list-style-type: none"> ○ Tech Challenge 5 - Web Server Installation ○ Tech Challenge 7 - Visual Studio 2015 Installation ○ Audit your Web Server ○ Murach C# 2015 Exercises 2-1,3-1 	Murach's C#2015 Chapters 1, 2 and 3
10	10/31/19	Virtual Class Databases- Database Development <ul style="list-style-type: none"> • Presentation: Module 9 – Intro to SQL • Activity: Murach MySQL Chapter 4 Exercises 1-7 	Murach's MySQL Chapters 3 and 4
11	11/7/19	Application Software <ul style="list-style-type: none"> • Presentation: Module 11 – Intro to Programming (cont.) • Activity <ul style="list-style-type: none"> ○ Murach C# 2015 Exercises 4-1,5-1 	Murach's C#2015 Chapters 4 and 5

12	11/14/19	<p>Web Application Security</p> <ul style="list-style-type: none">• Presentation: Module 12 - OWASP_Top-10_2013• Activity:<ul style="list-style-type: none">○ Web Hacking Exercise<ul style="list-style-type: none">▪ Tamper Data▪ Web Developer Toolbar▪ SQL Injection	Posted Web Security Readings
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Week	Date	Topics	Readings and tasks due
13	11/21/19	Review for Final Exam	
14	11/28/19	<u>No Class – Fall Break</u>	
15	12/5/19	<u>Final Exam</u>	

* Monday 9/9/2019 - Last day to add or drop a course

** Tuesday 10/22/2019 - Last day to withdraw from a course