

ISOM4300 -Information Systems Control and Assurance

Course Syllabus

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Course Overview

This is the final course for BBA(IS) students who want to pursue their studies in the field of IS Auditing. Students will equip themselves with the knowledge of IS Controls; IS Assurance; Systems Security, Efficiency and Effectiveness; Safeguard of Assets; and IT Governance. Students will also be able to take the Certified Information System Auditor (CISA) examination after taking this course.

Main Topics include:

Introduction to IT Auditing

Auditing Change Management

IT Service Delivery and Support

Business Continuity and Disaster Recovery

Protection of Information Assets

Grading Policy

	Percentage
<u>INDIVIDUAL</u> Assignments	25%
Midterm Exam	30%

Final Assessment	45%
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COURSE SCHEDULE (Tentative)

Date	Lectures	Optional Readings
Course Introduction		
4/Sept	Introduction CISA Candidate Guide	
Module 1: IS Audit Process		
6/Sept		
11/Sept	Introduction to IT Auditing	
13/Sept	Introduction to IT Auditing (Answers) Role Of IT Auditor	Internal Audit Charter COBIT 5
18/Sept	Role of IT Auditor (Response)	ISACA IS Audit Standards and Guidelines
20/Sept	Review Questions	
25/Sept	Guest speaker	Risk Assessment Rules
27/Sept	Review Questions with Answers	
4/Oct		
Module 2: Auditing Change Management		
9/Oct		
11/Oct	Auditing Change Management	
16/Oct		
18/Oct	Auditing Change Management (Answers)	

25/Oct	Review Questions Review Questions with Answers	
Module 3: Auditing IT Service Delivery and Support		
30/Oct	Auditing IT Service Delivery and Support Auditing IT Service Delivery and Support (Answers)	
Midterm Exam		
1/ Nov	In Class Midterm Exam	

Module 4: Business Continuity and Disaster Recovery		
6/ Nov 8/Nov 13/Nov	BCP & DR Notes- Part I BIA Questions BIA Questions and Response 1 BIA Questions and Response 2 Business Impact Analysis BIA Questionnaire RTO Exercise Answer BCP Simulation Exercise (HR) BCP Preparedness Planner FEMA Standard Checklist Criteria for Business Recovery Generic BCP and DR Plan Reviewing BCP	

15/Nov	BCP & DR Notes - Part II	HKMA: Operational risk management Supervision of e-banking Business continuity planning General principles for technology risk management
	BCP & DR Notes - Part II (Answers)	
20/Nov	Trends in Audit Findings Regarding Disaster Recovery Preparations	
22/Nov	BCP and DR Practice Questions	
	BCP & DR Practice Questions (Answers)	
Supplementary Material		
Module 5: Protection of Information assets		
27/Nov	Protection of Information assets	
Course Wrap up		
29/Nov	Q & A	

Note:

2/Oct The day following National Day --> No Class

23/Oct Chung Yeung Festival --> No Class

1/ Nov Midterm Exam during regular class time

Intended Learning Outcomes

1. *Understand the process of auditing information systems* and the importance of providing audit services in accordance with IT audit standards to assist the organization in protecting and controlling information systems.
 - Develop and implement a risk-based IT audit strategy in compliance with IT audit standards to ensure that key areas are included
 - Plan specific audits to determine whether information systems are protected, controlled and provide value to the organization
 - Conduct audits in accordance with IT audit standards to achieve planned audit objectives

- Report audit findings and make recommendations to key stakeholders to communicate results and effect change when necessary
 - Conduct follow-ups or prepare status reports to ensure appropriate actions have been taken by management in a timely manner
2. *Understand formal change management procedures* to handle in a standardized manner all requests for changes to applications, procedures, processes, system and service parameters, and the underlying platforms.
- Evaluate different kinds of system changeover techniques to shift various users from using an application from the existing system to the replacing system
 - Evaluate controls for the modified system to determine whether the system has been properly designed and developed
 - The risk associated with software development
 - Evaluate information systems maintenance practices to manage change to application systems while maintaining the integrity
 - Evaluate change management process to determine whether those changes are categorized, prioritized and authorized
 - Conduct a review of the change management process to provide management with assurance that the process is controlled, monitored and is compliance with good practices
 - Evaluate emergency change procedures to ensure emergency fixes can be performed without compromising the integrity of the system
3. *Understand the process of information systems acquisition, development and implementation.* Ensure that the practices for the acquisition, development, testing and implementation of information systems meet the enterprise's strategies and objectives.
- Evaluate the business case for proposed investments in information systems acquisition, development, maintenance and subsequent retirement to determine whether it meets business objectives
 - Evaluate the project management practices and controls to determine whether business requirements are achieved in a cost-effective manner while managing risks to the organization
 - Conduct reviews to determine whether a project is progressing in accordance with project plans is adequately supported by documentation and status reporting is accurate
 - Evaluate controls for information systems during the requirements, acquisition, development and testing phases for compliance with the organization's policies, standards, procedures and applicable external requirements
 - Evaluate the readiness of information systems for implementation and migration into production to determine whether project deliverables, controls and the organization's requirements are met
4. *Understand information systems operations, maintenance and support.* Ensure that the practices for the processes for information systems operations, maintenance and support meet

the organization's strategies and objectives.

- Conduct periodic reviews of information systems to determine whether they continue to meet the organization's objectives
- Evaluate service-level management practices to determine whether the level of service from internal and external service providers is defined and managed
- Evaluate third-party management practices to determine whether the levels of controls expected by the organization are being adhered to by the provider
- Evaluate operations and end-user procedures to determine whether scheduled and nonscheduled processes are managed to completion
- Evaluate the process of information systems maintenance to determine whether they are controlled effectively and continue to support the organization's objectives.
- Evaluate data administration practices to determine the integrity and optimization of databases
- Evaluate the use of capacity and performance monitoring tools and techniques to determine whether IT services meet the organization's objectives
- Evaluate problem and incident management practices to determine whether incidents, problems or errors are recorded, analyzed and resolved in a timely manner
- Evaluate change, configuration and release management practices to determine whether scheduled and nonscheduled changes made to the organization's production environment are adequately controlled and documented

5. *Understand and be able to provide assurance* that the enterprise's security policies, standards, procedures and controls ensure the confidentiality, integrity and availability of information assets.

- Evaluate the information security policies, standards and procedures for completeness and alignment with generally accepted practices
- Evaluate the design, implementation and monitoring of system and logical security controls to verify the confidentiality, integrity and availability of information
- Evaluate the design, implementation and monitoring of the data classification processes and procedures for alignment with the organization's policies, standards, procedures and applicable external requirements
- Evaluate the design, implementation and monitoring of physical access and environmental controls to determine whether information assets are adequately safeguarded
- Evaluate the processes and procedures used to store, retrieve, transport and dispose of information assets (e.g., backup media, offsite storage, hard copy/print data and softcopy media) to determine whether information assets are adequately safeguarded

6. *Understand assurance or consulting services to confirm* whether the business continuity and disaster recovery management strategy, processes and practices meet organization requirements to ensure the timely resumption of IT-enabled business operations and minimize the business impact of a disaster.

- Evaluate the organization business continuity plan to assess the adequacy and capability to continue essential business operations during the period of an IT or non-IT disruptions
- Evaluate the business continuity management practices to match organization requirements, objectives and budgets
- Conduct the business impact analysis in developing the business continuity plan to determine risk and impact due to all possible events
- Evaluate the recovery strategy with a combination of various measures based on cost, the criticality of the systems or process, and the time required to recover
- Evaluate various business continuity plan testing to determine whether overall preparedness for an actual disaster and the capability of the backup site meet the business requirement
- Evaluate alternate processing sites and backup methods to determine whether the acceptable recovery time and data loss can be met

Academic Honesty

Students are required to act truthfully and honestly in their academic pursuit, and acquaint themselves with the University's policy on academic integrity and discipline. It is the policy of the University that there should be zero tolerance for academic dishonesty. Students who are found to have violated the principle of academic integrity will be subject to academic disciplinary actions. The University Administration will regularly issue to members of the university community the information about nature and action taken on individual academic disciplinary cases.

The HKUST academic integrity site can be accessed at the following URL:

<http://ugadmin.ust.hk/integrity/student-1.html>

Reference

- **ISACA - CISA Review Manual** <-- Go to "Library Toolbox" for Course Reserve books in HKUST library.
- **ISACA**
<http://www.isaca.org>
- **ISACA Hong Kong Chapter**
<http://www.isaca.org.hk>