Course Description

Information Technology has become a critical component of every business function in today's organizations, whether public, private, government or not-for-profit. The effective governance of IT has evolved from being a matter for the internal IT organization to become a topic that demands the attention of senior management. The critical role that information now plays in organizations requires an increased emphasis on IT security and controls. This course examines the key principles related to auditing information technology processes and related controls. It is designed to meet the increasing needs of IT audit, security and risk management professionals. It also aids in the preparation for the Certified Information Systems Auditor (CISA) exam.

Course Objectives

- Establish a base understanding of the IT environment and the role of the IT Auditor.
- Explore and debate critical issues related to managing and administering the information technology (IT) Audit function.
- Develop an understanding of the IT audit process
- Recognize how IT governance practices impact the IT audit process i.e. risk assessment, planning, standards, guidelines and best practices.
- Survey IT audit approaches related to:
  - Application systems development and maintenance
  - IT security
  - IT service delivery and support
  - Business continuity and disaster recovery
  - Data Analytics and fraud detection.
- Consider some of the ethical and societal implications and effects of IT.

Behavioral Objectives

Upon completing this course the students should:
1. have a business view of governing the investment in IT
2. understand the challenges of maintaining a high degree of IT controls
3. have a solid understanding of the role and responsibility of the IT auditor
4. be prepared to cope with technology-driven change to the IT audit environment
5. understand the risks related to various levels of business continuity and disaster recovery planning
6. be able to identify IT controls weaknesses and articulate them to senior management
7. be able to choose among different ways to assess IT processes and controls
8. be aware of some of the ethical and societal considerations in the development and use of IT
Course Approach

Learning by discussion is both an effective and exciting pedagogical experience. This process requires active involvement of all participants, in this case students and instructor, although the instructor's function is primarily that of a catalyst, facilitator and evaluator in a collaborative learning experience. **It is therefore essential that everyone participate as fully as possible.** The framework for this participation will include case analyses, textbook assignments, and presentations, all designed to help convey the main body of knowledge and to stimulate the desired critical thinking. The most effective learning will result from your involvement in critical thinking through class presentation and discussion as well as through your homework assignments.

Course Materials

- **Purchase at the Bookstore**

  Additional resource materials related to IT Auditing Standards, COBIT 4 and ISACA – Free downloads etc. will be provided during class.

Study Habits

Careful and timely reading and study is critical to success in this course. Text and case readings will precede coverage of the material in class to facilitate your active participation in class discussions.

In class, the instructor will highlight specific areas only, answer your questions on the covered material, and then ask you questions. This will stimulate discussion. Do not expect full-coverage lectures. Make notes while reading the assignments. You can then highlight material as appropriate during the class coverage.

Academic Honesty

Academic dishonesty is a serious offense and will not be tolerated. Any student found cheating will receive a grade of "F" for the course and will be subject to disciplinary action under DePaul University regulations. Please review the Academic Integrity Policy.

We thought this reminder was unnecessary, but have recently stumbled on several cases of plagiarism. Please be aware that any written work submitted in this course may be verified using Turn-It-In technology in order to ensure that the work is the student's own creation and not in violation of the University's Academic Integrity Policy. Submission of work in this course constitutes a pledge that the work is original and consent to have the work submitted to verify that fact.

Academic dishonesty is a serious offense and will not be tolerated. Any student found cheating on quizzes, homework or presentation will receive a grade of "F" for the course and will be subject to disciplinary action under DePaul University regulations. Please review the DePaul University Student Handbook.

Students are expected to be familiar with the SOA & MIS Code of Conduct.

Miscellaneous

Class discussion and the D2L system will be our primary means of communication. Students are asked to actively monitor class related communications that may be posted to D2L.

**NOTE:** The following Case assignments were based upon a 9 week class schedule (holiday) and the Textbook cases were used for a class size of up to 30 students.
<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>THEME</th>
<th>READINGS</th>
<th>CASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>03/30/15</td>
<td>Why are IT Audit controls important?</td>
<td>Chapters 1, 2</td>
<td>Textbook case #8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OHMY Corporation</td>
</tr>
<tr>
<td>2</td>
<td>04/06/15</td>
<td>The process and tools for IT audits</td>
<td>Chapters 3, 4, 5</td>
<td>Textbook case #1</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wooback City Parts 1 &amp; 2</td>
</tr>
<tr>
<td>3</td>
<td>04/13/15</td>
<td>Managing the IT Audit and IT Governance</td>
<td>Chapters 6, 7, 8</td>
<td>Textbook cases #2, #3, #4</td>
</tr>
<tr>
<td>4</td>
<td>04/20/15</td>
<td>IT Strategy Alignment</td>
<td>Chapters 9, 10, 11</td>
<td>DentDel, Inc. (ISACA Case 1 in D2L)</td>
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<tr>
<td>5</td>
<td>04/27/15</td>
<td>The Systems Development Life Cycle</td>
<td>Chapters 12, 13, 14</td>
<td>Your Neighborhood Grocer (ISACA Case 2 in D2L)</td>
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<tr>
<td>6</td>
<td>05/04/15</td>
<td>IT Sourcing strategies and the role of the IT Auditor</td>
<td>Chapters 15, 16, 17</td>
<td>Details to be announced</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mid-Term exam</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>05/11/15</td>
<td>Security and disaster recovery planning</td>
<td>Chapters 18, 19, 20</td>
<td>Software Programs, Inc. (ISACA Case 5 in D2L)</td>
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<tr>
<td>8</td>
<td>05/18/15</td>
<td>Audit techniques and Methods for IT Operations</td>
<td>Chapters 21, 22</td>
<td>Claim Proof Insurance (ISACA Case 4 in D2L)</td>
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<tr>
<td>9</td>
<td>05/25/2015</td>
<td>Auditing the Virtual IT environment</td>
<td>Chapters 23, 24, 25</td>
<td>NO CASE</td>
</tr>
<tr>
<td>10</td>
<td>NO CLASS</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>11</td>
<td>06/01/15</td>
<td>Enterprise Application Systems</td>
<td>Chapter 26</td>
<td>All World Airways (ISACA Case 3 in D2L)</td>
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<tr>
<td>12</td>
<td>06/08/15</td>
<td>FINAL EXAM</td>
<td></td>
<td>Details to be announced</td>
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</tbody>
</table>

Chapter Readings and Case Assignments annotated with a # sign refer to our textbook: *Information Technology Control and Audit, Fourth Edition*. These cases can be found in Appendix I of our text. A selection of cases from the ISACA organization can be accessed in the D2L Content folder.

Students are expected to read the assigned chapter readings and brief the cases prior to class. Be prepared to discuss the Review Questions that can be found at the end of each chapter in our text.
Homework Assignments

Assignments, all due before the start of sessions, will consist of:

1. Readings from the text and the selection of cases (see Course Schedule).
2. Quizzes covering the readings.
3. Written assignments:
   a. d2l Discussion Board postings of two Critical Questions and responses to at least two Critical Questions from the previous class, and
   b. d2l Discussion Board postings of Current Matters in IT Auditing every other week.

All of these assignments are further explained below.
Critical Questions relate to the content of the assigned chapters from our textbook.

Evaluation of Students

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in class discussion</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td>Critical questions –post and discuss</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td>Responses to Critical questions-post</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td>Current Matters in IT Audit postings</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td>Case Study Presentation project</td>
<td>20%</td>
<td>200</td>
</tr>
<tr>
<td>Mid-Term Exam</td>
<td>20%</td>
<td>200</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
<td>200</td>
</tr>
</tbody>
</table>

Letter Grade Determination

The following table will be used in converting numeric grades into an official letter grade for the course:

<table>
<thead>
<tr>
<th>Number Scale</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 – 930</td>
<td>A</td>
</tr>
<tr>
<td>929 – 900</td>
<td>A-</td>
</tr>
<tr>
<td>899 – 870</td>
<td>B+</td>
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<tr>
<td>869 - 830</td>
<td>B</td>
</tr>
<tr>
<td>829 – 800</td>
<td>B-</td>
</tr>
<tr>
<td>799 – 770</td>
<td>C+</td>
</tr>
<tr>
<td>769 – 730</td>
<td>C</td>
</tr>
<tr>
<td>729 – 700</td>
<td>C-</td>
</tr>
<tr>
<td>699 – 670</td>
<td>D+</td>
</tr>
<tr>
<td>669 – 600</td>
<td>D</td>
</tr>
<tr>
<td>599 – 0</td>
<td>F</td>
</tr>
</tbody>
</table>

Participation in Class Discussion

Throughout the term, each student’s participation will be continuously evaluated and, if requested, suggestions of how to improve it will be offered. Of course, this will be on an individual basis. It is assumed that you have read the assigned materials from the textbook. A lecture or presentation covering the same material would therefore be superfluous. What is important and interesting is how these concepts relate to your work environment, i.e., what "impact" they might have on your professional occupation. Although you are encouraged to contribute your observations whenever appropriate during class discussion, it is important to insure that everyone has an opportunity to describe in some detail how the concepts covered in class might relate to a work environment. Class participation is a subjective evaluation of each student’s contribution to the unstructured discussion of the reading assignments, questions and business cases. The evaluation will consider both the quality of contributions and the frequency of participation. Completion of reading assignments and preparation of the cases is essential for full participation.
The points will be prorated as follows:

100%  Asks good questions, makes valuable observations, and answers questions effectively on an ongoing basis.
75%    A frequent participant, but all questions, answers, or observations are not always effective, or not on an ongoing basis, or tends to discourage effectiveness.
50%    Only participates infrequently, or questions/answers do not reflect adequate preparation, or late to class.
25%    Very rare participation, or questions/answers reflect little or no preparation, or very late to class.
0      Displays no sign of life, or absent for entire class.

As can be seen, you are expected to attend classes and participate. Not attending a class will have an influence on this portion of your grade since you cannot participate if you are not in class. More than two unexcused absences will result in a failing grade.

Critical Questions and Responses to Critical Questions

Each student should post two Critical Questions before each class (starting with the second week) and respond to at least two Critical Questions after the class and before the next class.

No questions are required for Chapters 1 & 2.

Before the second class, each student should post two Critical Questions inspired by reading Chapters 3, 4 and 5 in the d2l Discussion Forum “Critical Questions and Responses,” “Week 2: Chapters 3,4 and 5.” After the conclusion of class on week 2 and prior to 6pm on week 3, each student must also respond to two Critical Questions posted for week 2 by another student (regarding Chapters 3,4 & 5).

A critical question is defined as a written, open-ended query that emanates from the assigned textbook (not the case study) and, when asked in class, causes a spontaneous critical thinking discussion.

These qualifying criteria define an effective critical question:

1. It draws upon the existing knowledge and experience of other students (and instructor) about the textual material.
2. It is always written with an emanation (reference) point in the textual material appropriately noted (and announced when asked).
3. It can be discussed (or answered) without the need to refer to some second source unavailable at the time of discussion.
4. It is clear, concise, and not confusing as written; that is, it does not require paraphrasing to be understood.
5. It is well focused to avoid vague generalizations or rampant speculation during discussion.
6. It cannot be answered with a simple yes or no.

Please note that in the context of the above definition, "critical" does not mean "most important." It connotes instead the image of a student acting in the role of a "critic" relating to the subject matter at hand. Generating critical questions should become a natural result of reviewing the subject matter with a critical eye. Each student will be required to prepare at least two critical questions in written form, submit them to the Discussion Board section of our D2l Web site before each class, and bring a copy or have access to an electronic copy to the class, so they can be presented for discussion when called.

The questions will serve as a basis for in-depth discussion of the subject matter scheduled for a class session. **Dependent upon available time during class, a student will be selected on a random basis to ask the class a critical question and to guide the related discussion.** After a short discussion period, another student will be selected to ask a critical question, and so forth until the instructor terminates the discussion period.

Each question should be posted separately as a new message anchoring a thread. A separate Topic (folder) will be available for each class in the Discussions. To post a question, click on that Topic and select Compose. Try to find a meaningful name (or Subject) for the question. It should indicate what is the focus of the question, what the question is all about. If a student sees a question posted that is similar to
the one that he or she was about to post, the student must go back and compose a unique question.

After each class and up to the time the next class meets, the students are expected to reply to at least two of the posted Critical Questions and thus extend the discussions beyond the class meetings. To use this virtual classroom, “open” the chosen question and use the Reply button to expand the thread.

When responding to Critical Questions, formulate a short, concise answer, comment, or reaction. Everybody will appreciate crisp responses straight to the point. Critical questions – must be posted prior to 6pm on the night of class. Responses must be posted prior to 6pm on the night of the following class.

**Critical Question Scoring:**

- **Maximum Score of 10 points per week starting with week 2, double points on week 10.**
- **Grading criteria:** on time posting to D2L, quality of question, facilitation of class discussion.

**Critical Question Responses Scoring:**

- **Maximum Score of 10 points per week starting with week 3, double points on week 11.**
- **Grading Criteria:** on time posting to D2L, quality and thoroughness of response.

### In-class Case Study Analysis

#### Preparation

Read the case through once to become familiar with the background, the people involved, the situation, the problems and opportunities, etc. Do not bother taking notes during this first reading.

Read the case again, this time studying it for details. This is the time to make notes. During this or a subsequent reading, formulate your ideas relative to the case situation.

**Note:** Cases should be properly briefed prior to class – there will not be time to brief the cases during class.

#### In class

In class we will analyze the background and environment of the case, discuss the problem(s) and alternatives, the pros and cons of the suggested alternatives, and recommended solutions. This will be done in both group and open class discussion. **These class discussions will contribute to points toward class participation.**

### Current Matters in IT Audit

Issues related to Information technology Auditing, its applications, impact and related public policy is fast moving and ever changing. In order to keep up to date, it is necessary to follow IT Audit related news as reported on a day-to-day basis. There are many excellent sources of current news about IT Audit related technology, risk management and fraud prevention issues. They include, but are not limited to, *The Wall Street Journal, The New York Times, Business Week, CIO, Information Week, CFO web journal, Sloan Management Review, Fortune* etc. and certainly from any of the other relevant journals, magazines, and respected blogs. Additional sources are the *Internal Auditor Magazine - The Institute of Internal Auditors and the AICPA - Accounting & Auditing Publications.*

During the course, you are expected to read or scan one or more of these publications and every other week select an article about something that in your opinion is a particularly significant event or announcement of a subject related to IT Auditing, Risk Management, Discovery of a Fraud etc. You should write two separate sections subtitled **Summary** and **Analysis**, together not exceeding one page in length. As the name suggests, the first should summarize the source. The second should describe both its potential business impact and why you consider it so significant. You must post it as an attached file inside the appropriate folder in D2L. You should also provide a complete reference to the source or a hyperlink when the source is available on the Web. Bring a hard copy of your posting or be able to access an electronic copy with you to class. You should be prepared to present your choice in class (visual aids not required) and lead a discussion of it.

As a general rule, students with even student numbers should post their write-ups for weeks 2, 4, 6, 8.
Students with odd student numbers should post their work for weeks 3, 5, 7, 9. Current Matter postings must be made prior to 6pm on the night of class. **Current Matters Grading: Maximum of 25 points per posting.** Grading will be based on the quality of analysis, on the significance, on the potential impact of the chosen news item and on the timeliness of the posting to D2L.

**Case Study Presentation**

Students will be assigned to present to the class experiences of their own or of which they know relating to the application of the concepts covered in the course. If you have no relevant work experience, you may research ways in which the concepts have been implemented either in the literature or by interviewing someone in your own or another organization.

This presentation should not reiterate what is in the assigned material, but should be designed to add value by expanding the horizon. If your organization implemented an Enterprise Resource Planning (ERP) system, for example, a description of how the IT Audit and Process Controls were designed and what were the results would add significantly to our understanding of the applicability of such controls. Prior to presenting to the class, post your presentation to the appropriate folder in D2L.

Your presentation will be limited to ten minutes and you must employ visual support (e.g., PowerPoint presentation). Any other audio-visual material, which may be appropriate, may also be utilized. You should be prepared to conduct a class discussion after you present, which is limited to five minutes. **Case Study Presentation Grading will be a combination of student and professor feedback which will be a number not to exceed 20. Student feedback sheets will be provided one week after the presentation.**

**Notes:**

- The presentation must be done in a professional manner as if you were making a presentation to top management (but you are not expected to dress up for the occasion).
- You must employ “professional” visuals. The PowerPoint presentation technology and Internet access will be available in class.

**Feedback**

After your presentation, you will receive written feedback and a grade on the form shown on the last page. Students with experience in business presentations have an advantage and normally do better, because of their improved communication skills. Even so, it has been my experience that two communication skills – the eye contact and the use of hands – are often a challenge. Please try to refer to the monitor or screen very sparingly by memorizing the presentation. This way, you will be able to keep a virtually continuous eye contact with the audience. You will also not need to hold notes, which will free your hands, so you can use them to stress important points. Please do not lean on the lectern, lock your hands in front of you, or stuff them into pockets. Just release them straight down when you do not use them to enhance your message.

**Mid-term and Final Exams**

The Mid-term and Final exams will challenge you to apply your learnings of CoBIT, ISACA and general IT Audit and Controls principles to a business case.
Student Name ____________________________________________ Date _____________

Subject of Presentation _______________________________________________________

Content
  Clear explanation of the main message or focus (2 points max.):
  Topic related to concepts in text (2):
  Clearly defined impact of IT Audit and Controls (3)
  Added value (3):

Visual aids
  Visible to audience (1):
  Reinforced messages (1):
  Overall effectiveness (1):

Communication skills
  Vocal energy, volume, inflection (1):
  Eye contact (1):
  Body energy, stance, and use of hands (1):
  Enthusiasm (1):

Handling of Q & A (1):

Control of time (2):

Suggestions for improvement:

Score __________ out of a possible 20 points
How to Analyze a case

What is a case?
A case is a description of a business situation faced by an organization. It typically includes information regarding the organization’s history, management team, operating processes, competitive environment and financial data.

Why we use cases as a method of instruction.
Analyzing a case provides practice both in diagnosing an organization’s situation and in formulating action plans to improve that situation. Part of what makes case analysis somewhat frustrating and difficult is also what makes it so valuable.

- The issue is not stated in the case. It is up to the reader to determine the issues.
- Cases have no unique answer. The background and experiences of the reader will often lead to one of a number of viable solutions. Cases rarely have only one solution.
- Information provided within the case is incomplete, misleading or extraneous. The reader must ascertain what information is of value.

The above characteristics of case analysis are also characteristics of real world business decision making. Analyzing a case gives the reader the chance to practice such decision making within a learning environment.

How should a case be analyzed?

- First, read the case quickly. Try to get a sense of the big picture rather than immediately focusing on details. Now you should be able to diagnose the problem area, whether it be marketing, information technology, finance or a combination of areas.
- Second, read the case again. This time focusing on specific, relevant facts that support your diagnosis of the problem area. Make use of both qualitative and quantitative information, particularly information that is included within the exhibits.
- Third, state the problem in clear, concise terms. Be careful not to confuse symptoms of the problem with the actual problem.
- Next, generate solutions to the problem as you have stated it. Some solutions may be included in the case write-up. Other solutions may be based on your own experiences. Other solutions may incorporate principles taught during class.
- Next, evaluate the alternative solutions in terms of how well they achieve a solution to the organization’s problem as you have define it. Select the best alternative.
- Next, consider the implementation of your solution and possible problems it may cause. Plan the steps involved to insure a trouble free implementation.
- Last, be prepared to defend your solution and its implementation as the best possible choice.

Finally, remember that case analysis is as much an art rather than a science. There are no prescribed solutions.