Operations and Supply Chain Management
53:716:513:90
Term: Fall 2024
Online - asynchronous

Professor: Mark Brennan
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Office Hours: Tuesdays 730am-900am, Thursdays 530pm-730pm, or by appointement if needed (including availability on my end on *some* Sunday PMs).

Key fall 2024 dates:

Fall 2024 classes begin	Tuesday, September 3rd
Last day to withdraw with a "W"	Monday, November 11th
Last day of classes	Wednesday, December 11th
Final Exam period	Monday, December 16th - Saturday, December 21st

Course Description

Operations and Supply Chain Management (3 credits)

> "This course aims to (1) familiarize students with the major operational issues confronting managers, and (2) provide students with concepts, insights, and tools to deal with these issues. Topics include forecasting, inventory management, capacity planning, quality management, lean systems, supply chain management, and logistics."

This course is a practical, guided tour of operations: how they work, how to make them more efficient, and why operations work is difficult and rewarding. We cover the basic math and metrics people use to make operational decisions, and what—at a managerial level—makes those decisions difficult. This course is built around original cases including on Reebok (inventory management), Intel (demand management), Boston's public ambulance service (capacity management), Gillette (network design), HP (transport), and pulls on insights from other big and small companies and agencies, like P&G and the United Nations food relief agency.

This class makes sense for anybody:
- **If you do not do operations, this class is awesome for you.** If you do sales and marketing, finance, HR, admin or IT, or a little of everything or other functions at a smaller company or startup or

military or government, understanding operations is useful. Ops turns sales and marketing into logistics action. It works hand-in-hand to avoid crises and create value with finance. It has hard and fascinating HR problems. It is unusually dependent on admin and IT. This class is a low-stakes way to learn operations concepts and from peers.
- **If you <u>do</u> operations, this class is perfect for you.** This will reinforce intuition you have built, expose you to other areas of the shop, challenge some established wisdom, and be a good way to learn from peers outside and in the space.
- **If you want to do operations, this class is great for you.** This class will help you parse JDs, give you content and frameworks for interviews, and orient you for day 1 on the job.

LEARNING

Learning Objectives

Course learning objectives
In short: The intent is for you to be able to do back of the envelop math to make a quick decision or make sure the analyst is presenting sensible numbers. The core of this is solving the right problem and doing so in a way that actually leads to an implementable solution.

Some of the skills I hope you will learn throughout the course include:
1. Recognize the common types of supply chain problems: demand, inventory, procurement, transportation, service, manufacturing, network design.
2. Know what trade-offs to look for with that problem: e.g., between short transport lead-time and high transport cost, between being responsiveness to demand and having low inventory levels
3. Build the basic spreadsheet models—that are typically still industry best-practice—to navigate these trade-offs and solve these problems
4. Anticipate what makes it difficult to implement these models and strengthen an operation

Our definition of success is: in a meeting on a busy morning, you are comfortably able to do a back-of-the-envelope calculation to make a quick decision yourself or assess the quality of the work being presented by a supply chain analyst.

Course materials:
In short: Don't buy any book, do go on Canvas.

<u>ORIGINAL MATERIAL:</u>
Cases, narrated slides, homeworks and their answers, exams, and other material is on Canvas.

<u>TEXTBOOK:</u>
Do not skim this section and think you must buy a textbook! This course is self-contained. There is no textbook. If for any reason you want an additional reference, you can consider using:
Russell and Taylor, Operations Management, 7th Edition.
Used copies and **online options** are available. See Canvas! There is zero need to buy this book.

How to succeed in this course
In short: Try to keep up with the material and reach out when you're not understanding or keeping up.
- Read all text material assigned for each class
- Follow instructions in all assignments
- Start assignments early and get feedback from me
- Consult with me immediately when you need help.

Diversity in this classroom
In short: This class strives to be an inclusive learning space.

This class strives to be an inclusive community, learning from the many perspectives that come from having differing backgrounds and beliefs. As a community, we aim to be respectful to all. We reject all forms of prejudice and discrimination, including but not limited to those based on age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, and veteran status. Faculty and students are expected to commit to creating an environment that facilitates inquiry and self-expression, while also demonstrating diligence in understanding how others' viewpoints may be different from their own.

Our goal as a learning community is to create a safe environment that fosters open and honest dialogue. We are all expected to contribute to creating a respectful, welcoming, and inclusive environment. To this end, classroom discussions should always be conducted in a way that shows honor, respect, and dignity to all members of the class. Moreover, disagreements should be pursued without personal attack and aggression, and instead, should be handled with grace and care. This will allow for rigorous intellectual engagement and a deeper learning experience for all. One part of this is this course affirms people of all gender expressions and gender identities: feel free to correct me on your preferred gender pronoun and if you have any questions or concerns, please do not hesitate to contact me.

Disability services and accommodations
In short: The University is committed to supporting the learning of all students.

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 accommodations, 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 accommodation, not about the disability or diagnosis.

POLICEIS

COMMUNICATION and USE OF CANVAS POLICIES

EMAIL- USE YOUR RUTGERS EMAIL ADDRESS
In short: Use your Rutgers email when you write me.

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! Not checking your Rutgers email is not an excuse for missing any communications.

Timing with e-mails:
In short: I will get back to you within a day during the week and will check my email on many weekends.

I am extremely responsive. From Monday until Friday, I will try reply to all e-mails within 24 hours. Please do not expect immediate response. If you do not hear from me within 48 hours, please re-send your email as I may have overlooked it. Have no hesitation inn doing this. This is very rare but it can happen. I will check my e-mail once or twice on many weekends, since I know that is when many of you have time to do this work. There will be some weekends this term where I won't be able to check e-mail at all, or at

least won't be able to provide more than a short response before Monday morning (e.g., a family reunion…).

CANVAS
In short: This course is entirely run out of Canvas.

Canvas is the learning management system used for this course. Posted will be the syllabus, resources, slides, announcements, etc. To access this system, go to http://canvas.rutgers.edu log in, and click on the course in the dashboard. For technical support 833-648-4357 or help@camden.rutgers.edu.

Timing on canvas:
In short: Canvas is populated mostly two weeks in advance.

All materials can be obtained via Canvas. Slides and any work for a particular week will be posted by Sunday morning, usually two weeks ahead of schedule (except for the first week or two), and always one week ahead of schedule. (There is a slight exception for exams—see below.) There are pros and cons for this. The idea is it can let you get a bit ahead, when needed.

You are strongly encouraged to access this course via Canvas several times a week. You can imagine that each week runs "runs" through from day 1 (Monday) to day 7 (Sunday).

Week	Posted by, ideally…	Sunday is…	Monday is…	Work due by…
1	18-Aug	1-Sep	2-Sep	8-Sep
2	25-Aug	8-Sep	9-Sep	15-Sep
3	1-Sep	15-Sep	16-Sep	22-Sep
4	8-Sep	22-Sep	23-Sep	29-Sep
5	15-Sep	29-Sep	30-Sep	6-Oct
6	22-Sep	6-Oct	7-Oct	13-Oct
7	29-Sep	13-Oct	14-Oct	20-Oct
8	6-Oct	20-Oct	21-Oct	27-Oct
9	13-Oct	27-Oct	28-Oct	3-Nov
10	20-Oct	3-Nov	4-Nov	10-Nov
11	27-Oct	10-Nov	11-Nov	17-Nov
12	3-Nov	17-Nov	18-Nov	24-Nov
13	10-Nov	24-Nov	25-Nov	1-Dec
14	17-Nov	1-Dec	2-Dec	8-Dec
15	24-Nov	8-Dec	9-Dec	11-Dec

LATE POLICIES
In short: If something happens, if possible, getting in touch earlier is better, and before is better than after.

Exam, Quizzes, Assignment Make-up Policy
Make-up Work Policy: If, for a university-approved reason, you cannot complete a quiz, assignment, or exam during the scheduled time, you must give me written notice via email (mark.brennan@camden.rutgers.edu) at least one week in advance so that other arrangements can be made. If the situation does not allow for advance notification (e.g., emergency hospitalization), contact me as soon as possible after the missed work and provide written documentation. The ability to make up work for non-university approved reasons is not guaranteed. I reserve the right to request written documentation to support your absence (such as a doctor's note, an obituary, or military orders).

Late Work Policy: All work must be completed and uploaded to Canvas by the specified due date (apart from a university-approved, documented, and professor or Dean of Students verified reason; see Make-up Work Policy above). Any work submitted after the due date and time will receive a reduction of one full letter grade for each day that it is late.

Incompletes: "Incompletes" will only be given through prior consultation, under extreme circumstances,

and when completion of the course requirements in question would substantially improve your grade. In the rare event when an "incomplete" is given, you must submit all of the agreed-upon work to me by the Rutgers registrar deadline to avoid the "incomplete" converting to an "F": https://registrar.camden.rutgers.edu/gradeinstruction#incomplete.

COURSE STRUCTURE and GRADING

COURSE STRUCTURE

i. CASES - there will 7 original cases. The analysis in these <u>very closely</u> reflects the contents of the slides and the supporting spreadsheets for the slides. These are original, real, gritty cases of operations written by me and colleagues and peers from previous jobs and schools I've been at.

Submit/not submit graded cases: 3 are cases graded for complete/not complete submission (Intel, SteelCo, Boston ambulance). These are in the first half of the semester. The thinking is you learn to read operations teaching cases in a low-stakes way in the first half of the semester and then you apply that in the second half of the semester. You submit these to the discussion board feature in Canvas. This is all set up on Canvas already. You should write just a few sentences as your submission. It would be nice to comment on others' findings and ideas, but it is not necessary.

Fully graded cases: 4 are graded cases (Reebok, Gillette, Premiere, and HP). The graded cases are mostly, except for Reebok, in the second half of the semester. You submit these as assignments in Canvas, since they are fully graded, not the discussion board. This is all set up on Canvas already. You should not write more than half a page—and all may be done with as few as a sentence or two responding to each case question—and with tables/graphs your writeup can not exceed a page.

ii. HOMEWORK – There will be 6 homeworks graded for complete/not complete submission. The analysis in these <u>very closely</u> reflects the contents of the slides and the supporting spreadsheets for the slides.

iii. PARTICIPATION – There will be over +12 opportunities for participation and discussion.

iv. TESTS/QUIZZES/EXAMS – There will be 3 tests. These will <u>very closely</u> reflect the contents of the slides, homework, and from the cases the models and principles in play. (I don't think people expect this, but to be clear, these absolutely do not test the contextual detail of the cases, e.g., "How long is HP's lead time to the warehouse...") When exams are released is a bit different from everything else: for an exam in week X, it is posted the Friday before that week and due the Sunday of that week. This timing is because I will make the exam a day or two before it is posted, to keep it reflecting as close as possible to where we are at as a class.

Week X-1 before the exam				Week X that exam is in						
Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
	Open 1200am									Closed 1159pm

COURSE GRADING
In short: 60% comes from 3 exams, 20% from 4 graded cases, and 20% from HW plus 'participation'

around cases and other topics.

The assignment of final grades, the course requirements will be weighted approximately as follows:

i. Cases that are graded fully (Reebok, Gillette, Premiere, HP) or for completeness (Intel, SteelCo, Boston):

W2 - Mini case 1 – Intel 2%
W4 - Case 2 – Reebok.............5%
W5 - Case 3 – SteelCo 2%
W8 - Case 4 – Boston..............2%
W10 - Case 5 – Gillette............5%
W12 - Case 6 – Premiere 5%
W14 - Case 7 – HP 5%

ii. Homework that is graded for completeness:

W2 - Demand...........................1%
W3 - Inventory.........................1%
W7 - Manufacturing..................1%
W9 - Contracting 1%
W13 - Quality 1%
W15 - Reverse logistics 1%

iii. Participation that is graded for completeness, broken out into tiny—1-2 minute—touch points:

W1 - News setup...................0.5%
W1 - Get-to-know-you checkin0.5%
W2 - Question + learning 0.25%
W4 - Question + learning 0.25%
W4 - Speaker engagement...0.5%
W6 - Question + learning 0.25%
W8 - How-is-it-going checkin 0.5%
W8 - Question + learning 0.25%
W9 - Speaker engagement...0.5%
W10 - Question + learning ..0.25%
W11 - News 1.00%
W12 - Question + learning ..0.25%
W13 - News 1.00%
W14 - Question + learning ..0.25%
W15 - News 1.00%
W15 - How-did-it-go checkin.0.5%
W15 - Question + learning ..0.25%

iv. Exams:

W6 - First exam.....................20%
W11 - Second exam 20%
Finals - Third exam 20%

Final Grade Ranges
A Highest grade (90% and above)
B+ Work of distinction (84.5% to 89.4%)
B Work of distinction (79.5% to 84.4%)

C+ Average work (74.5% to 79.4%)
C Average work (69.5% to 74.4%)
D Passing, but unsatisfactory (60% to 69.4%)
F Failure without credit (Below 60%)

ACADEMIC INTEGRITY

Academic Integrity
In short: Do not violate the policy.

The Academic Integrity policy can be found at https://studentconduct.rutgers.edu/processes/university-code-student-conduct 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 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 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.

Artificial Intelligence Use
In short: No AI.

The use of generative AI tools (such as ChatGPT, DALL-E, etc.) are **not permitted** in this class; therefore, any use of AI tools for work in this class may be considered a violation of Rutgers University's Academic Honesty policy and Student Conduct Code, since the work is not your own. When in doubt about permitted usage, please ask for clarification.

This is not saying that this course does not recognize the helpfulness of generative AI.

Rather, this is because:
1. Generative AI is still often wrong for operations and supply chain. I ran several of the homework problems through ChatGPT and some answers were right and some were wrong. The ones that were wrong were very wrong and I was only able to reverse engineer what the model was trying to do, some of the time.

2. Prompting and working with Generative AI is an important skillset, in its own right. But a class can only cover so much. And this is not one of the things we will cover.
3. The point of this class is to give you managerial insight into supply chain and operations. My benchmark is 'you can do some back of the envelop calculations in a meeting to see if the analyst presenting to you is ballpark right' or 'can you do some quick calculations yourself to make a decision'. The way to get that level of intuition is to be running the calculations yourself, not having generative AI sort of run them.
4. Some of the material for this course is not for further distribution and so uploading material to these models poses problems that nobody here wants to deal with.

Code of student conduct
In short: You are expected adhere to the Code of Student 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."*