

# Course Syllabus of Operations Management

## Fall 2026

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### Course Description

This course introduces a practical, decision-focused Supply–Inventory–Demand (SID) framework to diagnose operational risks, stabilize cash flow, and improve profitability and valuation.

This course focuses on tradeoffs: how system design choices in sourcing, inventory, capacity, and payment terms propagate into earnings volatility, working capital stress, and market valuation. Participants learn to interpret operational signals as early warnings and leading indicators for financial performance.

The course blends simulations, data-driven optimization, executive case discussions, simplified modeling intuition, and real corporate examples drawn from consumer goods, retail, technology, healthcare, and global manufacturing.

### Learning Objectives

1. Diagnose whether performance problems stem from demand shocks or flawed SID system design.
2. Identify structural sources of inventory build-ups, margin erosion, and cash flow volatility.
3. Design executive-level SID policies that stabilize operations without overreacting to short-term noise.
4. Evaluate sourcing, capacity, and responsiveness tradeoffs using economic—not operational—logic.
5. Assess working capital levers (DSO, DIO, DPO) as strategic tools rather than accounting metrics.
6. Use inventory and order-flow data as early indicators for revenue, margin, and valuation outcomes.
7. Ask the right questions of operations, finance, and supply chain teams.

## Course Schedule

The course is organized into three SID layers:

1. Operational SID Execution – Period-by-period decisions
2. Tactical SID Planning – Translating SID strategy into executable plans
3. Strategic SID Design – Choosing the SID system itself

Each module emphasizes:

- Executive intuition (why the system behaves this way)
- Decision levers (what leaders can actually change)
- Financial consequences (how results show up in cash flow and valuation)

### Course Overview and Roadmap (Sept 03)

#### Module 1: SID Foundations – Why Systems Fail (Sept 8, 10)

Executive Question: Why do well-run organizations still experience sudden inventory crises, margin collapses, or cash flow shocks?

Key Topics

- The Beer Game (executive version)
- Bullwhip effect as a system-design failure
- Why forecasting and incentives alone do not fix volatility
- Financial consequences: write-downs, discounting, working capital spikes

Executive Takeaway: Most operational crises are *self-inflicted*. Leaders manage symptoms (forecast accuracy, KPIs) while ignoring system structure.

#### Module 2: Operational SID Control – Inventory as a Strategic Control Variable (Sept 15, 17, 22, 24)

Executive Question: How much inventory is "right"—and why do simple policies fail?

Key Topics

- Inventory as risk absorption, not stockpiling

- Holding vs. shortage costs (economic intuition)
- Why constant-order rules fail
- Order-up-to logic and target DIO
- Centralization and pooling benefits

#### Cases

- Specialty retail inventory replenishment problem
- Auto spare parts inventory pooling problem
- Zara's inventory allocation problem
- Retail chain multi-SKU inventory replenishment problem

Executive Takeaway: The most cost-efficient response to uncertainty is not flexibility everywhere—but a stable inventory target calibrated to risk.

### **Module 3: Tactical SID Planning – Translating Demand into Feasible Supply (Sept 29, Oct 1, 6)**

Executive Question: Where do planning processes break down between sales forecasts and operational reality?

#### Key Topics

- S&OP as an executive alignment process (not just a spreadsheet exercise)
- MRP I: components, timing, and exposure
- MRP II: capacity as the real constraint
- Demand vs. sales

#### Cases

- Apple iPhone planning
- Semiconductor capacity allocation (TSMC)
- Flash sales and dynamic demand

Executive Takeaway: Most planning failures arise because capacity and lead times are treated as afterthoughts, not strategic constraints.

**Exam I (Oct 8): In-class multiple-choice exam, closed book.**

## **Module 4: Strategic SID Design**

### **Part I: Sourcing and Fulfillment Design (Oct 13, 15, 20, 22, 27)**

Executive Question: When should firms pay more for speed—and when should they not?

- Supply network optimization
- Push vs. pull systems
- Dual sourcing (cheap/slow vs. expensive/fast)
- Tailored Base–Surge (TBS) policies

Cases

- Supply/demand network optimization after M&A
- Zara vs. H&M
- China–Mexico dual sourcing

### **Part II: Working Capital as Strategy (Oct 29, Nov 5, 10, 12, 17, 19)**

Executive Question: How do leading firms turn working capital into a competitive weapon?

- DSO, DIO, DPO as power variables
- Supply chain finance and reverse factoring

Cases

- P&G
- Apple
- McKesson
- Amazon

Executive Takeaway: Working capital performance reflects structural power and system design, not operational discipline alone.

## **Module 5: SID Signals – Early Warnings for Executives and Investors (Nov 24, Dec 1, 3)**

Executive Question: What operational signals predict financial surprises before earnings calls?

Key Topics

- Inventory as a leading indicator
- Demand-driven vs. supply-driven businesses

- Inventory–margin and inventory–revenue mechanisms
- Book-to-bill ratios

#### Cases

- Retail and automotive platforms
- AI and semiconductor supply chains (Nvidia, TSMC)

Executive Takeaway: Inventory is not a lagging balance-sheet item—it is often the earliest observable signal of future financial outcomes.

**Exam II (Dec 8): Non-accumulative, in-class multiple-choice exam, closed book.**

#### Pedagogy

- Short simulations and interactive games
- Boardroom-style case discussions
- Visual and intuitive modeling (no heavy math)
- Cross-functional discussion (operations, finance, strategy)

#### Key Takeaway

SID defines the operating system. Tactical planning executes it. Financials reveal whether it worked. Operations is about control, resilience, and financial credibility. Firms that master SID design stabilize cash flow, protect margins, and earn valuation premiums long before results appear in the income statement.

## Grading Scheme

Class Attendance and Engagement	20%
In-class Excel-based Exercises	20%
Homework	20%
Exams	40%

### Class Attendance and Engagement

Attendance is expected for every class session. If you must miss a class for a legitimate reason, please notify me in advance. During class, professionalism and respect are required. This includes being attentive, considerate of others, and refraining from using laptops, cell phones, texting, emailing, or reading unrelated materials. **Laptop is required for every class but used only under permission.** Your grade for this component will be based on attendance and active participation.

### In-class Excel-based Exercises

Some classes will include Excel-based exercises. Group leaders must submit the results via Brightspace Assignments by the end of the class. Late submissions due to a legitimate reason will be accepted for full credit if communicated in advance.

## Career Relevance: Who This Course Is For — and Why

This course is designed for students who want to make **high-impact decisions under uncertainty**, where operational choices directly affect **profitability, cash flow, and valuation**. The **SID framework** equips students with a portable way of thinking that applies across roles, industries, and seniority levels.

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### **1** Management Consulting (McKinsey, BCG, Bain, Deloitte)

#### Why this course matters

Consulting problems are rarely “forecasting problems.” They are **system-design problems**:

- Where should inventory sit?
- How much flexibility should be built into supply?
- Which tradeoffs should be permanent vs adjustable?

This course trains students to:

- Diagnose **root-cause operational issues** using SID
- Quantify tradeoffs using **S&OP, MRP, and optimization**
- Translate operational fixes into **margin and cash flow impact**

#### Direct connections

- Dual sourcing → cost vs responsiveness cases
- Amazon / McKesson → operating model transformation

#### Recruiter-ready skill

“I frame operations problems as SID system design, not isolated process fixes.”

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### **2** General Management & Leadership Development Programs

#### Why this course matters

General managers must make **cross-functional decisions**:

- Sales wants availability
- Finance wants cash

- Operations wants stability

SID provides a **common language** across functions.

Students learn to:

- Use **inventory as a control variable**, not a residual
- Balance growth, service levels, and working capital
- Make tradeoffs explicit instead of political

#### **Direct connections**

- S&OP → executive demand–supply alignment
- Working capital strategy → cash discipline
- Push vs pull → growth vs risk posture

#### **Managerial edge**

“I design operating systems that still work when forecasts fail.”

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## **3 Operations, Supply Chain, and Planning Roles**

#### **Why this course matters**

Most operational roles involve **planning under constraints**, not textbook optimization.

This course develops:

- Hands-on experience with **S&OP, MRP I, MRP II**
- Ability to reason about **capacity, inventory, and demand jointly**
- Skill in explaining planning logic to non-technical stakeholders

#### **Direct connections**

- Liquor store → base-stock intuition
- Apple S&OP → aggregate planning
- TSMC MRP II → capacity bottlenecks

#### **On-the-job advantage**

“I understand *why* the planning system is designed this way — not just how to run it.”

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## 4 Technology, Platform, and Product Operations (Amazon, Apple, Nvidia)

### Why this course matters

Modern tech firms compete on **operating system design**, not just product features.

SID helps students understand:

- Why Amazon shifted inventory risk to 3P sellers
- Why Apple runs a negative cash conversion cycle
- Why Nvidia's inventory predicts revenue and margins

### Direct connections

- Platform vs asset-heavy models
- Contract liabilities and backlog as demand signals
- Capacity dominance as strategic moat

### Strategic insight

“Operational design explains financial dominance in tech.”

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## 5 Investing, Equity Research, and Corporate Finance

### Why this course matters

Financial statements **lag** operational reality.

Inventory and working capital often **lead** earnings.

This course trains students to:

- Read **inventory, CCC, and backlog** as leading indicators
- Anticipate margin expansion or compression
- Detect boom-bust cycles before they appear in earnings

### Direct connections

- Carvana inventory cycles → margin forecasting
- Apparel inventory gluts → earnings misses
- McKesson negative CCC → cash-flow valuation

## Investor mindset

“I look at inventory before I look at EPS.”

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## 6 Entrepreneurship & Startups

### Why this course matters

Startups fail not because demand is wrong, but because:

- Supply is too rigid
- Inventory is mispositioned
- Cash is trapped in the system

SID teaches founders to:

- Design **capital-efficient operating systems**
- Decide where flexibility matters most
- Avoid scaling the wrong SID structure

### Direct connections

- Flash sales → demand shaping
- Dual sourcing → risk mitigation
- Working capital → survival runway

### Founder takeaway

“Operations design determines whether growth kills or sustains a startup.”

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## 7 Healthcare, Distribution, and Regulated Industries

### Why this course matters

Low-margin, high-volume industries win through:

- Inventory velocity
- Working capital discipline
- System-level efficiency

SID clarifies:

- Why McKesson earns value with razor-thin margins
- Why service levels and cash flow must be co-designed
- Why inventory mismanagement destroys trust and profitability

**Operational truth**

“In low-margin systems, inventory *is* the business.”

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**Summary: What This Course Gives You**

<b>Skill</b>	<b>Why It Matters</b>
System thinking	Avoids local optimization traps
Planning under uncertainty	Forecasts are always wrong
Financial translation	Operations → cash → valuation
Transferable framework	Works across industries

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**Final Message to Students**

If you want to **run, fix, or evaluate** a business, you need to understand how **Supply, Inventory, and Demand** work together.

## ACADEMIC INTEGRITY

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

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

## STERN CODE OF CONDUCT

The Stern Code of Conduct and Judiciary Process applies to all students enrolled in Stern courses.

For graduate students, information can be found here:

<https://www.stern.nyu.edu/uc/codeofconduct>.

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

## GENERAL CONDUCT & BEHAVIOR

Students are also expected to maintain and abide by the highest standards of professional conduct and behavior. Please familiarize yourself with Stern's Policy in Regard to In-Class Behavior & Expectations for Graduate and Undergraduate students.

(<https://www.stern.nyu.edu/portal-partners/registrar/policies-procedures/general-policies/code-conduct>)

(<http://www.stern.nyu.edu/portal-partners/current-students/undergraduate/resources-policies/academic-policies/index.htm>) and the NYU Student Conduct Policy

(<https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/university-student-conduct-policy.html>).

## STUDENT ACCESSIBILITY

If you will require academic accommodation of any kind during this course, you must notify me at the beginning of the course and provide a letter from the Moses Center for Student Accessibility (212-998-4980, [mosescsa@nyu.edu](mailto:mosescsa@nyu.edu)) verifying your registration and outlining the

accommodations they recommend. If you will need to take an exam at the Moses Center for Student Accessibility, you must submit a completed Exam Accommodations Form to them at least one week prior to the scheduled exam time to be guaranteed accommodation. For more information, visit the CSA website: <https://www.nyu.edu/students/communities-and-groups/student-accessibility.html>

### **STUDENT WELLNESS**

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

Graduate students can also reach out to the Academic Advising team at [academicaffairs@stern.nyu.edu](mailto:academicaffairs@stern.nyu.edu) if you would like to receive more information or further support.

### **NAME PRONUNCIATION AND PRONOUNS**

NYU Stern students now have the ability to include their pronouns and name pronunciation in Albert. I encourage you to share your name pronunciation and preferred pronouns this way. Please utilize this link for additional information: [Pronouns & Name Pronunciation](#)

### **RELIGIOUS OBSERVANCES AND OTHER ABSENCES**

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

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

### **LAPTOPS, CELL PHONES & OTHER ELECTRONIC DEVICES**

Due to the nature of this class and the potential disruptions caused by student use of electronic devices, students are not permitted to use any such devices during class without explicit permission from the instructor.