**ERP Systems**

**Security, Auditing and Controls Feature in SAP ERP**   
Fall 2019

About the Instructor:

Allen Chou Allen.Chou@temple.edu

Community MIS Site <http://community.mis.temple.edu/mis5121sec701fall18/>

Phone: 267-973-0155

Office Location: Online through WebEx

Office hours: By appointment

Class Location and Time:

Thursdays 5:30pm – 8:00pm from August 29 through December per the Temple academic Fall Schedule.

Virtual / On-Line: Via WebEx

Course Description:

This course focuses on the fundamentals of SAP ERP system including the business processes as well as security, audit and control futures:

* The basic business processes that ERP systems support
* How these processes are implemented in with ERP systems
* How to audit SAP through: techniques, methodology, and execution, and
* How to secure and control the processes and systems for the integrity, confidentiality, authenticity and reliability of information.

By examining how an organization can secure and control its ERP systems with an effective control environment, we understand how to enable and maintain the integrity, confidentiality and reliability of information required for regulatory, operational and financial expectations.

Course Objectives:

* Understand business processes and their role in the functioning of an organization.
* Explain what ERP systems are and practice (using SAP) their use to support business processes.
* Demonstrate the relationship between business process operational risks (including fraud) and the resulting integrity, confidentiality and reliability of information.
* Demonstrate IT audit techniques, methodology and execution.
* Appraise and prioritize real world business process operational risks and recommend compensating controls to address the risks. Includes the fundamentals of ERP system controls, security, analysis of segregation of duties (SOD) risks and specifying how to manage them.
* Understand ERP System development and system operation risks and recommend compensating controls.

Course Prerequisites

By completion of this course, the students will earn 3.0 credit hours.

There are no specific pre-requisites for this course. However, I will tap generously into your background and experience in many aspects of business and systems use.

The course includes financial, accounting, operations, and system administration principles and general knowledge. I encourage the students to network and help each other in groups to learn the class material together.

You will need proficiency in the following commonly used computer tools: WebEx, Excel, Word, and PowerPoint.

On-Line Course Participation

In order to effectively participate in the course on-line, please ensure that you will have the following capabilities and follow the expected protocol:

* Have a reliable internet connection
* Recommend you use a headset. You hear more of the class audio with them and when you speak it’s clearer for the rest of the class
* Turn on your workstation Video
* Participate via WebEx – link on blog
* During class please **Mute the session when not speaking**

**Course Material and Assignment**

Many additional details about the course, teaching materials, assignments, etc. are included in the Canvas site. Note these important sections of the Canvas:

* Announcements
* Assignments
* Syllabus
* Quizzes
* Library

Grading

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Weight** |  | **Grading Scale** | | | |
| Participation in class | 20% |  | 94-100 | A | 73-76 | C |
| Real World Control Failure Project | 5% |  | 90-93 | A- | 70-72 | C- |
| Exercise Assignments | 35% |  | 87-89 | B+ | 67-69 | D+ |
| Exams | 40% |  | 83-86 | B | 63-66 | D |
| **Total** | **100%** |  | 80-82 | B- | 60-62 | D- |
|  |  |  | 77-79 | C+ | Below 60 | F |

Grading Criteria

The following are the general 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 not fully following assignment directions. | C-, C, 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. | Below C- |

Participation (20%)

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

To encourage participation, 20% of the course grade is earned by preparing before class and discussing the topics during and between classes. Evaluation is based on consistently demonstrating your engagement with the process of learning. Assessment is based on what you contribute, not simply what you know.

1. **Preparation between classes -** To facilitate learning the course material, we will discuss course material on the Canvas. The questions will relate to the assigned readings, a topic to discuss in class, or a relevant current event. Reading and commenting on these analyses will contribute to the quality of our in-class discussions.

Every student is expected to contribute to the online class discussion each week. Online contributions will be graded on both the quality of your submissions and the overall quantity.

1. **Participation during class –** During class there typically will be a discussion started with “opening” questions about the assigned readings and materials. 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 from the assigned readings and materials. All students should be prepared to answer these questions.   
  
Another important aspect of in-class participation is completion of in-class assignments and contribution during break-out group activities. If you don’t fully understand a topic being discussed, assignment, etc. – ask questions to facilitate your and the class’s learning.

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

Real World Control Failure Project (5%)

Many classes will include a brief review of a real-world scenario that represents internal control failures in an organization and the ramifications of that failure.

Each student is responsible for finding a real-world example and preparing a brief review. A PowerPoint (PPT) format will be provided to outline the content components / points required in the presentation. The student is responsible for presenting their review / story in a video format prior to a class (starting with class 7) based on an agreed sign-up schedule.

5% of the course grade is earned by this project. Evaluation is based on:

1) Including the required content components,

2) Clear, concise presentation of the control failure ‘story’ and lessons learned, and

3) Originality in presentation of the control failure ‘story’.

Exercise Assignments (35%)

1. **Exercises:** We will use a teaching SAP ERP client instance to complete the following case exercises. The exercises require successful completion of transactions and analysis on a defined teaching SAP client instance.  
     
   The exercises must be completed by the defined deadline in the defined client instance. Note: remote access is possible outside the classroom.

|  |  |
| --- | --- |
| # | Exercise |
| 1 | SAP ERP GBI (Global Bike Inc.) – Segregation of Duties [SOD] - Team |
| 2 | SAP ERP GBI (Global Bike Inc.) – Order to Cash - Individual |
| 3 | SAP ERP GBI (Global Bike Inc.) – Journal Entries - Individual |
| 4 | SAP ERP GBI (Global Bike Inc.) – Procure to Pay - Individual |

1. Final Exercise: This assignment will be completed and submitted by the same assigned small teams (2-3 people / team) from the team exercise assignments. More details will be presented in class but will require the team to create and audit an internal controls framework for a chosen area. A template will be provided. There will be some time allotted during the class sessions to work on your assigned case study. It is expected that you will post your presentation before the last class. Late submissions for this deadline will result in no credit earned for this assignment

Exams (40%)

There will be two (2) exams during the semester, for the mid-term and final. Each exam will be conducted online (using Blackboard). Together these exams are weighted 40% of your final grade. Check the schedule for the dates.

All exams will consist of multiple-choice, fill in the blank and short answer questions. Some questions on each exam will relate to a short, fictitious but real-world like case. I will publish the case narrative separate from the exam. This allows you to read the case prior to taking the exam that has a fixed time to complete.

In general, the exams will be focused on the course materials and class discussions, especially the Core Principle.

No make-ups are possible for the exams.

Learning

My goal is to help each student understand and effectively learn the concepts and knowledge of the class. I realize each student is different: different backgrounds, different learning styles and possibly disabilities.

Although I’ve already integrated my lessons learned into the course, I welcome any and all improvement suggestions. I want to work with each student to assure they get the most from this class.

Disabilities

Temple University is committed to the inclusion of students with disabilities and provides accessible instruction, including accessible technology and instructional materials.

The process for requesting access and accommodations for this course is:

* 1. Advise me privately of the need for access or accommodations. Please contact me privately as soon as practical – at least by the end of second week of classes
  2. Contact Disability Resources and Services (DRS) to request accommodations
  3. DRS will consult with me as needed about essential components of the program
  4. Present me with a DRS accommodation letter.

Late Assignment Policy

Canvas does not accept late submissions. Please contact me for unforeseen situations.

* The late assignments will be subject a 20% penalty each day after the deadline. No credit is given for assignments turned in over five calendar days past the due date.
* Skip an assignment will be subject to an additional 10 points will be subtracted from your final grade in the course.

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, Academic Dishonesty and Citation Guidelines

All work done for this course: papers, examinations, homework exercises, blog posts, laboratory reports, oral presentations — is expected to be the individual effort of the student presenting the work.

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

Freedom to teach and freedom to learn are inseparable facets of academic freedom. 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=03.70.02http://policies.temple.edu/getdoc.asp?policy\_no=03.70.02](http://policies.temple.edu/getdoc.asp?policy_no=03.70.02)

Required Readings

|  |  |
| --- | --- |
| **Text Books** | **Security, Audit and Control Features SAP ERP, 4TH Edition** by ISACA, June 30th, 2015.  ISBN: 978-1-60420-580-0  Chapters: 1 – 21  https://www.amazon.com/Security-Audit-Control-Features-SAP/dp/1604205806 |
|  | **The Road to Character**  by Brooks, David. Published by Random House New York, 2015 ISBN: 978-0812993257 Chapters 1, 3, 5,  <http://www.amazon.com/The-Road-Character-David-Brooks-ebook/dp/B00LYXV61Y> |
| **Case Study** | **SAP ERP GBI (Global Bike, Inc.)** |

|  |  |
| --- | --- |
| **Additional references** | |
|  | **Concepts in Enterprise Resource Planning (Third Edition)** by Monk, Ellen, Wagner, Bret. Published by Course Technology Cengage Leaning, 2009 |
| **ISACA** | **Monitoring Internal Control Systems and IT: A Primer for Business Executives, Managers and Auditors on How to Embrace and Advance Best Practices,** ISACA, 2010 (complimentary download for ISACA members: <https://www.isaca.org/bookstore/Pages/default.aspx> )  Chapters 3 & 4 |
| **ASUG** | **Sharp Electronics’ Advice for SAP BusinessObjects GRC 10 Projects, by Courtney Bjorlin, 2011, ASUG** |
| <http://www.asugnews.com/2011/11/23/sharp-electronics%e2%80%99-advice-for-sap-businessobjects-grc-10-projects/> |
|  |

**Class Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Topic** | **In-Class Activity** | **Assignment** | **Assignment Due** |
| 1  Aug 29 | * Course Introduction   - Review Syllabus   * Introduction to ERP Systems and SAP ERP | - Key Business Processes  - Introduce Real World Control Failure Project  - ERP Auditing Principles | - Logging into SAP GUI |  |
| **No Class – Labor Day** | | | | |
| 2  Sept 5 | * Strategic Risk Management in SAP environment * SAP Audit Approach | - Introduce Strategic Risk Implications  - Auditing Methodology  - Segregation of Duties [SOD] - continued | Segregation of Duties (SOD) Exercise #1 [Team]: 1, 2 |  |
| 3  Sept 12 | * SAP ERP Basis Administration and Security * Auditing SAP ERP Basis Administration and Security | - Introduce SAP ERP Admin and Security and Principles  - General IT vs. SAP Controls  Security 1:  - Security Design  - Authorization Concept  - User Authentication  - Roles Based Access Security [RBAS]  - SOD & Sensitive Transactions  - Finance Process and Controls  - Introduce Segregation of Duties [SOD] Exercise  - Auditing Methodology | Segregation of Duties (SOD) Exercise #1 [Team]: 3, 4 |  |
| 4  Sept 19 | * SAP ERP Revenue Business Cycle * Auditing the SAP ERP Revenue Business Cycle | - Introduce Revenue Business Cycle  - Auditing Methodology  - Order to Cash Process:  - What could go Wrong? | Order to Cash Exercise #2 [Individual]:  Steps 1 - 8 | Segregation of Duties Exercise #1 |
| 5  Sept 26 | * SAP ERP Expenditure Cycle * Auditing the SAP ERP Expenditure Cycle | - Introduce Expenditure Cycle  - Auditing Methodology  - Order to Cash Shipping: What could go Wrong? | Order to Cash Exercise #2 [Individual]:  Steps 9 – 15 |  |
| 6  Oct 3 | * SAP Lab 1 | - SAP Lab Demonstration  - OTC: Invoicing and Collections  – What could go Wrong? | Order to Cash  Exercise #2 [Individual]:  Steps 16 – 23 |  |
| 7  Oct 10 | * Exam 1 – Mid-term | - Finance and Accounting Processes:  - What could go Wrong?  - Introduce Journal Entries Exercise | Journal Entries Exercise #3 [Individual]: 1, 2 | - In-Class Real World Control Failure Presentations  - Order to Cash Assignment #2 [Individual] |
| 8  Oct 17 | * SAP ERP Inventory Business Cycle * Auditing the SAP ERP Inventory Business Cycle | - Introduce Inventory Business Cycle  - Auditing Methodology | Journal Entries Exercise #3 [Individual]: 3, 4 |  |
| **Week** | **Topic** | **In-Class Activity** | **Assignment** | **Assignment Due** |
| 9  Oct 24 | * SAP ERP Financial Accounting FI Module * Auditing SAP ERP Financial Accounting FI Module | - Introduce Financial Accounting FI Module  - Auditing Methodology  - Introduce Procure to Pay Exercise | Procure to Pay Exercise #4 [Individual]:  Steps 1 - 6 | Journal Entries Exercise #3 |
| 10  Oct 31 | * SAP ERP Management Account CO Module * Auditing SAP ERP Management Account CO Module | - Introduce Management Account CO Module  - Auditing Methodology | Procure to Pay Exercise #4 [Individual]:  Steps 7 - 14 |  |
| 11  Nov 7 | * SAP ERP Human Capital Management (HCM) Business Cycle * Auditing SAP ERP Human Capital Management (HCM) Business Cycle | - Introduce HCM Business Cycle  - Auditing Methodology  - Risk Control Matrix: Introduction | Risk Control Matrix Exercise #5 [Team]:  - Introduction  - Identifying Risks | Procure to Pay Exercise #4 [Individual]: |
| 12  Nov 14 | * SAP ERP Security, governance, risk, compliance and trends | Data  - Migration  - Interface Security  - SAP Landscape:  - Instance and Clients  - Change Management  - Transport Management  - Program Development  - Table Security  - Data Dictionary | Risk Control Matrix Exercise #5 [Team]:  - Identify Controls  - Link Controls and Risks |  |
| 13  Nov 21 | * SAP Lab 2 | - SAP Lab Demonstration  - Framework: Role in Governance | Risk Control Matrix Exercise #5 [Team]:  - Complete Control Definitions |  |
| **Fall (Thanksgiving) Break** | | | | |
| 14  Dec 5 | * Exam 2 - Final |  | Risk Control Matrix Exercise #5 [Team]:  - Control Process Audit Details | Final: Risk Control Matrix Exercise #5 [Team] Due |

For more details, see the class Canvas

Additional Information

|  |  |
| --- | --- |
| Availability of Instructor | * Please feel free to contact me via e-mail with any issues related to this class. I will also be available at the end of each session. Please note that these discussions are to address questions/concerns but are **NOT** for helping students catch up on content they missed because they were absent. **Note:** I will respond promptly when contacted during the week and possibly Saturday. I do not respond on Sunday’s. * I am available to meet personally with you: * Immediately after class * By appointment prior to class * By appointment by phone |
| Attendance Policy | * Class discussion is intended to be an integral part of the course. Therefore, full attendance is expected by every student. * If you are absent from class, speak with your classmates to catch up on what you have missed. |
| **Class Etiquette** | * Please be respectful of the class environment. * Class starts promptly at the start time. Arrive on time and stay until the end of class. * Turn off and put away cell phones, pagers and alarms during 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. * Refrain from personal discussions during class. Please leave the room if you need to speak to another student for more than a few words. If a student cannot refrain from engaging in private conversation and this becomes a pattern, the students will be asked to leave the classroom to allow the remainder of the students to work. * 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. * When participating online - Turn on your workstation Video * When participating online - During class please **Mute the session when not speaking** |