

NEW YORK UNIVERSITY – STERN SCHOOL OF BUSINESS
DEPARTMENT OF ACCOUNTING
Internal Controls & Accounting Information Systems - A Data Analytics Perspective
ACCT-3315 SPRING 2024

Instructor: Prof. Joel Lanz, MBA, CPA/CGMA/CITP, CFE, CISSP, CISA, CISM

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Office Hours: M (2-3) and W (2-3) and by appointment.

Phone: 516-933-3662 (If I do not pick up, please leave a message with alternate times to return your call).

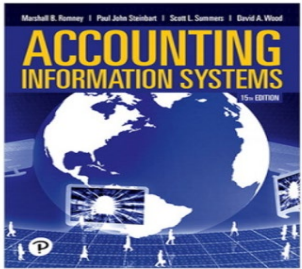
Class Sections of Internal Controls and Accounting Information Systems:

DATES	ACCT-GB.3315	DAY	TIME	LOCATION
1/29-5/6	M2 (2082)	M W	3:00-4:20 PM	KMEC 2-90
1/29-5/6	M1 (2081)	M W	4:30-5:50 PM	KMEC 2-90

Course Description:

The purpose of this course is to help prepare you for a successful career in public practice, industry, or government by understanding how accountants and other financial professionals rely on, manage and translate data generated by accounting information systems and other technology-related data sources to guide clients and organizations in making better business decisions in an increasingly complex and data-driven world. Using an accountant's perspective, the course will integrate the study of big-data analytics and technology and the application of related software to establish, manage, and audit internal control systems.

Course Materials:

	<p>The class's required text is "Accounting Information Systems, 15th Edition, Romney, Steinbart, Summers, and Wood,</p> <p>There are multiple ISBNs for the text: 9780135572832 (PEARSON). Students can purchase any format that best suits their needs and budgets (electronic, paper, or hardcover). The text is required for the class. We will be reviewing end-of-chapter questions and problems during class.</p>
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Additional materials may be distributed in class and learners will be expected to leverage materials from NYU resources (e.g., library). Further details will be provided during the semester.

Assessment and Grade Determination: (note: subject to change based on monitoring of new CPA exam developments).

SEGMENT	% OF GRADE	DESCRIPTION
Exam #1 - AIS Foundations	25%	Exams consist of short answers (e.g., multiple-choice, etc.) questions.
Exam #2 - Cybersecurity, Information Security & Trust Service Criteria	35%	Half the exam will test Remembering and Understanding (the perception and comprehension of the significance of an area utilizing knowledge gained). These questions will focus on textbook and lecture content. Students usually consider the level of difficulty to be easy to moderate.
Exam #3 – Applications	30%	The other half of the exam will focus on your ability to apply knowledge (using or demonstrating knowledge, concepts, or techniques). To answer these questions, you will use the knowledge gained during the lectures when we review more challenging topics in the chapter and discuss the end-of-chapter exercises. Like CPA exam questions, students consider these of moderate to challenging difficulty.
Value Add Provided to Class	10%	<p>I invite you to participate in classroom discussions and in-class exercises during each class meeting. To do so usually requires that you appropriately prepare for class. Preparation involves completing "before class" activities identified for the class session. This preparation usually involves reading the assigned texts, viewing the professor and provided videos, and other tasks depending on the assignment. Whether or not you directly participate in class discussions, understanding and applying in-class exercises are critical to succeeding in exams.</p> <p>Please contribute throughout the semester, as a lack of contribution in one unit cannot be made up for in another unit. Review for value add requires submitting a log of all your contributions at the end of the semester (see due date in the course schedule below). I will review further requirements and supply a log template during class.</p> <p>Please let me know if you feel uncomfortable making public contributions, and we will determine an equivalent method of providing value.</p>

The following grading guidelines are a basis for determining grades: A's – awarded for excellent work; B's – awarded for good or very good work; C's – awarded for adequate work; and F's - awarded for unsatisfactory or inadequate work.

Observations on the New CPA Exam (2024)

The administration of the new CPA exam (CPA Evolution initiative) began in January 2024 and contains significant changes, especially related to technology. The CPA Evolution initiative intends to ensure that newly licensed CPAs have the required knowledge and skills best suited to serve clients, businesses, and the public. As the profession and the world navigate a new routine, the education required of CPA candidates and the CPA Exam itself is adapting to address the emerging skills and competencies necessary in today's marketplace. The new core-plus discipline model will allow candidates to show enhanced competency in a chosen discipline within the profession. Information Systems and Controls is one of the three discipline areas you can demonstrate increased competency.

This course will help you prepare for several topics for the new exam. Specific foundational AIS topics typically found at the undergraduate level (e.g. course units relating to AIS foundations and Applications) are expected to receive additional attention as part of the new core exams, especially Auditing. If you have not completed an undergraduate

AIS course or are unfamiliar with these topics, you should review Chapter 3 (System Documentation) and other application chapters not covered in class before attempting the new auditing section. Although these will not be covered in GB 3315, I invite you to discuss, explain or clarify these topics during office hours or by appointment.

Tentative Course Lecture and Exam Schedule (Subject to Change)

We will discuss preparation and study strategies during our first class. Please refer to the “**EXERCISES AND PROBLEMS FOR CLASS DISCUSSION**” that will be distributed during the first week of class on Brightspace for preparation, readings, homework, and other course expectations. Please note the three colors used to identify the contents for each exam.

Specific units contain foundational AIS knowledge to understand more advanced topics better. Depending on the student’s background, these may have been covered in a previous course. For these units, we will review end-of-chapter problems. A self-study video prepared by the professor is provided on Brightspace to learn, review or refresh critical issues from the unit and should be accessed prior to the class session.

With the introduction of the new CPA Exam this semester, all course content is subject to change. I will discuss relevant course changes in class as needed.

DATES	TOPICS
1/29	Unit A - Course Orientation and Introduction.
1/31	Unit B - AIS Foundations. Please review the video lecture prior to class (if needed). The class lecture will focus on homework assignments. Text Chapter 1 Explain how an AIS adds value to an organization, how it affects and is affected by corporate strategy and its role in a value chain. We will look at the need for AIS from a retailer’s perspective (which will serve as a baseline example throughout the semester).
2/5	Unit C - Business Technologies and the Accountant Please review the video lecture prior to class (if needed). The class lecture will focus on homework assignments. Text Chapter 2 Review of ERP and introduction to how emerging technologies impact the accounting profession. Discuss the new finance and the skills required to succeed. We will also consider how emerging technologies impact traditional accounting and audit functions. We will lay the technology foundation for the semester.
2/7 & 2/12	Unit D – Fraud and Errors (Note: As MS in Accounting students take a Fraud class, this Unit focuses on fraud related to computers providing a foundation for further course topics on computer controls, fraud, and cybersecurity). Text Chapter 8 Our society has become increasingly dependent on accounting information systems. As system complexity and our dependence on systems increase, companies face the growing risk of their systems being compromised. A recent survey disclosed that 67% of companies had a security breach, more than 45% were targeted by organized crime, and 60% reported financial losses. This unit will provide a general introduction to fraud, focusing on technology’s ability to facilitate fraud.
2/14, 2/21, 2/26	Unit E - Control and AIS Text Chapter 10 This unit briefly reviews key concepts (internal audit) that you had in auditing and your undergraduate courses. You will gain an appreciation for the critical frameworks such as COSO-ERM and CoBIT (as COSO-ICFR is covered in auditing) and how they are used by professionals.
2/28	No in-person class unless needed for a catch-up. EXAM UNITS A-E (EXAM #1) – No class as students will be given “class time” to compensate for time needed to take the exam through Brightspace. Exams are due Saturday, March 2, at 5 PM New York Time.
3/4	A limited review of Exam #1 (most challenging questions).
3/6, 3/11	Unit F – Computer Fraud and Abuse Techniques

	<p>Text Chapter 9</p> <p>In this chapter, we review some of the more common computer fraud and abuse attacks that companies need to defend themselves against. The idea is to appreciate the various attacks so that CPAs can advise on defensive strategies.</p>
<p>3/13, 3/25 and, 3/27</p> <p>NOTE: Week of 3/18 is Spring Break</p>	<p>Unit G - Information and Cybersecurity</p> <p>Text Chapter 11</p> <p>Organizations are under increasing pressure to show that they are managing cybersecurity threats and have effective processes and controls in place to detect, respond to, mitigate, and recover from breaches and other security events. To meet that need, the AICPA has introduced various cybersecurity risk assurance and advisory services that build upon the profession's experience in auditing systems and organization controls. This unit will discuss the more common cybersecurity threats and the cybersecurity risk management programs needed to prevent, detect and respond to security breaches.</p>
<p>4/1, 4/3, 4/8</p>	<p>Unit G - Information and Cybersecurity (CONTINUED)</p> <p>Unit H - SOC Reports and other Trust Services Criteria</p> <p>Text Chapters 12</p> <p>Clients may engage a CPA to examine and report on controls at a service organization related to diverse types of subject matter, for example, controls that affect user entities' financial reporting or controls that affect the security, availability, and processing integrity of the systems or the confidentiality or privacy of the information processed for user entities' customers. This unit builds on the information security background obtained in the earlier unit. It discusses the three different SOC for Service Organizations engagements (SOC 1®, SOC 2®, and SOC 3®) that involve reporting on controls at a service organization. We will also briefly discuss the new AICPA reporting for Cybersecurity Risk.</p>
<p>4/10</p>	<p>No in-person class unless needed for a catch-up.</p> <p>EXAM UNITS F-H (EXAM #2) – No class as students will be given “class time” to compensate for time needed to take the exam through Brightspace. Exams are due Saturday, April 13, at 5 PM New York Time.</p>
<p>4/15</p>	<p>A limited review of Exam #2 (most challenging questions).</p>
<p>4/17, 4/22, 4/24</p>	<p>Unit I – Application Development</p> <p>Text Chapters 22 and 23. Developing quality, error-free software is a complex, expensive, and time-consuming task. Most software development projects deliver less than one expects and take more time and money than expected. Cutting corners can lead to embarrassment and plummeting shareholder values. Today, most chief information officers expect to replace their current systems with commercially available packages rather than using custom-developed software. These strategies also include enhanced use of cloud computing strategies.</p>
<p>4/29 and 5/1</p>	<p>Unit J – Practical Application Risk Analysis</p> <p>Please review the video lecture prior to class (if needed). The class lecture will focus on homework assignments.</p> <p>Text Chapters 15 and 17. This last unit focuses on the practical challenges of assessing technology and business processing risks within applications. We will discuss and illustrate the challenges of significant sources for facilitating computer fraud relating to disbursements. in the expenditure and/or human resource cycles. VALUE ADD LOG DUE MAY 3 AT 11 PM NEW YORK TIME</p>
<p>5/6 (5/4)</p>	<p>Note: If needed, we will have a Zoom session on Saturday May 4 ay 9 AM.</p>
<p>TBD</p> <p>Based on Stern Test Schedule</p>	<p>EXAM UNITS I-J (EXAM #3). No in-person class as students will be given the designated exam time to do the exam through Brightspace.</p> <p>Exams are due TBD based on Stern Test Schedule</p>

You will find that the "Accounting Information System" course differs from other accounting courses as it is not financial or numerical based. *You may need to adopt a different study process than what might have worked well for you in other accounting courses. Consider leveraging study techniques used in Auditing, Management, MIS, and Economics courses in developing your study plan. Innovative, creative problem-solving and "outside the box"*

thinking will help you master course contents and grading components.

A helpful technique is to assume the owner or CFO's role of a business familiar to you. As you prepare and study the course materials, ask yourself how an owner or CFO would use the information presented and apply it to their business.

Course Objectives/Goals (What I hope you will learn from the course):

GB 3315 will help prepare you for an increasingly complex world where technology continues to influence and disrupt existing business models and service delivery strategies. My goal is to prepare you for a successful transition to public practice, industry, or government by understanding how to audit, use, and take part in the design of accounting information systems.

During our time together, you will learn how to assess, design, and consider the impact of IT risks and corresponding controls on financial reporting and business operations. Our lectures, discussions, and assignments will focus on how managers address IT and business processes to help achieve organizational goals and ensure accurate financial reporting. Through selected tasks that simulate real-world professional accounting challenges, you will gain confidence in your developing abilities to assess system controls and to effectively design risk mitigation strategies for systems for which you could provide assurance or advisory services. Some of you will use this knowledge directly or contribute to various aspects of acquisition and merger due diligence assignments. As appropriate, we also examine selected IT-related regulatory and financial reporting developments.

You will be graduating into an increasingly competitive global marketplace clamoring for professionals who can provide better information assurance and the ability to facilitate business development opportunities and performance. IT professionals have the technical expertise necessary to ensure the secure configuration of IT hardware or the proper deployment of technology solutions. Yet, their solutions lack the CPA's or financial manager's perspective and ability to understand the complicated business implications, governance challenges, and risks associated with technology.

DON'T BE SHY – CONTACT ME IF HELP IS NEEDED. In-person appointments are available before class, via telephone or zoom on most weeknights and weekends (yes, weekends) Alternatively, call my number anytime, and if possible, I will respond. If leaving a message, provide three alternative times (and send an email – so that I can respond) so that we can agree on a time.

General Course Notices and Policies

We take pride in our well-rounded education and approach our academics with honesty and integrity. Indeed, integrity is critical to all that we do here at NYU Stern. As members of our community, all students agree to abide by the NYU Academic Integrity Policies as well as the NYU Stern Student Code of Conduct, which includes a commitment to:

- Exercise integrity in all aspects of one's academic work including, but not limited to, the preparation and completion of exams, papers and all other course requirements by not engaging in any method or means that provides an unfair advantage.
- Clearly acknowledge the work and efforts of others when submitting written work as one's own. Ideas, data, direct quotations (which should be designated with quotation marks), paraphrasing, creative expression, or any other incorporation of the work of others should be fully referenced.
- Refrain from behaving in ways that knowingly support, assist, or in any way attempt to enable another person to engage in any violation of the Code of Conduct. Our support also includes reporting any observed violations of this Code of Conduct or other School and University policies that are deemed to adversely affect the NYU Stern community.

STERN CODE OF CONDUCT

The Stern Code of Conduct and Judiciary Process applies to all students enrolled in Stern courses. For graduate students, information can be found here: <https://www.stern.nyu.edu/uc/codeofconduct>.

To help ensure the integrity of our learning community, prose assignments you submit to NYU Brightspace will be submitted to Turnitin. Turnitin will compare your submission to a database of prior submissions to Turnitin, current and archived Web pages, periodicals, journals, and publications. Additionally, your document will become part of the Turnitin database.

GENERAL CONDUCT & BEHAVIOR

Students are also expected to maintain and abide by the highest standards of professional conduct and behavior. Please familiarize yourself with Stern's Policy in Regard to In-Class Behavior & Expectations for Graduate and Undergraduate students. (<https://www.stern.nyu.edu/portal-partners/registrar/policies-procedures/general-policies/code-conduct>) (<http://www.stern.nyu.edu/portal-partners/current-students/undergraduate/resources-policies/academic-policies/index.htm>) and the NYU Student Conduct Policy (<https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/university-student-conduct-policy.html>).

STUDENT ACCESSIBILITY

If you will require academic accommodation of any kind during this course, you must notify me at the beginning of the course and provide a letter from the Moses Center for Student Accessibility (212-998-4980, mosescsa@nyu.edu) verifying your registration and outlining the accommodations they recommend. If you will need to take an exam at the Moses Center for Student Accessibility, you must submit a completed Exam Accommodations Form to them at least one week prior to the scheduled exam time to be guaranteed accommodation. For more information, visit the CSA website: <https://www.nyu.edu/students/communities-and-groups/student-accessibility.html>

STUDENT WELLNESS

Our aim is for students to be as successful academically as they can, and to help them overcome any impediments to that. Any student who may be struggling and believes this may affect their performance in this course is urged to contact the Moses Center for Student Accessibility (see also the Student Accessibility section of this syllabus) at 212-998-4980 to discuss academic accommodations. If mental health assistance is needed, call the NYU's 24/7 Wellness Exchange hotline 212-443-9999. Furthermore, please approach me if you feel comfortable doing so. This will enable me to provide relevant resources or referrals. There are also drop in hours and appointments. Find out more at <http://www.nyu.edu/students/health-and-wellness/counseling-services.html> Graduate students can also reach out to the Academic Advising team at academicaffairs@stern.nyu.edu if you would like to receive more information or further support.

NAME PRONUNCIATION AND PRONOUNS

NYU Stern students now have the ability to include their pronouns and name pronunciation in Albert. I encourage you to share your name pronunciation and preferred pronouns this way. Please utilize this link for additional

information: Pronouns & Name Pronunciation

RELIGIOUS OBSERVANCES AND OTHER ABSENCES

NYU's Calendar Policy on Religious Holidays states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. You must notify me in advance of religious holidays or observances that might coincide with exams, assignments, or class times to schedule mutually acceptable alternatives. Students may also contact religiousaccommodations@nyu.edu for assistance.

NYU Stern is committed to ensuring an equitable educational experience for all students regardless of identity or circumstances and strives to recognize the obligations its students have outside of Stern. Please review all class dates at the start of the semester and review all course requirements to identify any foreseeable conflicts with exams, course assignments, projects, or other items required for participation and attendance. If you are aware of a potential conflict, please contact me as soon as possible to discuss any potential conflicts to determine whether/how they can be accommodated.

LAPTOPS, CELL PHONES & OTHER ELECTRONIC DEVICES

The use of electronic devices (e.g., tablets or laptops), for the purpose of note-taking only, is permitted. However, students should make every effort to avoid distracting their classmates or disrupting the class, including arriving early and choosing a seat that is less distracting for peers.

INCLUSION STATEMENT

This course strives to support and cultivate diversity of thought, perspectives, and experiences. The intent is to present materials and activities that will challenge your current perspectives with a goal of understanding how others might see situations differently. By participating in this course, it is the expectation that everyone commits to making this an inclusive learning environment for all.

SECTION: COURSE DESIGN CONSIDERATIONS

References and additional reading

CIS Controls. Report no: v 8 Center for Internet Security.

Framework for Improving Critical Infrastructure Cybersecurity. Publication no. v 1.1, National Institute of Standards and Technology, April 16, 2018.

"CPA Exam Blueprints," available at <https://www.aicpa.org/becomeaicpa/cpaexam/examinationcontent.html>

"Model Information Technology Curriculum," AICPA, 2020

Various AICPA Service Organization Control suite of services publications are available at

<https://www.aicpa.org/interestareas/frc/assuranceadvisoryservices/sorhome.html>.

Various CPA Journal articles authored by the Professor.

Various COSO guidance publications are available at <https://www.coso.org/Pages/guidance.aspx>.

Various ISACA CoBIT-related publications available at <http://www.isaca.org/cobit/pages/default.aspx>

Various IMA publications on Technology and Analytics are available at www.imanet.org.

“CPA Evolution Model Curriculum” <https://thiswaytocpa.com/collectedmedia/files/cpa-evolution-model-curriculum-update.pdf>.

Influence of recent Professional organization activities on course design:

The CPA Evolution initiative is transforming the CPA licensure model to recognize the rapidly changing skills and competencies the practice of accounting requires today and will require in the future. Technology concepts will also be incorporated into all Core and Discipline sections as the impact of advances in technology on our profession continues to grow.

Per the AICPA's Model Information Technology Curriculum:

Information technology affects accounting professionals in every sector and service line. As we move into the future, technology will help them automate today's manual auditing and accounting processes so they can spend more time on analyzing the data, protecting sensitive client data or their organization's network, while understanding and anticipating the potential risks involved with the new or improved processes. At the core of accounting is information and data. Whether we focus on how to analyze, secure or audit that information, accounting professionals must understand how to utilize technology and evaluate associated risk. With the rise in the utilization of computer assisted auditing techniques (CAATs), tax operations, management reporting via visualization and dashboards, cloud technologies and automation, it is imperative that accountants be proficient in technology.

Technological innovation is not only allowing accounting professionals to deliver core audit and tax services more effectively and efficiently, but also creating new opportunities for them to deliver value to clients and employers. There is growing demand for accounting professionals with specialized skills and knowledge of technology and systems to help organizations achieve their business goals, manage the risk technology introduces as well as meet information governance, risk and compliance needs. As evidenced by the statistics that follow, advisory service opportunities in areas such as IT risk, business intelligence, data analysis and cybersecurity continue to grow.

The AICPA recently introduced a variety of new assurance services enabling professionals to provide assurance services for technology-related environments, including the SOC suite of services (SOC for Service Organizations and SOC for Cybersecurity). Students will be able to differentiate between these services and help management implement the results of these reports into an overall risk management program.

COSO issued the 2017 update to the *Enterprise Risk Management — Integrated Framework* to address the evolution of enterprise risk management and the need for organizations to improve their approach to managing risk to meet the demands of an evolving business environment. The updated document, *Enterprise Risk Management — Integrating with Strategy and Performance*, highlights the importance of considering risk in both the strategy-setting process and in driving performance. COSO subsequently published other papers to aid the practitioner in implementing the recommendations provided.

ISACA (formerly known as Information Systems Audit and Control Association) engages in the development,

adoption, and use of globally accepted, industry-leading knowledge and practices for information systems including the development and administration of the Certified Information Systems Auditor (CISA) and Certified Information Systems Manager (CISM) programs. ISACA is also responsible for the development and maintenance of CoBIT, a leading framework for the Governance and management of enterprise IT.

The course is composed of the following topics and their approximate percentage of course time:

- Conceptual foundations of Accounting Information Systems including IT Audit (15%)
- Evaluating technology-based internal controls from an enterprise risk perspective using COSO-ICFR, COSO-ERM, CoBIT, and other AIS-related recognized frameworks (20%)
- Consideration of pervasive and general IT controls including AICPA-related technology products including but not limited to the Services Organization Controls (SOC) suite of services (20%)
- Cybersecurity Risk Management from an Accountant's perspective (20%)
- Application development, implementation, and assessment of technology-related business process risks. (25%)