ACC425 Auditing Analytics
Term: Spring 2023
Delivery: Lecture videos + Q&A sessions through optional remote meetings

Course: 52:010:425:90

Optional remote meetings @ Zoom
Every Other Wednesday
(See inside for exact dates)

Professor: Yaou Zhou
Office Phone: (856) 225-6761
E-mail: yaou.zhou@rutgers.edu

Office: BSB-226
Virtual Office Hours:
By Appointment

Course Description

This course with a concentration on auditing analytics is comprised of two major components: (1) hands-on practice of audit procedures and methodologies with data visualization techniques; and (2) application of audit analytics tools. At the end of the class, students are expected to be equipped with the foundational knowledge and advanced audit techniques to step into the profession as a staff or senior auditor.

Audit data analytics (ADA's) are techniques that leverage current technologies to help auditors utilize a more data-driven approach when planning or performing an audit.1 The AICPA has defined ADA's as "The science and art of discovering and analyzing patterns, identifying anomalies and extracting other useful information in data underlying or related to the subject matter of an audit through analysis, modeling and visualization for the purpose of planning or performing the audit.

Learning Goals/Objectives

After completing this course, students should be able to:
1. Understand audit processes, methodologies, and underlying theories in a comprehensive manner.
2. Explain substantive testing of key accounts and know how it is utilized.
3. Explain the role data analytics has in the external audit.
4. Utilize computer software to apply auditing techniques, including ADA's.
5. Enhance data visualization and analytic skills.
6. Gain functional competency with various audit analytical tools.

Course Materials

All required course materials will be posted on Canvas. No textbook is required.

Note 1: You are not allowed to share any class materials with a third party during or after the current academic period. They are the intellectual property of the instructor and/or other academic resource centers.

Note 2: If you want to have some references about auditing theory fundamentals, you can use books from your previous course(s), or the following recommended one:

Title: Auditing & Assurance Services: A Systematic Approach
Author: Messier, Glover and Prawitt
Edition: 12th

Technologies and software

You will be required to install and operate various software on your personal device. Download links and access codes will be provided to you free of charge.

Software to be used: Excel, Countthings, SQL, IDEA, Alteryx, and Celonis.

NOTE: You need a PC for the installation of most of the software; if you use a Mac, you will need to install a virtual machine.

Communications

1. Canvas
   Syllabus, video lectures, excel assignments, power-point slides, supplemental materials, and other messages from the instructor will be posted on Canvas. To access this system, go to http://canvas.rutgers.edu log in, and click on the course tab to select courses accordingly.

   All class materials can be obtained via Canvas, usually one week ahead of schedule. You are strongly encouraged to access this course via Canvas several times a week. You can imagine that the class seamlessly "runs" through from day 1 (Monday) to day 7 (Sunday). You can use the calendar at the bottom of this syllabus to monitor the class progress and assignment due dates (Note that it may change upon circumstances).

2. Meetings
   On remote meeting days (optional), a Zoom Q&A session will be held. Students can utilize the time to interact with classmates and the instructor.

   <div align="center">

   Every Other Wednesday: 8:00 pm – 9:00 pm
   Zoom links will be provided on Canvas before each meeting.

   Jan 18, Feb 1, Feb 15
   Mar 1, Mar 29
   Apr 12 and Apr 26
   (Exam weeks are not included)

   </div>

3. Office hour
   You can schedule appointments via e-mails to the instruction. Also, please do not hesitate to "walk in" to the optional meetings as you do in regular classes.

4. Study groups
   Study groups are randomly formed by the instructor. You will meet your group in breakout rooms during our first virtual meeting on January 18. Throughout the semester, you are encouraged to communicate with each other and help each other as a team.

5. Email
   Since this is an asynchronous course and the class attendance is not compulsory, a viable and reliable form of communication is vitally important. All communications to students will be done using the Rutgers email address provided to you. Please forward your Rutgers email to your personal email if necessary.

<u>Note:</u> You are expected to **check your Rutgers e-mail at least two or three times (usually before classes) every week**. Not checking your Rutgers email is not an excuse for missing any communications.

Please allow the instructor one business day to reply to your emails. (If you do not hear from her within 48 hours, please re-send your email as she may have overlooked or accidentally deleted your e-mail.)

How to Succeed in the Course
1. Maintain a regular schedule – it is highly recommended that the students utilize some regular "class time" to learn materials that are assigned to that week.
2. Use Excel Class Notes as a guide for class outline, key concepts, relevant readings, materials, and assignments.
3. Follow instructions of all assignments carefully.
4. Start assignments early and get feedback from the instructor timely.
5. Regularly consult/meet with the instructor and interact with classmates through conference meetings.
6. Utilize the study groups with classmates.
7. Do not hesitate to ask any questions through emails or other interactions when you need help.

Prerequisite
Financial Accounting (introductory and intermediate); Auditing (undergraduate).

Grading

Exams and Assignments	As a Percentage of Total
Class Notes (3)	10%
Homework (5)	30%
Inventory Project	15%
Midterm	15%
Final Projects	20%
Participation	10%
Total Points Available	100%

Note:
While you are encouraged to discuss class materials with your peers, any assignment you submit should be independently created and completed. It is strictly prohibited to share work, use the same submission, or communicate during exam periods. Any violation will lead to <u>a grade of 0</u>.

Grading Scale

Letter Grade	As a Percentage of Total
A	90% and above
B+	86.0 – 89.9%
B	80.0 – 85.9%
C+	76.0 – 79.9%
C	70.0 – 75.9%
D	60.0 – 69.9%
F	0.0 – 59.9%

1. *Excel Class Notes (Canvas)*
   Every week, students are required to watch class video lectures assigned by instructor on Canvas. In the video lectures, you will be <u>guided step-by-step</u> to learn the concepts, definitions, and how to solve problems. While learning the lectures, you should use the excel class notes (provided on Canvas) to organize the materials, complete **everything**, and upload them back (**make them legible**) to Canvas before due dates. **Note** that you are not expected to complete the notes all on your own – you should utilize the video lectures to guide you through the completion.
   a. There are a total of THREE class notes that are required and graded.
   b. It is required that you work directly on the excel file to get a good practice of the tool.
   c. Printouts or hand-written notes are not acceptable.

2. *Homework (Application Tools)*
   You are required to complete FIVE homework related to Data Management and CAATs (Computer-Assisted Audit Tools).

3. *Projects (Inventory)*
   During the term there will be one comprehensive inventory case to help you better comprehend the materials and link audit theories with data analytic procedures.

   --- NO MAKE-UPS; IF YOU MISS A DEADLINE THE GRADE IS ZERO ---

4. *Participation (PlayPosit)*
   PlayPosit bulbs will be embedded as a motivation to watch important video lectures

5. *Exams (Canvas)*
   There will be TWO exams (Midterm and Final) consisting of problem-solving, projects, and/or essay questions that fully reflect class assignments, regular homework, and other previously learned materials. During the exam period, the students will have a 24-hour window to complete the exam. In other words, within the one-week period, once you start the exam, you will have 24 hours to complete the problems, essay questions or projects in the exam and upload them back to Canvas before time runs up.

A Summary of Class Procedure

Class sessions will be a combination of video lectures (class notes, power point slides, projects and cases) and optional remote Q&A sessions. For each class session, you should

1. Watch the video lectures. At the same time, you make notes, learn, and practice.
2. Attend the remote conference or office hour to ask questions, if possible.
3. During and/or after class, you complete the excel notes, cases and homework.
4. Before exams, you review class materials, notes, and homework to be prepared.

Exam Make-up/Late Policy

If, for a university approved reason, you cannot take an exam at the scheduled time you must give the professor written notice at least one week in advance so that other arrangements can be made. If the situation does not allow for advance notification (for example, emergency hospitalization), contact the professor as soon as possible after a missed exam. Make-up exams for non-university approved reasons are not guaranteed. The professor reserves the right to request written documentation to support your absence (such as a doctor's note, an obituary, or military orders).

Student Code of Conduct

Rutgers University-Camden seeks a community that is free from violence, threats, and intimidation; is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and does not threaten the physical or mental health or safety of members of the University community, including in classroom space.

As a student at the University you are expected adhere to the Code of Student Conduct. To review the code, go to the Office of Community Standards:

https://deanofstudents.camden.rutgers.edu/student-conduct

Note that the conduct code specifically addresses disruptive classroom conduct, which means *"engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."*

Remote Learning Specifics

The following protocols on the codes of behavior reflect professional business norms on manners, courtesy, and respect. (***In general, you should treat others as you would like others to treat yourself. Be mindful that what is acceptable in a text or chatroom with friends may not be appropriate in a classroom or in an online conversation with an instructor***.)

Even though many of you are already aware of these protocols, they are explicitly stated here so that everyone is cognizant of the same protocols. These protocols should be followed by all students taking this course to help ensure the online experiences for everyone involved are pleasant. They are as follows:

If you were to send an e-mail to the professor / tutor, please address the person appropriately such as "Dr. …." or "Mr./Ms. ….", not 'Hey'. Note that I will address you with your first name, unless you prefer that I address you differently.

When sending an e-mail, you can get better attention by using the following guidelines:

- Use descriptive subject lines;
- Please be as brief as possible by going straight to the point, and if possible, limit the use of attachments

Never send offensive and insulting messages* (this is a violation of the Student Code of Conduct). If you disagree, say so and state your reasons. Social media is a very powerful tool for communication. However, it can be badly misused if it is not used correctly or professionally. For example, you may have personal and legitimate concerns with this course. However, other students, who do not have similar feelings, can be negatively influenced by your concerns. This will unnecessarily and negatively affect their overall experience of the course. Therefore, to minimize such an occurrence, please feel free to directly contact the instructor/tutor first to resolve any concerns that you may have to help ensure that everyone's online experience of this course is beneficial.

- Always guard against inciting others when it comes to content, opinions, etc. That is, avoid blaming or accusing others of wrong-doing.
- Do not start a volley of back and forth e-mails, with copies distributed to every student in the class.
- Copy the minimum number of people. That is, send e-mails to only the people you think should receive and will benefit from it.

- Treat all e-mails and postings as permanent forms of written record and do not expect that any your e-mail communications to be private, unless stated otherwise. Instead, assume that all e-mail communications are public.
- Do not publicize your own or others' personal information (such as email, phone numbers, last names, etc.)

Academic Integrity

The Academic Integrity policy can be found at http://studentconduct.rutgers.edu/student-conduct-processes/academic-integrity/

Students are responsible for understanding the principles of academic integrity and abiding by them in all aspects of their work at the University. Students are also encouraged to help educate fellow students about academic integrity and to bring all alleged violations of academic integrity they encounter to the attention of the appropriate authorities.

Academic dishonesty includes (but is not limited to):
– cheating
– plagiarism
– aiding others in committing a violation or allowing others to use your work
– failure to cite sources correctly
– fabrication
– using another person's ideas or words without attribution
– re-using a previous assignment
– unauthorized collaboration
– sabotaging another student's work

Academic Integrity means that you (the student) must:
   • properly acknowledge and cite all use of the ideas, results, or words of others,
   • properly acknowledge all contributors to a given piece of work,
   • make sure that all work submitted as your own in a course activity is your own and not from someone else
   • obtain all data or results by ethical means and report them accurately
   • treat all other students fairly with no encouragement of academic dishonesty

Adherence to these principles is necessary in order to ensure that:
   • everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments
   • all student work is fairly evaluated, and no student has an inappropriate advantage over others
   • the academic and ethical development of all students is fostered
   • the reputation of the University for integrity is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld. Violations are taken seriously and will be handled according to University policy. ***Students are responsible for understanding the principles of academic integrity and abiding by them in all aspects of their work at the University.*** Students are also encouraged to help educate fellow students about academic integrity and to bring all alleged violations of academic integrity they encounter to the attention of the appropriate authorities.

If in doubt, please consult the instructor. Please review the Academic Integrity Policy at
https://deanofstudents.camden.rutgers.edu/sites/deanofstudents/files/Academic%20Integrity%20
Policy.pdf.

Pronouns

This course affirms people of all gender expressions and gender identities. Feel free to correct
me on your preferred gender pronoun. If you have any questions or concerns, please do not
hesitate to contact me.

Chosen Name (Preferred Name)

If you have a chosen name or preferred name other than what is listed on the roster, kindly let me
know. If you would like to have your name changed within the rosters officially, go to:
https://deanofstudents.camden.rutgers.edu/chosen-name-application

Disability Services/Accommodations

The University is committed to supporting the learning of all students and faculty will provide
accommodations as indicated in a Letter of Accommodation issued by the Office of Disability
Services (ODS). If you have already registered with ODS and have your letter of accommoda-
tions, please share this with me early in the course. If you have or think you have a disability
(learning, sensory, physical, chronic health, mental health or attentional), please contact
https://success.camden.rutgers.edu/disability-services.
Accommodations will be provided only for students with a letter of accommodation from ODS.
Their services are free and confidential. Letters only provide information about the accommoda-
tion, not about the disability or diagnosis.

Add/Drop Process and Course Withdrawal Policy

It is the responsibility of the students to be fully informed of the college catalog policies regard-
ing course add, drop and withdrawal.

Flexibility of Syllabus

This syllabus is subject to change at the instructor's discretion; changes will be announced in
class and/or course website. You are responsible for knowing any such announced changes.

Tentative Class Schedule for 52:010:425:90 (Online Course)

Part I: Review of Key Auditing Concepts and Tools			
Date	**Topic**	**Tools Used**	**Assignments and Due Dates**
Week 1. 1/17-1/22	Syllabus; Introduction to Auditing Analytics		Class Notes #1 in Excel due 1/29
Week 2. 1/23-1/29 #	Review of Auditing Concepts		
Week 3. 1/30-2/5	A Comprehensive Inventory Audit Case (1)	Excel	Inventory Project in Word and Excel due 2/19
Week 4. 2/6-2/12	A Comprehensive Inventory Audit Case (2)	Excel	
Week 5. 2/13-2/19	Audit Innovation: Drones and Counting Software Review of Excel	Countthings	Class Notes #2 and Countthings Homework due 2/26
Week 6. 2/20-2/26	Audit Data Management and Analysis	SQL	
Week 7. 2/27-3/5	Audit Data Management and Analysis	SQL	SQL Homework due 3/5
Week 8. 3/6-3/10	Midterm		Midterm due 3/10
SPRING BREAK (3/11-3/19)			
Part II: Special Topics and Analytic Automation in Auditing			
Date	**Topic**	**Tools Used**	**Assignments and Due Dates**
Week 9. 3/20-3/26	Computer Assisted Audit Tools (CAATS)	IDEA	Class Notes #3 and IDEA Homework due 4/9
Week 10. 3/27-4/2	Computer Assisted Audit Tools (CAATS)	IDEA	
Week 11. 4/3-4/9*	Analytic Process Automation	Alteryx	Alteryx Homework due 4/23
Week 12. 4/10-4/16	Analytic Process Automation	Alteryx	
Week 13. 4/17-4/23	Process Mining	Celonis	Celonis Homework due 4/30
Week 14. 4/24-4/30	Process Mining Review of Audit Data Analytics (ADAs)	Celonis	
Week 15. 5/4-5/10	Final Exam		Final Exam due 5/10

Note: *This syllabus is subject to change during the semester as necessary.*
Jan 26: Last Day to DROP a class(es) WITHOUT a W grade (subject to change) * Apr 3: Last Day to DROP a class(es) WITH a W grade (subject to change).