Financial Information Systems (OMIS 150 / ACTG 155)

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Contents

Motivation

Financial information systems (FIS) are **the neural network of business organizations**. They record the financial impact of every business transactions and translate the consolidated impact into actionable information on cash-flow, revenue, profitability, and taxation for executives, shareholders, and external stakeholders.

Today, with businesses generating up to one million transactions each day, FIS are the cornerstone of useful and accurate financial reporting on the strategic level but also for day-to-day operations. Additionally, FIS are an essential element in ensuring regulatory compliance. Modern FIS allow you to investigate, audit, and optimize business processes using financial data

Understanding the fundamentals of FIS, the relationship between FIS and business processes, and being able to analyze FIS using data analysis techniques help you to become an invaluable member of any business organization.

Learning objectives

The domain of financial information systems (FIS) is complex and changes quickly with an increasing rate of innovations on the horizon. The primary objective of this course is to provide you with strong fundamentals that help you to navigate through this complex world.

Upon successful completion of the course, you will be able to:

- understand the role of FIS in business processes,
- demonstrate a moderate level of comfort in working with SAP ERP and data analytics techniques,
- create FIS data analytics reports.

The chances are high that you will be working with FIS throughout your career. This course enables you to establish a competitive advantage in the global marketplace.

Course Logistics

Prerequisites

Please review the SCU undergraduate bulletin for prerequisites. Exceptions need approval by the program office. They will contact me if needed.

Class Meetings

Class meetings are **Mondays, Wednesdays, and Fridays**, **1:00 PM to 2:05 PM** in **Kenna Hall 308**.

No class meeting on **January 21, 2019** (Martin Luther King Day) and **February 18, 2019** (Presidents' Day).

Literature

Required: Understanding ERP Systems: Integrated Business Processes with ERP Systems by Simhar R. Magal and Jeffrey Word, Wiley, 2012. ISBN: 978-0-470-47844-8.

- This book covers the essential functions of SAP ERP.
- The book explains how to design and operate business processes using ERP.
- We use this book to discuss selected business processes relevant to financial information systems.

Required: A Whirlwind Tour of Python by Jake VanderPlas, O'Reilly, 2016.

- This book is an excellent introduction to Python.
- It focuses on the elements of Python that are required for data analytics.
- This book is available for free online.

Required: Python Data Science Handbook by Jake VanderPlas, O'Reilly, 2017. ISBN: 978-1-491-91205-8

- This book is an excellent introduction to data analysis with Python.
- The book is available for free online, but I highly recommend buying the paperback version as reference material.
- We use selected chapters that provide the background for data analysis using financial information systems.

All other readings and course materials will be available in Camino (accessible only with SCU ID).

Technology

1. Bring your laptop to class meetings. Let me know if you do not have access to a laptop, and I will try to help you.
2. We use SAP systems to illustrate the core concepts of the class and to practice the use of information systems in standard business processes. You need to obtain access to our SAP by following the instructions described here (accessible only with SCU ID).
3. We use basic data analytics technology (Spreadsheet Software, Python, Pandas) to analyze data generated by FIS. I assume that you have some version of spreadsheet software installed on your computer. We use Google Colaboratory for more advanced data analysis.
4. **Don't panic!** This course is not a programming course. You will use Python only for data analytics.

Communication

I am committed to your learning success. Please feel free to contact me with any questions regarding this course. If I am not able to help you myself, I will forward your request to someone who can.

1. If you have general questions about the course material, assignments, etc., please write them into this FAQ document (accessible only with SCU ID).
2. Before you write an email, please read and comment in the FAQ document (accessible only with SCU ID).
3. If you send me an email that contains questions of interest to the whole class, I will answer them in the FAQ document (accessible only with SCU ID).
4. My office hours are Mondays, Wednesdays, and Fridays before class from 11:45 PM to 12:45 PM in my office. It is ok to bring your lunch ;). Please use the Office Hours Calendar to make an appointment. I am also available for 30 minutes after each class.
5. Upon request, I am also available outside of my office hours. Your meeting request must have a specific agenda. I am available via phone, zoom, or face-to-face.
6. I post all course material, course information, announcements, and updates on Camino. Please make sure that your correct email address is listed in Camino so that you do not miss relevant information.

Course Schedule

Week	Class Meeting	Topic	Quiz (Points)	Homework (Points)	Team Project (Points)
1	January, 7 (Mon)	Introduction & FIS Ecosystem	-	-	-
1	January, 9 (Wed)	The internal view on FIS	-	-	-
1	January, 11 (Fri)	The external view on FIS	-	-	-

Week	Class Meeting	Topic	Quiz (Points)	Homework (Points)	Team Project (Points)
2	January, 14 (Mon)	Business Processes	-	-	-
2	January, 16 (Wed)	Core Data Structure	-	-	-
2	January, 18 (Fri)	SAP Lab	Q1: Ch. 1+2 (5)	-	-
3	January, 21 (Mon)	**No Class (Martin Luther King Jr Day)**	-	-	-
3	January, 23 (Wed)	Financial Data Analytics	-	-	-
3	January, 25 (Fri)	Financial Data Analytics	Q2: FDA (5)	-	-
4	January, 28 (Mon)	Accounting Processes	-	-	-
4	January, 30 (Wed)	Accounting Data	-	-	-
4	February, 1 (Fri)	Integrating Case Study	Q3: Ch. 3 (5)	-	-
5	February, 4 (Mon)	Inventory Processes	-	-	TP1 (5)
5	February, 6 (Wed)	Inventory Master Data + Documents	-	HW1: SAP (5)	-
5	February, 8 (Fri)	**No Class (Self Study)**	Q4: Ch. 7 (Inventory Only) (5)	-	-
6	February, 11 (Mon)	Inventory Data	-	-	TP2 (5)
6	February, 13 (Wed)	Analytics Lab	-	HW2: FDA (5)	-
6	February, 15 (Fri)	Integrating Case Study	Q5: FDA (5)	-	-
7	February, 18 (Mon)	**No Class (Presidents' Day)**	-	-	-
7	February, 20 (Wed)	Procurement Processes	-	HW3: SAP (5)	-
7	February, 22 (Fri)	Analytics Lab	Q6: Ch. 4 (5)	-	-
8	February, 25 (Mon)	Procurement Master Data	-	-	TP3 (5)
8	February, 27 (Wed)	Case Preparation	-	-	-
8	March, 1 (Fri)	Integrating Case Study	Q7: FDA (5)	HW4: FDA (5)	-
9	March, 4 (Mon)	Fulfillment Processes	-	-	-
9	March, 6 (Wed)	Analytics Lab	-	HW5: SAP (5)	-
9	March, 8 (Fri)	Integrating Case Study	Q8: Ch. 5 (5)	-	TP4 (5)
10	March, 11 (Mon)	Where to go from here?	-	-	TP5 (5)
10	March, 13 (Wed)	Team Presentations	-	HW6: FDA (5)	-

Week	Class Meeting	Topic	Quiz (Points)	Homework (Points)	Team Project (Points)
10	March, 15 (Fri)	Team Presentations	-	-	-
11	March, 20 (Wed)	-	-	-	TP6 (5)
-	-	Total = 100 points	40	30	30

I reserve the right to change the schedule to accommodate special circumstances and opportunities. Any changes, however, will be discussed and announced in class and on Camino.

Assignments

> *"What it boils down to is one percent inspiration and ninety-nine percent perspiration." (Thomas Edison)*

This course is a practical course. Getting comfortable with state-of-the-art technology requires practices. Thus, I will examine your mastery of the learning objectives using frequent but small quizzes, homework assignments, and team project assignments.

The following table links the learning objectives of this class with the assignments and shows the maximum number of points that you can achieve for each learning objective. **Each assignment has a weight of 5 percent (5 points).**

Learning Objective	Assignment	Max. Points
Understand the role of FIS in business processes	8 Take-Home Quizzes	40
Demonstrate a moderate level of comfort in working with SAP ERP and data analytics techniques	6 Homework Assignments	30
Create FIS data analytics reports.	6 Deliverables for Team Project	30
Total		**100**

Take Home Quizzes

By completing the take-home quizzes, you will demonstrate your ability to analyze business problems from a FIS perspective. Throughout the quarter, you will complete **eight** (8) exams:

All quizzes are:

- Take-home exams.
- Administered **online** and have to be completed **before** the due date.
- Consist of a **short case description** with **5 multiple choice questions**.
- Have a time limit of **15 minutes**.
- Will be published Mondays before the due date (including a practice quiz).
- Are due on Sundays at 11:59 PM.
- Are **open book**.
- Are **individual work**. You must not share solutions with fellow students. Please review the academic integrity rules below.
- We may discuss the quizzes during class to address common issues and frequently made mistakes.

Quiz	Due	Max. Points	Focus
1	January, 20	5	M Ch. 1 & 2

Quiz	Due	Max. Points	Focus
2	January, 27	5	W
3	February, 3	5	M Ch. 3
4	February, 10	5	M Ch. 7 (Inventory Only)
5	February, 17	5	J Ch. 3
6	February, 24	5	M Ch. 4
7	March, 3	5	J Ch. 3 & 4
8	March, 10	5	M Ch. 5
Total		**40**	

Legend:

- M refers to Magal and Word (2012): Understanding ERP Systems: Integrated Business Processes with ERP Systems.
- W refers to VanderPlas (2016): A Whirlwind Tour of Python.
- J referes to VanderPlas (2017): Python Data Science Handbook.

PLEASE NOTE:

I will **not** accept late submission for the quizzes without prior notice or a doctor's note. I am aware that sometimes life goes crazy but please notify me in advance, and we will work it out.

Homework

Six (6) homework assignments help you to acquire a moderate level of comfort in working with SAP ERP and data analytics. You will face increasingly difficult problems as we progress in the quarter.

- To complete SAP assignments, you must have access to our SAP system (see here).
- To complete data analytics assignments, you need access to Google Colaboratory.
- You will complete the assignments at your own pace and submit your results via Camino before the due dates.
- We may discuss the assignments during class to discuss common issues and frequently made mistakes.
- Assignments will be published two weeks before the due date.
- Assignments are due on Wednesdays at 11:59 PM.
- Please note that the assignments take time, so start early.

Homework	Due	Max. Points	Focus
1	February, 6	5	SAP Basics
2	February, 13	5	Data analytics Basics
3	February, 20	5	SAP "Haystack"
4	March, 1	5	Baseline Analytics
5	March, 6	5	SAP "Needle"
6	March, 13	5	Fraud Analytics
Total		**30**	

PLEASE NOTE:

I will **not** accept late submission for the homework without prior notice or a doctor's note. I am aware that sometimes life goes crazy but please notify me in advance, and we will work it out.

Team project

The objective of this project is to assess your ability to critically analyze FIS data and write a concise business report on your findings.

- You will work in teams of **five students** on data from the U.S. Securities and Exchange Commission (SEC).
- Your objective is to provide evidence for a fraud case using the SEC data.
- The analysis of your team project should focus on three **interesting** and **non-trivial** findings.
- It is your responsibility to explain and present **why** your findings are interesting and non-trivial.
- You communicate your findings via a replicable online report and an in-class presentation.

The following table provides an overview of the deliverables for the team project.

Project Phase	Due	Max. Points
Fraud Overview	February, 4	5
Fraud Specifics	February, 11	5
Evidence for Fraud (Check-in)	February, 25	5
Evidence for Fraud	March, 8	5
In-class Presentation	March, 11	5
Polished Report	March, 20	5
Total		**30**

I will evaluate your results for each phase based on the following criteria.

Criteria	Metrics	Max. Points
Content	Understandability (0.5), Completeness (0.5)	1
Persuasiveness	Clarity (1), Argumentation (1)	2
Evidence	Sources (1)	1
Style	Professionality (0.5), Originality (0.5)	1
Total		**5**

Fraud Overview

In this project phase, you get familiar with the data and the project objective.

Your tasks:

- Identify five fraud cases published by the SEC.
- Identify additional literature on your fraud cases from other sources.
- Explain, compare, and contrast your fraud cases.
- Evaluate whether the fraud is observable in the financial statements.

Fraud Specifics

In this project phase, you will choose a fraud case for your analysis.

Your tasks:

- Have a meeting with me to discuss the suitability of your fraud cases.

- Describe the fraud case in detail from a FIS perspective.

Evidence for Fraud

In this project phase, you will create an analysis of the SEC data in two phases. Since the analysis may become complex quickly, the check-in phase helps us to scope the project appropriately. The second phase allows you to complete and fine-tune your analysis.

Your tasks:

- Download, prepare, and wrangle the SEC data.
- Explain your strategy to identify the fraud case in the data.
- Describe three **interesting** and **non-trivial** findings using appropriate metrics.

In-class Presentation

The in-class presentation should summarize your findings in no more than 15 minutes.

Polished Report

The final report should contain improved versions of all previous phases except the first one (Fraud Overview).

Grading

Grading distribution

The final grade distribution is as follows.

Points	Letter Grade
100-94	A
>94-90	A-
>90-87	B+
>87-84	B
>84-80	B-
>80-77	C+
>77-74	C
>74-70	C-
>70-67	D+
>67-64	D
>64-60	D-
>60	F

Grading Criteria

My grading criteria are as follows:

- **A grades** (4.0) reflect work that meets all assignment objectives at the highest possible level and sometimes goes beyond that. The submitted work is of superior quality and could be used in production environments with no or minimal revisions. Typically, no more than 40% of participants in a course receive an A grade.

- **B grades** (3.0) reflect work that meets all assignment objectives at a level that is above average but not exceptional. The submitted work shows high levels of competency and could be used in productive environments with some editing. Typically, no more than 80% of participants in a course receive a B grade or better.
- **C grades** (2.0) reflect work that meets all course objectives at an average level but is not exceeding expected standards. The submitted work lacks an in-depth understanding of the subject and could be used in productive environments only with extensive editing.
- **D grades** (1.0) reflect work that barely meets course objectives. Submissions regularly show a lack of clear understanding of the subject. Participation in class regularly requires repeated requests by the instructor.
- **F grades** (0.0) reflect work that does not meet course objectives and is below minimum standards. Submissions are late without prior consultation with the instructor, miss the assignment objectives, or show a clear lack of learning progress. Also, repeated violations of the academic integrity standards result in an overall F grade.

I reserve the right to change the grading to accommodate special circumstances and opportunities. Any changes, however, will be discussed and announced in class and on Camino.

How to get an A in this course

I firmly believe that mastery of financial information systems requires constant practice. You will ace this course if you:

- Adhere to the academic integrity standards outlined below.
- Be ready for class meetings, which means you have done the homework and read the textbook.
- Participate in class discussions, ask questions, and share experiences.
- Support your teammates (If you can explain it to a fellow student, you know that you have understood it yourself).
- Start early on the assignments, **seek feedback from me and other sources**.
- Continuously think about **why** you are doing something in your assignments. Being able to reflect on your work is far more important than **what** you are doing.
- Answer the **'boss question'** before submitting **any** deliverable: Would you send your submission **as is** to your boss or a recruiter? If not, please do not submit it.

Academic Integrity

The Academic Integrity pledge is an expression of the University's commitment to fostering an understanding of and commitment to a culture of integrity at Santa Clara University. The Academic Integrity pledge, which applies to all students, states:

> *"I am committed to being a person of integrity. I pledge, as a member of the Santa Clara University community, to abide by and uphold the standards of academic integrity contained in the Student Conduct Code."*

You are expected to uphold the principles of this pledge for all work in this class. For more information about Santa Clara University's academic integrity pledge and resources about ensuring academic integrity in your work, see www.scu.edu/academic-integrity.

In particular, I expect that you give credit to any material (including but not limited to journal articles, web article, blog posts, images, data sets, libraries, APIs, and any media) that you have used for completing any assignment in this class. Being able to give credit by referencing sources consistently and correctly is evidence of mastery of a topic. It shows that you can construct original arguments that are backed with verifiable evidence. Failing to give credit is a sign of inadequate learning progress. It shows that you have not understood the topic well enough to formulate your arguments about already existing ideas.

During your work in this class, you will use, modify, or extend digital content that you have found online. You will also use libraries, APIs, code snippets, and data sets that have been created by others. In every piece of work (presentations, assignments, etc.), you must acknowledge work, source code, data sets, and any other content that was not produced by you. Acknowledgments must be easily identifiable, inseparable from your content, and must not violate licenses.

Failure to provide appropriate acknowledgments will result in an F grade for that assignment. Repeated failure to provide appropriate acknowledgments will result in an F grade for the entire course.

During the first class, we will discuss this digital content policy. After this class, I will strictly enforce this policy. If you have doubts, contact me.

Course Conduct

My responsibility

I will support you in your learning in this class and beyond to the best of my abilities. If I am not able to help you myself, I will identify someone who can. I will evaluate your contribution solely based on the standards set by this syllabus. Changes to the syllabus will be highlighted, discussed during class sessions, and will be published on Camino.

Your responsibility

By enrolling in this class, you agree to the requirements stated in this syllabus. You will operate with integrity in your dealings with me and your fellow students. You will engage the learning materials with appropriate attention and dedication and maintain their engagement when challenged by difficult learning activities. You will contribute to the learning of others, and you will perform to standards set by this syllabus.

Mutual respect is the foundation of this course. No one will be criticized for being wrong. Appropriate conduct includes honesty, self-respect, respect for others, and compliance with university policies and standards. Computers in the classroom should be used only for completing course-related work and for taking notes; cell phones must be turned off or muted.

Attendance Policy

Please let me know via email during the first two weeks of the course if you have any conflicts between a course element (class meeting, assignment) and another vital commitment (another course, work, university-related extracurricular activities, religious commitments). At my discretion, I will you provide with alternative means to complete the course element.

I am aware that many of you have multiple commitments. You should attend at least 80 percent of all scheduled class meetings. If you miss more than 20 percent of scheduled classes, you will receive reduction by one letter grade.

University Policies

Disability Resources

If you have a disability for which accommodations may be required in this class, please contact Disabilities Resources (Benson Hall 216, 408-554-4109) as soon as possible to discuss your needs and register for

accommodations with the University. If you have medical needs related to pregnancy, you may also be eligible for accommodations. If you have already arranged accommodations through Disabilities Resources, please discuss them with me during my office hours as soon as possible.

While I am happy to assist you, I am unable to provide accommodations until I have received verification from Disabilities Resources. If you are in doubt of whether you are eligible for accommodations, I encourage you to contact Disabilities Resources (Benson Hall 216, 408-554-4109). The Disabilities Resources office would be grateful for advance notice of at least two weeks.

Accommodations for Pregnancy and Parenting

In alignment with Title IX of the Education Amendments of 1972, and with the California Education Code, Section 66281.7, Santa Clara University provides reasonable accommodations to students who are pregnant, have recently experienced childbirth, and/or have medical needs related to childbirth. Pregnant and parenting students can often arrange accommodations by working directly with their instructors, supervisors, or departments. Alternatively, a pregnant or parenting student experiencing related medical conditions may request accommodations through Disabilities Resources (Benson Hall 216, 408-554-4109).

Discrimination and Sexual Misconduct (Title IX)

Santa Clara University upholds a zero-tolerance policy for discrimination, harassment, and sexual misconduct. If you (or someone you know) have experienced discrimination or harassment, including sexual assault, domestic/dating violence, or stalking, I encourage you to tell someone promptly. For more information, please consult the University's Gender-Based Discrimination and Sexual Misconduct Policy at http://bit.ly/2ce1hBb or contact the University's EEO and Title IX Coordinator, Belinda Guthrie, at 408-554-3043, bguthrie@scu.edu. Reports may be submitted online through https://www.scu.edu/osl/report/ or anonymously through Ethicspoint https://www.scu.edu/hr/quick-links/ethicspoint/