

## ITP499

### Advanced Planning and Optimization of the Supply Chain

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**Class Web Page:**

<http://www-rcf.usc.edu/~vawter/classes.html>

or

<http://blackboard.usc.edu/>

#### Course Description:

This course is designed to provide the student with a thorough understanding of the strategic role of supply chain management (SCM); what drives the supply chain as well as methods for planning and optimizing the supply chain. During the semester, cases and projects will be assigned that afford the student the opportunity to work through many real-life business situations using an SAP SCM system as well as various Advanced Planning and Optimization (APO) tools that are available today.. The hand's-on exercises, coupled with the in-class discussions of SCM, will prepare the student with the knowledge sought by businesses looking to use technology to reduce manufacturing costs by managing the supply chain effectively.

#### Required Textbook:

1. Supply Chain Management, Strategy, Planning, and Operations, 3<sup>rd</sup> Edition, by Sunil Chopra & Peter Meindl, Prentice Hall, ©2006, ISBN: 0131730428.

Or you may elect to subscribe to the e-textbook version at: <http://www.safarix.com>.

#### Class Schedule:

Week	Topic	Reading	Assignment
Week 1.	Course Overview The Supply Chain in General	SCM: Ch 1 – Understanding the Supply Chain	no assignment this week.
Week 2.	The Supply Chain in General (cont.)	SCM: Ch 17.1 - 17.3	In class – “The Beer Game”.
Week 3.	Overview of Supply Chain Management <ul style="list-style-type: none"><li>▪ Performance Goals</li><li>▪ Process Cycles</li></ul> Supply Chain Drivers <ul style="list-style-type: none"><li>▪ Performance Drivers</li><li>▪ Obstacles to avoid</li></ul>	SCM: Ch 2 – Supply Chain Performance SCM: Ch 3 – Supply Chain Drivers	<b>Project #1</b> – Fitter-Snacker, due beginning of next week. <b>HW #1</b> – Ch’s 1, 2 and 3, due end of next week.

<b>Week</b>	<b>Topic</b>	<b>Reading</b>	<b>Assignment</b>
Week 4.	Demand Forecasting <ul style="list-style-type: none"> <li>▪ Components to basic forecasting</li> </ul> Forecasting models: <ul style="list-style-type: none"> <li>▪ Moving Averages,</li> <li>▪ Exponential Smoothing,</li> <li>▪ Linear Regression</li> </ul>	SCM: Ch 7 – Demand Forecasting	<b>HW #2</b> – Ch 7, Programming & Applying Forecasting Models, due in two weeks, at the end.
Week 5.	Forecasting models (continued) <ul style="list-style-type: none"> <li>▪ Adaptive (Holt's)</li> <li>▪ Corrected (Winter's)</li> </ul>	SCM: Ch 7 continued	Continue working on HW #2 exercises.
Week 6.	Aggregate Planning <ul style="list-style-type: none"> <li>▪ Strategies and Models</li> </ul>	SCM: Ch 8 – Aggregate Planning in the Supply Chain	<b>Project #2</b> - Forecasting Demand in the R/3 system, due at the end of next week.
Week 7.	Managing Supply and Demand <ul style="list-style-type: none"> <li>▪ Demand Mgmt</li> </ul>	SCM: Ch 9 – Planning Supply and Demand	<b>HW #3</b> – Ch's 8 and 9, due this Sunday, by 5:00 pm
Week 8.	<b>Midterm</b> – SCM Parts I & III, planning demand and supply in a supply chain	none	<b>Midterm Project</b> , Due <b>Friday</b> , by 5:00.
Week 9.	Managing Inventory <ul style="list-style-type: none"> <li>▪ Economies of Scale</li> <li>▪ Cycle inventory</li> </ul>	SCM: Ch 10 – Managing Economies of Scale in the Supply Chain	Discuss setting up R/3 – APO communications <b>Project #3</b> – BW in APO for SCM, due in two weeks. <b>HW #4</b> – Ch 10, Cycle Inventory, due next week.
Week 10.	Managing Uncertainty <ul style="list-style-type: none"> <li>▪ Safety Stock</li> </ul>	SCM: Ch 11 – Managing Uncertainty in the Supply Chain	<b>HW #5</b> – Ch 11, Safety Inventory, due next week.

Week	Topic	Reading	Assignment
Week 11.	Calculating the Optimal Level of Product Availability <ul style="list-style-type: none"> <li>▪ Factors &amp; controls</li> </ul>	SCM: Ch 12 –Optimal Level of Product Availability	<b>HW #6</b> – Ch 12, Product Availability, due next week.
Week 12.	Vendor Analysis <ul style="list-style-type: none"> <li>▪ Supplier assessment</li> <li>▪ The procurement process</li> <li>▪ Considering Transportation costs</li> </ul>	SCM: Ch 13 – Sourcing Decisions in the Supply Chain SCM: Ch 14 – Transportation in the Supply Chain	<b>Project #4</b> – Vendor Analysis in APO, due next week.
Week 13.	APO - Supply Network Planning (SNP)	Class Notes	<b>Project #5</b> – Supply Planning in APO, due next week
Week 14.	APO - Production Planning & Detailed Scheduling (PP/DS) Thanksgiving Holiday	Class Notes	<b>Final Project</b> – due next Friday
Week 15.	APO – Reporting options	Class Notes	Final Project due <b>Friday</b> , by 5:00 pm

### Homework and Project Assignments

- It is **your** responsibility to turn in the assignments at the beginning of lecture on the dates indicated above and verify that your assignment is in the class “assignment box”.
  - You are to only turn in the “Answer sheet” and “Summary” portion of the assignment as one document.
  - You are to submit your “Answer sheet + Summary” document via the “Assignments” section of the DEN class web site (from where you originally obtained the project write-up).
  - You are to also verify that your document is in the class “assignment box” AND double-click on it to open it up. If you can’t see, or open the document you submitted, then neither can the grader!
  - **After the second project, failure to correctly submit projects will result in a 5% penalty.**
- Assignment Answer Keys will then be posted on the Class Assignments Web page after they are due.

### Late Assignments

- The “Assignments” section of the class web site “closes” after the due date and time.
  - You will no longer be able to submit your assignment and your assignment will be considered late.

- Late assignments must be e-mailed to me directly (vawter@usc.edu).
- I will then make a note of having received your late assignment and then forward the assignment on to the class grader for grading.
- **Assignments that are turned in after the deadlines will automatically have ½ of the possible points deducted prior to grading.** So, please turn in your assignments at the beginning of lecture on the dates indicated above!
- **No assignments will be accepted for credit after 2 weeks beyond the assignment's original due date nor after the last day of the semester.**
- Please note: **No late Midterm and Final Projects will be accepted for credit.**

### Steps for Handling Assignment Questions

1. Re-read the instructions carefully and
  - a. For homework questions, refer to similar examples in the text
  - b. For project questions, try referring to: <http://help.sap.com>
2. Ask the Course TA your question. Please note, however, the TA can only guide you to a solution, he is not there to do the project for you.
3. Review the "Discussion Board" section of the class web site's forum for other students' questions and comments or post a question yourself to begin the forum.
4. And, of course, you're always welcome to stop by my office during my office hours or contact me and arrange for an appointment.

Please note: **I do not address "assignment problems" via e-mail.** I am happy to discuss the questions with you, and guide you to solving them yourself during my office hours; but **my e-mail address is not to be used as a simple "help desk"**.

**Examinations:** Exams cover material from the reading assignments, lectures, and lab projects. They will be of the form: multiple choice, and short answer. The exams are both closed book and closed notes. The exams will include material presented up to the date of the exam. The Final exam is not considered to be cumulative, though knowledge of the material presented during the first half of the semester may be helpful in answering some of the questions on the Final.

**Note: No make-up exams will be offered nor will there be any changes made to the Final Exam schedule as established by the University.**

### Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to your lab assistant) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

**Grading:**

Midterm	20%
Midterm Project	10%
Final Exam	30%
Ave. of Projects	15%
Ave. of Assignments	15%
Final Project	<u>10%</u>
	100%

**Grading Scale:**

93% and above	A
90% - 93% (not including 93%)	A-
87% - 90% (not including 90%)	B+
83% - 87% (not including 87%)	B
etc.	

**Student Conduct:** (Excerpts taken from *SC Campus Student Guidebook, 04/05*)

- §11.00 Behavior Violating University Standards and Appropriate Sanctions  
 "...individual work will be submitted [by the student], and [it's the student's] obligation both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own."
- §11.11 Plagiarism (Definition)  
 "The submission of material authored by another person but represented as the student's own work, whether that material is paraphrased or copied in verbatim or near verbatim form."
- §11.14 Plagiarism (Definition continued)  
 "Obtaining for oneself or providing for another person a solution to homework a project or other assignments, or a copy of an exam or exam key without the knowledge and expressed consent of the instructor."

**"Students are expected to make themselves aware of and abide by the university community's standards of behavior as articulated in the Student Conduct Code."**

**Any violation will be immediately reported to the Office of Student Judicial Affairs and Community Standards. The alleged violation will then be reviewed by the board. If the student is determined to be responsible for the violation, appropriate disciplinary action will be determined and then implemented by the University.**