

Accounting
Course Number: 33:010:458
Course Title: Accounting Information Systems

COURSE DESCRIPTION

Many other courses help students learn the principles, rules, and procedures in accordance with which accounting information is prepared; these can be studied using T-accounts and relatively small problems. But in complex businesses with large transaction volumes, though these principles, rules, and procedures are still entirely relevant, a more *systematic* approach to preparing accounting information *in practice* is essential. Such Accounting Information Systems (AIS) are what you will study in this course, which will encourage you to integrate your existing knowledge of business processes and accounting information, and to add to them knowledge and skills relating to the application of information technology.

We will begin at a very general level, but rapidly proceed to the development of specific skills in building systems to provide valuable information in support of business decision making. Though not aimed at preparing professional designers of AIS, the course is based on the view that students will best become effective users of AIS and the information they can generate if they first learn how such systems are designed and created, what challenges and compromises are involved, and how much is in fact possible.

Success in accounting requires considerable knowledge, skill and dedication. This course aims to provide you with the first two ingredients – but you will need to supply the third yourself. Since most students have had limited prior exposure to AIS, there is a great deal of new information to learn, and it will be essential to your success that you keep up to date with the material on a regular basis. The material will be presented primarily by in-class lectures, following preparatory readings and quizzes. There will be several in-class group activities to help consolidate key ideas. You will best make sense of the main design and implementation concepts, however, by putting them into practice. To this end, a project in multiple stages will allow you to work with a group of other students to design parts of an AIS; practical experience of working in teams is a secondary benefit of this project relevant to professional practice in accounting. A sequence of Microsoft ACCESS tutorials will focus on allowing you to build practical skills in using data stored in a database implementation of an AIS to produce meaningful accounting information.

Our goal is that if you make the effort required to succeed in this class, you will be well prepared for a future career in accounting, and ready to face the challenges of a rapidly changing business environment in which AIS play a vital role in supporting the effective management of business enterprises.

Remembering and understanding the material are both necessary; they will take time and require regular study. It is most unlikely that pre-examination cramming will be successful as a study technique. We look forward to working with you and wish you every success in studying AIS.

COURSE MATERIALS

- Textbook: required readings from *Accounting Information Systems: Knowing what went on -deciding what to do* by Peter R. Gillett & Nancy Uddin will be provided online via Canvas.
- Tutorial notes for Microsoft ACCESS will also be provided online via Canvas.
- Optional Textbook: *Building Accounting Systems Using Access 2013*. Perry & Newmark. (South-Western, 2016) ISBN: 978-1133951926.
- Turning Technologies QT2 clickers and licenses must be purchased, and registered via Canvas.

- You need both a clicker and a license.
- Check Canvas (<http://canvas.rutgers.edu>) and your official Rutgers email account regularly.
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LEARNING GOALS AND OBJECTIVES

This course is designed to help students develop skills and knowledge in the following areas:

- (a) **Knowledge.** Students will have broad understanding of basic business theory and practice and deep understanding of theory and practice within the field of accounting.

Students will demonstrate:

- knowledge of current basic concepts in accounting, including:
 - understanding of business enterprises and business processes.
 - awareness of the role of information and accounting systems in business management.
 - understanding of traditional accounting information systems and criticisms of them.
- knowledge of current advanced concepts in accounting and an ability to integrate and apply these concepts to practical business problems, including:
 - semantic modeling and event driven accounting information systems.
 - internal control over financial reporting and information systems.
 - development, documentation, and control of AIS.
- proficiency at using current software tools and information systems to manage business data and address practical business problems, including:
 - the use of diagramming software to produce UML and DFD diagrams for AIS design.
 - the use of database management software in developing modern AIS.

- (b) **Ethical judgment.** Students will use reasoned and ethical judgment when analyzing problems and making decisions.

Students will demonstrate:

- recognition of ethical dilemmas in unstructured business decision-making scenarios.

- (c) **Teamwork.** Students will work effectively in teams.

Students will demonstrate:

- time management and project management skills.
- effective teamwork and collaborative problem solving.

Students develop these skills and knowledge through the following course activities and assignments:

Seventeen lectures (together with readings and quizzes) focused on:

- Business enterprises and the need for accounting information.
- Value chains and business processes.
- Main components of AIS.
- Business enterprise risks, internal controls, and COBIT.
- Systems analysis and design.
- Semantic modelling and the REA ontology.
- Conceptual data, logical data, physical, and process modeling and their application to key business processes and accounting cycles.
- Computer hardware, software, telecommunications, networks, electronic commerce, cryptocurrencies, and blockchains.
- Ethical use of AIS.

Nine required computer labs covering:

- Key features of Microsoft ACCESS relevant to building AIS.

Group Projects:

Working in groups, students will apply what they are learning to the conceptual data modeling (based on semantic modeling using REA), logical data modeling (for a relational database implementation), process modeling (using Data Flow Diagrams), and internal control specification required to design an AIS for a given business case. This project will use Microsoft VISIO for the preparation of UML and DFD diagrams.

In-class individual ACCESS assignment

Students will be given data in a relational database designed following an REA-based approach and implemented in Microsoft ACCESS, and will use it to produce key required items of financial and management accounting information.

Extra Credit:

Optional extra credit assignments will allow students an opportunity to conduct additional research related to: Ethical use of AIS, Cloud Computing, Blockchain, or Big Data.

PREREQUISITES

There are no formal pre-requisites for this class.

ACADEMIC INTEGRITY

I do NOT tolerate cheating. Students are responsible for understanding the RU Academic Integrity Policy (<http://academicintegrity.rutgers.edu/>)

I will strongly enforce this Policy and pursue all violations. On all examinations and assignments, students must sign the RU Honor Pledge, which states, “On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment.” I will screen all written assignments through SafeAssign or Turnitin, plagiarism detection services that compare the work against a large database of past work. Don’t let cheating destroy your hard-earned opportunity to learn. See business.rutgers.edu/ai for more details.

ATTENDANCE AND PREPARATION POLICY

Expect us to attend all class sessions. We expect the same of you. If we are to be absent, the department chair or we will send you notice via email and Canvas as far in advance as possible. If you are to be

absent, report your absence in advance at <https://sims.rutgers.edu/ssra/>. If your absence is due to religious observance, a Rutgers-approved activity, illness, or family emergency/death and you seek makeup work, also send us an email with full details and supporting documentation within seven days of your first absence. You will be unable to obtain participation credit when you are not in class, but we will impose no additional penalty for absence. However, since your absence may have consequences for your assigned group, you should be sure to communicate effectively with your other group members.

For weather emergencies, consult the campus home page. If the campus is open, class will be held.

Should the campus close for any reason, online assignments should still be submitted on time; any assignments due in class or at our offices that day will be accepted at the next class meeting, but subsequent assignments will not automatically be postponed. If the campus is closed on a day that an examination is scheduled, then the examination will be deferred.

Expect us to arrive on time for each class session. We expect the same of you. Expect us to remain for the entirety of each class session. We expect the same of you.

Expect us to prepare properly for each class session. We expect the same of you. Complete all background reading and assignments. You cannot learn if you are not prepared. The minimum expectation is that for each 80-minute class session, you have prepared by studying for at least twice as long.

Expect us to participate fully in each class session. We expect the same of you. Stay focused and involved. You cannot learn if you are not paying attention.

CLASSROOM CONDUCT

You are expected to behave in class in a manner appropriate for professional accounting students. Changing student mores and social conditions now dictate that some rules for classroom decorum need to be spelled out. You are expected to follow these:

- attend class
- arrive on time
- remain until the end
- stay awake
- pay attention
- participate – in particular, by volunteering answers to questions about the material
- close the door – quietly – if you enter late or need to take a bathroom break
- do not bring food or drinks to class
- do not read newspapers or other non-class related materials
- do not complete crosswords or work on other puzzles
- do not listen to radios, CDs, iPods or other entertainment devices
- do not watch videos or other entertainment media
- do not accept or make telephone calls
- do not read or send text messages
- turn off all cell phones, beepers, pagers, etc.
- do not study for, or work on assignments for, other classes
- do not check your email, or browse the Internet other than for class-related purposes
- do not engage in conversations or communications between students other than as part of designated class activities
- do not conduct other business
- have respect for and be polite to each other and to us
- behave appropriately as Rutgers students in a professional school.

You may bring a laptop only to take notes and to access class materials, though this is not required.

Failure to comply with these rules may result in public rebuke, lost participation credit, and/or expulsion from the classroom. Be prepared to be called on individually or in groups to discuss class material or to answer questions. If you need to ask questions other than when invited to do so, please raise your hand. After the first few classes you will be assigned to a group for the duration of the semester; thereafter you must sit with your group members, and we will draw up a seating chart to which you must then adhere. Clickers will be used to record attendance and participation, and to promote more active engagement in the class. Participation credit will be lost whenever you do not have your clicker with you or do not use it. Operating a clicker for another student is a violation of academic integrity and will not be tolerated.

EXAM DATES AND POLICIES

There are two examinations in this course:

Midterm Examinations will take place in the normal classroom and class periods on the date designated in the Course Schedule. You will be required to complete some or all of the steps to design an AIS for a given business case using the semantic modeling approach (REA and DFDs) studied in class and in the Group Project. Examinations will be closed book, and calculators will be neither required nor permitted. Graded examination papers will not be returned, but may be reviewed by appointment.

Final Examinations will take place in the normal classroom on the date designated by the University and shown in the Course Schedule. You will be required to complete some or all of the steps to design an AIS for a given business case using the semantic modeling approach (REA and DFDs) studied in class and in the Group Project. Examinations will be closed book, and calculators will be neither required nor permitted. You must take the Final Examination in order to pass the course. A single make-up examination will be scheduled by the department if necessary for students unable to take the Final Examination during the scheduled period due to documented medical problems, participation in other university-sanctioned activities, or required religious observances.

Requests for make-up examinations due to religious observances or other Rutgers-approved activities must be submitted no less than two weeks prior to the scheduled examination date.

If you have a disability that influences testing procedures, provide us with an official letter from the Office of Disability Services at the start of the semester.

Use the bathroom prior to the examination start; bathroom breaks, if essential, will be escorted. Your examination will not be accepted unless you sign the Honor Pledge.

When you arrive for an examination, do not enter the room until you are called in. We will need some time to set up the room. We will call you in as soon as we are ready. To avoid delays in passing out the examination, and to ensure those at the back have the same time as those at the front, the examinations will be placed in your allotted seat before you arrive. Be careful not to knock other students' examinations to the floor when accessing your seat. Needless to say, you must follow the seating plan, which will be posted outside, on the doors, five minutes before the examination starts. If there are problems with your seat (for example as a result of vandalism by other students) you will be reassigned as soon as practicable after everyone is settled and the examination started. Do not panic.

When you reach your seat do not turn over the examination paper: this is to ensure that everyone has the same time. We will announce when you may begin. Turning the examination over before the officially

announced start will be treated as cheating. When you come down to the front desk, you may do nothing except deposit your papers on the appropriate piles. You may not use the front desk to write your name on papers where you have forgotten to do this, or to complete Scantron forms, or anything else that will hold up anyone behind you who is attempting to turn in promptly. Again, since such behavior affects other people you will be penalized. Stay out of other people's way.

Do not unstaple the examination booklets. Put your name and your Rutgers ID on each booklet, and on the Scantron form: no other identification is needed. You cannot get points from the examination if your name and ID are not on the Scantron forms or the various booklets! There is a place to do this on each booklet.

Bring whatever pens and pencils you require, and an eraser. This is all you will require.

Calculators will not be needed. Neither they nor other electronic devices will be permitted, and all answers are to be written on the front or, if necessary, the back of the pages in the examination booklet, or on the Scantron form. Nothing else will be graded. The Scantron machine is very sensitive, and answers changed on the form will often be marked as wrong unless erasures are completely undetectable. Bear in mind that answers must be transferred to the Scantron form during the examination. There will be no time allowed after the examination is officially over. Other than the answers, the only things you need complete on the Scantron form are your name and Student ID; other boxes may be left blank.

Do not wear baseball caps or other headgear during the examination; if such accoutrements are so much an integral part of the social construction of your personal identity that you feel this would unduly compromise your examination performance you must ensure that any caps are reversed so that we can see the whole of your face and your eyes. Do not embarrass yourself and us by forcing us to ask you to attend to this while the examination is in progress, since to reach you may inconvenience other students too.

No books, papers, notes, slides, or other aids than your own memories may be used during this examination. If you must bring them into the room (and we would prefer you did not), leave them at the front of the room and collect them when you leave. No purses, pencil cases, bags, backpacks, bottles, snacks, jackets or coats may be taken to your seat in the examination, nor may cell phones, smart watches, pagers, iPods, tablets or other devices: you will lose time if we have to ask you to remove them (or yourself). Remember – no purses, pencil cases, bags, jackets, coats, bottles or gadgets of any kind!

We will announce the time remaining at diminishing intervals starting at the half-way point.

The examination instructions have been carefully crafted and drafted, and honed over a number of years. They tell you what you need to do. If they appear not to be specific on any point, that point is part of what we are testing. In the pursuit of fairness and equality for everyone we will not be answering questions about the examination. Do not waste our time and yours by asking them – it will only be frustrating for everyone. Whatever you need is in the examination booklet.

GRADING POLICY

Course grades are determined as follows:

▪ Chapter Quizzes (15 quizzes x 10 points)	150
▪ REA & Data Normalization Test	50
▪ Internal Controls Test	50
▪ Group Project (4 stages x 100 points)	400
▪ Participation	150
▪ In-class ACCESS Individual Assignment	200
▪ Midterm Examination	200

- Final Examination 300
- TOTAL 1500

Chapter Quizzes are designed primarily to encourage your reading and learning; they are open book (in the sense that nothing prevents your having the online textbook open while you take the quizzes). You may submit them online at any time prior to the deadline. They will be graded immediately by Canvas, which will tell you both your score (out of 10 points each) and the correct answers. There will be 17 such quizzes. Your two worst scores (including 0 for a missed or late item) will be dropped.

In contrast, the two online **Tests** are designed primarily to test your growing knowledge; they are closed book (and by submitting them you affirm that you have received no unauthorized assistance). You will have limited time **in class** in which to complete them under examination conditions. They will be graded immediately by Canvas, which will tell you your score but **not** the correct answers. Quizzes are all due **online** at noon on the day designated in the Course Schedule; Canvas will automatically assign late items zero grades.

The Group Project is designed primarily to provide you with opportunities to consolidate your learning of AIS design skills by putting them into practice in a realistic business case. In addition, it provides a vehicle for you to develop and demonstrate teamwork skills. There are four separate but related stages, each to be submitted in a box outside my office prior to the start of your group's class period on the day designated in the Course Schedule. Groups are strongly encouraged to discuss their project work with us during Office Hours prior to submission. The Group Project work you submit will be graded by members of the course team within one week of submission. To the extent that circumstances permit, we will return project stages to you sooner so that you can discuss our feedback before submitting later stages. Grades in which we assess the quality of the work submitted by the group will be noted on your returned papers.

Individual final grades for the Group Project, however, will also take into account our assessment of the effectiveness of the individual student's participation in group activities and in completing the work, informed by evaluations completed by all group members at the end of the project. These individual Group Project grades will be posted on Canvas after classes are over for the semester.

Participation grades will be assigned based on our assessment of how consistently and how effectively you contribute to the learning experiences of the class by your active participation. Factors assessed will include, but will not necessarily be limited to: demonstrated preparation of assigned discussion questions, posing or answering questions during class, and student-lead discussions. A pre-condition of your participation, of course, will be your physical presence in class. Although late arrival for class cannot always be avoided, persistent lateness is a discourtesy to us and to your fellow students, and will be penalized as part of the class participation grade along with absence. Turning Technologies QT2 clickers will be used at various points throughout each class to encourage attention and participation, to enable instructors to determine how well students have prepared for class or are understanding the material, and to measure participation. You must answer questions polled in class or we will conclude that you were not there at the time they were polled. Participation grades will be based 60% on your aggregate level of response using clickers over the semester (i.e., on whether you respond, not whether your response is correct), and 40% on our subjective assessment of the factors identified above. Quality of participation is more important than quantity; too much is no better than too little; the ability or intention to participate is not a substitute for actually doing so. **Be adventurous: wrong answers will gain you nothing – but they will never lose you points you have already gained.** Grades will be posted on Canvas after classes are over for the semester.

Four optional **Extra Credit** assignments are available. You may if you wish select one of them, to be submitted in a box outside my office prior to the start of your group's class period on the final day of classes. Detailed requirements and the available points for each may be viewed on Canvas under Course Documents. Grades will be posted on Canvas after classes are over for the semester.

Final course grades will be determined immediately after the Final Examination is graded. They will broadly correspond to a single unimodal distribution across all the sections in which about 90% of students pass with a grade of C or better, at least 50% of students receive a grade of B or better, and about 10% of students receive an A. However, any student who would have received a higher grade under a traditional absolute system (in which 90% of the total 1500 points earn an A, 85% a B+, 80% a B, 75% a C+, 70% a C, 60% a D, etc.) will receive the higher grade instead. Final grades will be posted on Canvas immediately after rosters are submitted to the Registrar.

Your final grade is not subject to negotiation. If you feel we have made an error, submit your written argument to us within one week of receiving your final grade. Clarify the precise error we made and provide all due supporting documentation. If we have made an error, we will gladly correct it. But we will adjust grades only if we have made an error. We cannot and will not adjust grades based on consequences, such as hurt pride, lost scholarships, lost tuition reimbursement, lost job opportunities, or dismissals. Do not ask us to do so. It is dishonest to attempt to influence faculty in an effort to obtain a grade that you did not earn, and it will not work.

COURSE SCHEDULE

Class	Topic	Readings	Assignments Due
1	Introduction		
2	Business Enterprises and the Need for Accounting Information	Chapter 1	Quiz
3	Value Chains & Business Processes Working in Groups	Chapter 2 & Flowcharting Appendix	Quiz
4	AIS and the Semantic Modeling Principle	Chapter 3	Quiz
5	Systems Analysis and Design	Chapter 5	Quiz
6	The REA Ontology	Chapter 6	Quiz Group Contracts
7	Conceptual Data Models	Chapter 7	Quiz
8	Logical Data Models Physical Models	Chapter 8	Quiz Group Project Stage 1
9*	Sales Cycle Models Production Cycle: Orville Ornaments REA & Data Normalization Test		
10	Process Modeling	Chapter 9	Quiz
11	Reporting Accounting Information from Database systems	Chapter 10	Quiz
12	Review: Nicky Knits		Group Project

			Stage 2
13*	Introduction to ACCESS & ACCESS TABLES		
14	MID-TERM EXAMINATION		
15*	ACCESS Queries		
	<i>NO CLASS</i>		
16*	ACCESS Forms & Reports		Group Project Stage 3
17*	Final ACCESS features		
18	Business Enterprise Risks and Internal Controls	Chapter 4	Quiz
19*	Database Tables for Watson Watches Internal Controls Test		
20	Revenue Business Processes	Chapter 11	Quiz
21	Acquisitions Business Processes (& Revenue Business Processes revisited)	Chapter 12	Quiz Group Project Stage 4
22	Computer Hardware and Software	Appendix C	Quiz Group Evaluations
23*	Queries & Reports for Watson Watches Sales		
24	Telecommunications and Networks Electronic Commerce Crypto-currencies and blockchains	Appendix D	Quiz
25	Production Conceptual, Logical, and Physical Design	Chapter 13	Quiz
26*	Queries & Reports for Watson Watches Sales		
27	Ethical Use of AIS Review: Siding Solutions	Chapter 21	Quiz
28*	View Integration and ERPs In-class ACCESS Assignments	Chapter 17	Quiz Extra Credit
	FINAL EXAMINATION		

SUPPORT SERVICES

If you need accommodation for a *disability*, obtain a Letter of Accommodation from the Office of Disability Services. The Office of Disability Services at Rutgers, The State University of New Jersey, provides student-centered and student-inclusive programming in compliance with the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments of 2008, Section 504 of the Rehabilitation Act of 1973, Section 508 of the Rehabilitation Act of 1998, and the New Jersey Law Against Discrimination. More information can be found at ods.rutgers.edu.

[Rutgers University-New Brunswick ODS phone (848)445-6800 or email dsoffice@echo.rutgers.edu]

[Rutgers University-Newark ODS phone (973)353-5375 or email ods@newark.rutgers.edu]

If you are *pregnant*, the Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy.

[Rutgers University-New Brunswick Title IX Coordinator phone (848)932-8200 or email jackie.moran@rutgers.edu]

[Rutgers University-Newark Office of Title IX and ADA Compliance phone (973)353-1906 or email TitleIX@newark.rutgers.edu]

If you seek *religious accommodations*, the Office of the Dean of Students is available to verify absences for religious observance, as needed.

[Rutgers University-New Brunswick Dean of Students phone (848)932-2300 or email deanofstudents@echo.rutgers.edu]

[Rutgers University-Newark Dean of Students phone (973)353-5063 or email DeanofStudents@newark.rutgers.edu]

If you have experienced any form of *gender or sex-based discrimination or harassment*, including sexual assault, sexual harassment, relationship violence, or stalking, the Office for Violence Prevention and Victim Assistance provides help and support. More information can be found at <http://vpva.rutgers.edu/>.

[Rutgers University-New Brunswick incident report link: <http://studentconduct.rutgers.edu/concern/>. You may contact the Office for Violence Prevention and Victim Assistance at (848)932-1181]

[Rutgers University-Newark incident report link: https://cm.maxient.com/reportingform.php?RutgersUniv&layout_id=7 . You may also contact the Office of Title IX and ADA Compliance at (973)353-1906 or email at TitleIX@newark.rutgers.edu. If you wish

to speak with a staff member who is confidential and does **not** have a reporting responsibility, you may contact the Office for Violence Prevention and Victim Assistance at (973)353-1918 or email run.vpva@rutgers.edu]

If students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate, you should submit a request via <https://temporaryconditions.rutgers.edu>.

If you are a military **veteran** or are on active military duty, you can obtain support through the Office of Veteran and Military Programs and Services. <http://veterans.rutgers.edu/>

If you are in need of **mental health** services, please use our readily available services.

[Rutgers University-Newark Counseling Center: <http://counseling.newark.rutgers.edu/>]

[Rutgers Counseling and Psychological Services–New Brunswick: <http://rhscaps.rutgers.edu/>]

If you are in need of **physical health** services, please use our readily available services.

[Rutgers Health Services – Newark: <http://health.newark.rutgers.edu/>]

[Rutgers Health Services – New Brunswick: <http://health.rutgers.edu/>]

If you are in need of **legal** services, please use our readily available services: <http://rusls.rutgers.edu/>

Students experiencing difficulty in courses due to **English as a second language (ESL)** should contact the Program in American Language Studies for supports.

[Rutgers–Newark: PALS@newark.rutgers.edu]

[Rutgers–New Brunswick: eslpals@english.rutgers.edu]

If you are in need of additional **academic assistance**, please use our readily available services.

[Rutgers University-Newark Learning Center: <http://www.ncas.rutgers.edu/rlc>

[Rutgers University-Newark Writing Center: <http://www.ncas.rutgers.edu/writingcenter>]

[Rutgers University-New Brunswick Learning Center: <https://rlc.rutgers.edu/>]

[Optional items that many faculty include:

- Students must sign, date, and return a statement declaring that they understand the RU Academic Integrity Policy.

- Students must sign, date, and return a statement declaring that they understand this syllabus.]