MIS5205 – IT Service Delivery and Support
Fall 2016

About the Instructor:

Liang Yao (Liang.Yao@temple.edu)
http://community.mis.temple.edu/lyao
Phone: 856-905-4158
Office hours: Online or by appointment

Class Location and Time:

Online 5:30 pm – 7:00 pm or 8:00 pm, Every Wednesday (Ref. to Schedule Section below for details)

Course Description:

MIS5205 IT Service Delivery and Support is to teach students to understand IT service delivery and support function from the operation aspect, such as helpdesk, change management, service level agreement monitoring, problem and incident management and disaster recovery plan, etc. Students will learn how to evaluate IT operations from control assurance point of view following COBIT framework. The course is designed to teach students the technical infrastructure of large institutions and how this infrastructure provides a reliable and secure platform for business applications and end users. The course will build a foundation for students to understand the service center management and how IT operation teams are utilized to deliver value to the organization. Most importantly, student will learn how to identify key risks within various IT operation functions and how to evaluate controls mitigating the risks. The course will be taught via lectures, reading assignments, individual and group projects.

Course Objectives:

The primary objects for this course are (a) understand IT service delivery and support functions with an organization and (b) learn how to audit the IT operation function. Key topics include:

- Build foundational knowledge bases related to technology operation functions and processes such as change management, capacity planning, performance monitoring and service level agreement, etc.
- Get familiar with technology related framework and regulations
- Conduct risk assessment for IT infrastructure components such as operating systems, databases, network, etc.
- Analyze top and emerging IT Operation risks such as cybersecurity and assessing effectiveness of mitigating controls

- Gain hands on experience of auditing IT service delivery and support entities such as developing audit document in different phases of the audit: planning, testing and reporting
- Develop communication skills to present technology audit findings

**** How to evaluate the design of the controls and how to test the operating effectiveness of the controls will be incorporated in each week's studying.*

Required Text and Readings:

The materials for this course are drawn from multiple sources. Two main books required for the course are:

- *ISACA: Certified Information Systems Auditor, CISA Review Manual 2015, ISBN: 978-1-60420-200-7*
- IT Auditing: Using Controls to Protect Information Assets, Second Edition *ISBN-978-007174238 2 Chris Davis and Mike Schiller with Kevin Wheeler*

Additional course related materials, articles and case studies:

- *Global Technology Auditing Guide (GTAG)*
- *ISACA Journal Articles*
- *Harvard Business Publishing Case Studies*
- *FFIEC IT Examination Handbooks*
- *Gartner Research Papers*

**Details about the reading assignment will be provided in the class.*

Evaluation and Grading

Item	% of Total Points
Class Participation	15%
Group Assignment	25%
Case Study	10%
Presentation	10%
Quizzes	15%
Term Paper	10%
Final Exam	15%
Total	100%

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

Participation between and during class

Student is expected to attend all classes for this course. It will be the students' responsibility to catch up in case he or she misses a class. To make up the missed class, students should reach out to classmates, check the class blog, find out the homework and team project, etc.

Soft skill sets such as written and oral communication skill is imperative to auditors. Therefore, students are strongly encouraged to participate the classroom discussion and to post thoughts and comments on the class blog for related topics each week.

Reading materials, projects and assignments are selected by instructors to bring the real world IT audit scenario into the classroom to facilitate the instruction and illustrate the core concepts.

Fifteen percent of the course grade is allocated to the participation. Students will be evaluated based on class attendance, level of preparation, understanding of the core concepts, case study preparation, professionalism and team work. To be specific, students are expected to (a) preview the class materials before the class, familiar with the topics that will be discussed during the class every week. (b) participate the class discussion; demonstrate the understanding of the material and key concepts; show respect by paying attention while other students presents their work (c) use the class blog to post your thoughts and comments regarding the assignments and reading material between the class. You are also required to comments on other students' blog entries.

Classroom Ground Rules:

- Arrive on time and stay till the end of the class
- No cell phone calls and texting in the class room
- Respect your classmates using commonsense
- Preview the reading assignment before attending the class
- Bring in questions and make contribution to your team

Group Assignment

Students will form groups to conduct a mock IT Operation audit and present the audit report to the Senior Management and the Board. Details of this project will be provided in the class. Students will also be evaluated how effectively contribute to group assignments. Students are expected to actively participate the group assignments, complete the assigned portion of the write-ups and comments on others deliverables. **Twenty Five** percent of the grade will be allocated to the group or team project and its presentation.

Case Study

We will study a few cases related to IT service and delivery in real world. Details will be provided during the class. **Ten** percent of the course grade will be assigned to your participation and responses to questions related to case studies.

Presentation

Students will be asked to present specific topics either individually or in group during the class. Detail requirements will be provided during the class. The most important presentation is at the end of the semester, which each group will select an emerging technology and assess the risks and controls associated with this technology while implementing it. **Ten** percent of the grade will be allocated to those presentations.

Quizzes

To facilitate the CISA examination review, students will take a short quiz using CISA examination preparation questions on weekly basis except for a few weeks during the semester. Students are allowed to miss or drop one quiz during the semester. Additional missed quiz will receive a grade of zero. The average quiz score over the semester will be the grade for quizzes and weighted **Fifteen** percent of the total grade.

Term paper

At the end of semester, each GROUP is expected to write a term paper associated with the emerging technology selected by the group. **Ten** percent of the grade will be allocated to those presentations

Final Exam

The final exam will use all multiple-choice CISA practice examination questions. The exam will be comprehensive and cover everything during the semester. **Fifteen** percent of the grade will be allocated to the final exam. Missed finals are in principle not allowed to have make-ups.

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.

- The project management simulation and individual report will be assessed a **20% penalty each day they are late**. No credit is given for assignments turned in over five calendar days past the due date.
- Case analyses cannot be submitted late under any circumstances. If you miss the deadline, you'll need to choose another case study to submit.
- You must submit all assignments, even if no credit is given. **If you skip an assignment, an additional 10 points will be subtracted from your final grade in the course.**

- Plan ahead and backup your work. Equipment failure is not an acceptable reason for turning in an assignment late.

Plagiarism, Academic Dishonesty and 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 somebody else's work.

Plagiarism is a serious offence and could lead to reduced or failing grades and/or expulsion from the university. The Temple University Student Code of Conduct specifically prohibits plagiarism

Ref. to: http://www.temple.edu/assistance/udc/coc.htm

The following excerpt defines plagiarism:

Plagiarism is the unacknowledged use of another person's labor, ideas, words, or assistance. Normally, all work done for courses — papers, examinations, homework exercises, laboratory reports, oral presentations — is expected to be the individual effort of the student presenting the work. There are many forms of plagiarism: repeating another person's sentence as your own, adopting a particularly apt phrase as your own, paraphrasing someone else's argument as your own, or even presenting someone else's line of thinking in the development of a thesis as though it were your own. All these forms of plagiarism are prohibited both by the traditional principles of academic honesty and by the regulations of Temple University. Our education and our research encourage us to explore and use the ideas of others, and as writers we will frequently want to use the ideas and even the words of others. It is perfectly acceptable to do so; but we must never submit someone else's work as if it were our own, rather we must give appropriate credit to the originator.

Source: Temple University Graduate Bulletin, 2000-2001. University Regulations, Other Policies, Academic Honesty. Available online at:

http://www.temple.edu/gradbulletin/

For a more detailed description of plagiarism:

- Princeton University Writing Center on Plagiarism:
  http://web.princeton.edu/sites/writing/Writing_Center/WCWritingRes.htm
- How to successfully quote and reference material:
  University of Wisconsin Writers Handbook
  http://www.wisc.edu/writing/Handbook/QuotingSources.html
- How to cite electronic sources:
  Electronic Reference Formats Recommended by the American Psychological Association
  http://www.apastyle.org/elecmedia.html

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

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).

Grading	Criteria
A or A-	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 few mechanical, grammatical or organizational issues that detract from the presented ideas.
B+, B & B-	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.
C+, C & C-	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 not fully following assignment directions.
Below C	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.

MIS5202 IT Service Delivery and Support Schedule

**Each week's reading assignments are for the following week's discussion*

	Topics	Coverage	Reading Assignments
Week1 (8/31) Meetups (5:30 pm – 7:00pm)	Course Introduction	Lecture: • Course Introduction • Goals and Objectives • Expectations • Background information collection for group assignment: o Undergraduate Major o IT/IT audit exposure (e.g. software, hardware exposure and proficiency)	***CISA Review Manual 2015:*** *4.1- Chapter 4 reference* *4.2.1 – Management of IS Operations* *4.2.2 – IT Service Management* *4.2.3 – IS Operations* *4.6.5 – IS Operations Review/Auditing* *Exhibit 4.21 – Hardware Reviews* *Exhibit 4.25 – IS Operations Review* ***IT Auditing:*** *Chapter 1 Building an Effective Internal IT Audit Function* *Chapter 2 The Audit Process* *Chapter 16 Framework and Standards*
Week 2 (9/7) ***Learnathon Session #1 (5:30pm – 8:00pm)***	IT audit framework; IT audit function; IT audit process	Lecture • IT Risks and Controls Concepts • IT Audit Function • IT Audit Process Discussions • Task and Knowledge Statement Mapping (CRM: chapter 4, Section One) • Effective internal IT audit function (IT Auditing chapter 1) • IT audit process overview (IT Auditing chapter 2) • Framework and standards (IT Auditing chapter 16) Activities • Group Assignment and self-introduction	***CISA Review Manual 2015:*** *4.3 – Information System Hardware* *4.6.1 – Hardware Reviews* *4.4.4- Database Management Systems (DBMS)* *4.6.3 Database Reviews/Auditing* *Exhibit 4.23 – Database Review* ***IT Auditing:*** *Chapter 3 Auditing Entity Level Controls* *Chapter 9 Auditing Databases*

		Quiz # 1 Delivery method: • Webex (lecture; discussion; activity) • Blackboard (quiz)	
Week3 (9/14) Meetups (5:30 pm – 7:00pm)	General Computer Controls and Auditing; Database and Database Auditing	Lecture • IT Infrastructure and General Computer Controls Auditing • Database Management System and Database Administration Practices • Audit database management system Discussions • IT Audit Planning • What are General Computer Controls? (Chapter 3) • Database types and benefits of Database Management System (Chapter 9) • Auditing Database Management System (DBMS) Activities: N/A Quiz #2 Delivery method: • Webex (lecture; discussion; activity) • Blackboard (quiz)	***CISA Review Manual 2015:*** *4.4.1 – Operating Systems* *4.4.2 – Access Control Software* *4.6.2 – Operating System Reviews/Auditing* *Exhibit 4.22 – Operating Systems Reviews* ***IT Auditing:*** *Chapter 6 Auditing Windows Operating Systems;* *Chapter 7 Auditing Unix and Linux;*
Week4 (9/21) Meetups (5:30 pm – 7:00pm)	Operating Systems (OS)	Lecture • Operating Systems Overview • Audit Operating Systems Discussion • OS types and OS functions	***IT Auditing:*** *Chapter 18 Risk Management* Sample Unix and Windows AD audit programs (To be provided)

		• Risk and Controls associated with OS Quiz #3 <u>Delivery method:</u> • Webex (lecture; discussion; activity) • Blackboard (quiz)	
Week5 (9/28) ***Learnathon Session #2 (5:30pm – 8:00pm)***	OS Auditing and IT Risk Assessment	<u>Lecture</u> • OS Auditing • IT Risk Assessment <u>Discussion</u> • IT Risk Assessment Process • Windows and Unix Audit Programs (Chapter 6 & 7) <u>Activities</u> • **<u>Assignment #1</u>** Group preparation – *Develop an audit planning memo for a General Computer Control audit.* <u>Guest Speaker:</u> OS and OS auditing (TBD) Quiz #4 <u>Delivery method:</u> • Webex (lecture; discussion; activity) • Blackboard (quiz)	***<u>CISA Review Manual 2015:</u>*** *4.5 – IS Network Infrastructure* *4.6.4 – Network Infrastructure Reviews/Auditing* *Exhibit 4.24 – Network Infrastructure Reviews* ***<u>IT Auditing:</u>*** *Chapter 5 Auditing Routers, Switches, and Firewalls* *Chapter 12 Auditing WLAN and Mobile Devices*
Week6 (10/5) Meetups (5:30 pm – 7:00pm)	Network and Network Auditing	<u>Lecture</u> • Network, network security and administration overview <u>Discussion</u> • Risks and controls associated	***IT Auditing*** *Chapter 14: Auditing Cloud Computing and Outsourced Operations* FFIEC Outsourcing Booklet

		with a company's network • Network Auditing Program (Chapter 5 & Chapter 12) Activities Video: Warriors of the Net https://www.youtube.com/watch?v=H0aIqQAeaik Quiz #5 Delivery method: • Webex (lecture; discussion; activity) • Blackboard (quiz)	
Week7 (10/12) Meetups (5:30 pm – 7:00pm)	Service Level Management	Lecture • Introduce Service level management components and Service Level Agreement (SLA) monitoring Discussion • SLA types • Risks associated with SLAs • SLA Audit Procedures Activities: **Group assignment #2** preparation: *Develop a Risk Control Matrix (RCM) of the operating system/Databases/Network environment you are going to audit* Quiz #6 Delivery method: • Webex (lecture; discussion; activity) • Blackboard (quiz)	**Group Assignment #1 Due** ***IT Auditing:*** *Chapter 4 Auditing Data Center and Disaster Recovery* *FFIEC IT Booklet_Operations* *SANS IT Audit – Data Center Access Control Systems*
Week8 (10/19) ***Learnatho***	Datacenter Operation Review	Lecture • Datacenter Operations and Datacenter Auditing	***CISA Review Manual 2015:*** *4.7 – Disaster Recovery Planning*

n Session #3 (5:30pm – 8:00pm)		Discussion • Datacenter operations and Physical Security • Group Assignment #1 comments Activities Video: Datacenter virtual tours **Group Assignment # 3** *Develop test procedures for an IT entity your team chooses to audit.* Guest Speaker A day as a Datacenter Operation Manager Quiz #7 Delivery method: • Webex (lecture; discussion; activity) • Blackboard (quiz)	*2.12 – Business Continuity Planning* *2.13 – Auditing Business Continuity Plan* ***Additional Reading:*** *FFIEC ITBooklet_BusinessContinuity Plan* *Case Study (HBP)Engro Chemicals PK case study*
Week 9 (10/26) Meetups (5:30 pm – 7:00pm)	Business Continuity Plan (BCP) and Disaster Recovery (DR)	Lecture • BCP and DR Discussion • Difference between BCP and DR • BCP and DR audit point Activities : • ***Case Study (HBP) -*** *Engro Chemicals PK case study* Quiz #8 Delivery method: • Webex (lecture; discussion; activity) • Blackboard (quiz)	**Group Assignment #2 Due** ***CISA Review Manual 2015:*** *4.5.5 – OSI Architecture* *4.5.6 – Application of the OSI Model in the network architectures* ***IT Auditing:*** *Chapter 8: Auditing Web Servers and Web Applications* *Chapter 13Auditing Applications*
Week10 (11/02) Meetups (5:30 pm –	Application Control	Lecture Application Control Overview Discussion • Application development risks	**Group Assignment # 3 due** ***CISA Review Manual 2015:*** *4.2.9 – Information Security Management*

7:00pm)		(Chapter 8 & Chapter 13) • Group Assignment #2 comments Activities ***a. Group Assignment #2 comment*** ***b. Group Assignment # 4 preparation: Select Emerging Technology Topic for group presentation on 12/12*** ***c. Cybersecurity Incident/Data Breach group Presentation/discussion on 11/09*** Quiz #9	***Additional Reading:*** ***FFIEC IT Booklet Information Security***
Week11 (11/09) ***Learnathon Session #4 (5:30pm – 8:00pm)***	Information Security (including Cybersecurity)	Lecture • Information Security and Security Audit Highlight Discussion and Activity • Team presentation: Analyzing recently data breaches • Group Assignment #3 comment Quiz #10 Delivery method: • Webex (lecture; discussion; activity) • Blackboard (quiz)	**Group Assignment # 4 due** ***CISA Review Manual 2015:*** *4.2.6 – Change Management Process* *4.2.7- Release Management* *4.2.8 – Quality Assurance* ***Case Study (HBP)*** *Care Group Analysis – discuss on*
Week12 (11/16) Meetups (5:30 pm – 7:00pm)	Change Management and Release Management Software License Management	Lecture • Change Management • Software License Management Discussion • Risk and controls associated with Change Management process Activity	***CISA Review Manual 2015:*** *4.2.5 – Support/Help Desk* *4.4.7 – Utility Programs* *4.6.6 – Scheduling Review* *4.6.7 – Problem Management and Reporting reviews* *Exhibit 4.26 Scheduling*

		• ***Case Study (HBP) -*** *Care Group Analysis* Quiz #11 <u>Delivery method:</u> • Webex (lecture; discussion; activity) • Blackboard (quiz)	*Reviews* *Exhibit 4.27 Problem management Reporting Review*
Week 13 (11/23)		Fall Break – No Class Held	
Week 14 (11/30) Meetups (5:30 pm – 7:00pm)	Availability, Capacity and Incident Management End User Computing and Performance Monitoring	<u>Lecture</u> • Incident management • Performance Monitoring • End-user computing <u>Discussion</u> • Quiz questions Q&A <u>Delivery method:</u> • Webex (lecture; discussion; activity) • Blackboard (quiz)	*Emerging technology* *Presentation preparation*
Week 15 (12/07) ***Learnathon Session #5 (5:30pm – 8:00pm)***	Emerging Technology Auditing	<u>Lecture</u> – N/A <u>Activity</u> - Group Presentation • Risks and Controls for Emerging Technology o Cloud Computing o Mobile Computing o Vitalization o Etc. <u>Delivery method:</u> • Webex (lecture; discussion; activity)	Final Exam preparation Term paper based on the presentation

Week 16 (12/14)		Study week, no class hold Term paper due (12/14)	
Week17 (12/21) Meetups (5:30 pm – 6:30pm)	Conclusion and Final Exam	Class Conclusion CISA Simulation Test <u>Delivery method:</u> • Blackboard (quiz)	N/A