

Supply Chain Management (POM 4420)

Syllabus for Winter Semester 2018

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Course Level: Undergraduate

Prerequisite: POM 343 with a min. of 2.0

Classroom: Mathematics and Science Center, Room 102

Class Times: Tuesdays and Thursdays, 1:00 pm ~ 2:15 pm

Office hours: Tuesdays and Thursdays, 12:00 noon – 12:45 pm; Tuesdays, 5:45 pm ~ 6:15 pm; and by appointment.

Required Text: Guide to Supply Chain Management by Scott, Lundgren and Thompson 2011, Springer-Verlag (Available as Electronic Book at Krege Library)

Recommended Text: Supply Chain Management: A Global Perspective by Nada Sanders, 2018
(Not Required) Wiley Publishers.

Course Description and Goals

We are all consumers of goods and services which are the outputs of organizations from which we procure them. In almost all cases, these organizations do not act alone in their bid to meet our needs. In other words, these organizations in turn procure goods and services that enable them to meet our needs. Thus, there is a string of organizations involved in this whole process, whereby the outputs from one stage become the inputs of another stage. This string of organizations that provide the final consumer with goods and services is what is referred to as a supply chain.

Supply Chain Management (SCM) is that field of business whose goal is to make all processes in the chain to be efficient and effective while paying particular attention to processes that cross organizational boundaries. SCM is challenging for many reasons, which include the ability to work together with other organizations as partners, in spite of the fact that there are usually differences in corporate culture, organizational size, organizational location (along with language and social barriers), and financial viability, etc.

At the end of this course you are expected to:

- (1) Understand the characteristics and scope of supply chains and supply chain management
- (2) Understand the strategic implications of supply chain management in fostering a firm's competitiveness in a global environment
- (3) Understand the importance of partnerships, coordination, and integration among entities in a supply chain

- (4) Understand the role information technology plays in the effective management of supply chains
- (5) Understand the basic sources of risks in supply chains and how to manage them.
- (6) Be able to critically assess supply chains, or parts thereof, with a view to suggesting appropriate improvements
- (7) Be able to position an innovative business venture in its appropriate supply chain, considering all relevant issues necessary for it to be successful.

Course Format

The ultimate goal of this course is that you are able to learn and master some pertinent concepts that will enable you to function as a Supply Chain professional. In order to facilitate this goal, different formats of delivery and internalization of course content will be adopted.

It is important to emphasize that participation is a very important aspect of this course. Thus, the instructor expects you to be present and punctual for all class meetings throughout the semester. In addition, he expects you to be engaged with your course group-mates on group cases and group assignments which would be clearly identified in the syllabus and/or by the instructor. Groups will be formed on the 1st day of class. Another aspect of class participation is making contributions and/or asking thoughtful questions during when the instructor is delivering his lecture.

There are other assignments that you are required to do as individual assignments. You are not allowed to (and you **MUST NOT**) collaborate with other students or anyone else to do those assignments. If you have any problem with such individual assignments, please contact the instructor. In order to challenge you to learn and also to be fair to your classmates, he will not do such assignments for you. Rather, he will provide leading questions and some guidance which should help you to deal with the problem by yourself. Before consulting with the instructor in such cases, you need to put in a fair amount of time yourself – this is the only way you can learn and master such concepts.

The instructor will make PowerPoint Slides of the course material available to you through Moodle. The content of these slides will be a mixture of materials in the required book, those from other sources, including the instructor's conceptualizations and his prior work and related experiences. In principle, he will endeavor to make them available at least 24 hours before the class meeting when the material will be discussed. You are encouraged to print out such materials, in whatever format you want, and use them as a basis to take notes during the class meetings.

The course will involve lectures, case discussions, experiential exercise, video clip and a term project. The instructor will provide several reading materials for each topic. Going over the readings before the corresponding class meeting will greatly facilitate class discussions as well as your understanding of the course concepts.

You will find it useful to prepare a "reflection note" for the assigned reading materials, which include appropriate chapters in the course textbook, articles, as well as cases. Bring your reflection note to class for discussion purposes. There is no set format for the reflection notes, but they could be as follows. After having read the material, identify a couple of issues that are of particular interest to you, and put them in the context of your current or previous job. For example, questions

such as these could be asked and addressed. How applicable is this concept to the company in which I am (was) employed? What are the pros and cons of implementing this policy or framework? In what ways do the approaches used by this individual or firm differ from what occurs in the company in which I am (was) employed and why? As a basic rule, the instructor will seek voluntary contributions from students. Sometimes, however, “cold calls” by the instructor may be inevitable if contributions disproportionately emanate from a few students.

Class Schedule

<p><u>Week 1 (Thursday): January 4</u></p> <p style="text-align: center;">Course Introduction & Overview</p> <p>Video: Starbucks Coffee Supply Chain</p>
<p><u>Week 2 (Tuesday): January 9</u></p> <p style="text-align: center;">Introduction to Supply Chain Management</p> <p>Video: Supply Chain Management at Beiersdorf (Global Cosmetic Manufacturer)</p> <p>Required Reading: Chapter 1 of Course Textbook</p>
<p><u>Week 2 (Thursday): January 11</u></p> <p style="text-align: center;">Strategy for Managing Supply Chains</p> <p>Video: Strategic Management of Quality with Suppliers at Toyota</p> <p>Required Reading: Chapter 7 of Course Textbook</p>
<p><u>Week 3 (Tuesday): January 16</u></p> <p style="text-align: center;">Strategy for Managing Supply Chains cont'd.</p> <p>Case Discussion 1: Samsung Versus Apple Battle [Read this case ahead of our class meeting and come prepared for group discussion in class]</p>
<p><u>Week 3 (Thursday): January 18</u></p> <p style="text-align: center;">Managing Inventory in Supply Chains</p> <p>Quiz 1: Based on content in Chapters 1 and 7 of Course Textbook</p> <p>Video: Inventory at an Amazon Fulfillment Center</p> <p>Required Reading: Chapter 2 of Course Textbook</p>

Week 4 (Tuesday): January 23

Sourcing and Supplier Relationships

Video: Supplier Relationships at Covidien (Medtronic – Medical Technology Company)

Required Reading: Chapters 3 and 11 of Course Textbook

Week 4 (Thursday): January 25

Sourcing and Supplier Relationships cont'd.

Case Discussion 2: Designing a Hybrid Global Sourcing Strategy (Page 331 Fawcett)
[Read this case ahead of our class meeting and come prepared for group discussion in class]

Week 5 (Tuesday) January 30

Product and Process Design in Supply Chains

Video: Platform and Parts Sharing and their Impact on Supply Chain Costs

Required Reading: Chapter 4 of Course Textbook and HBR supplemental article on Mass Customization

Supplemental Reading: Harvard Business Review Article: The Four Faces of Mass Customization

Week 5 (Thursday): February 1

Product and Process Design in Supply Chains cont'd.

Quiz 2: Based on content in Chapters 3 and 11 of Course Textbook

Video: Mass Customization in Modular Home Building

Group Case Discussion 3: Early Supplier Integration in the Design of the Skid-Steer Loader (Page 115 of Wisner)
[Read this case ahead of our class meeting and come prepared for group discussion in class]

Week 6 (Tuesday): February 6

Project Day

Week 6 (Thursday) February 8

Shell Simulation Game

Individual Homework Exercise 1 (Technovation Supplier Selection Exercise) is due

Week 7 (Tuesday): February 13

Shell Simulation Game cont'd. & Midterm Exam Review

One-page Term-project proposal is due

Week 7 (Thursday): February 15

Midterm Examination

Week 8 (Tuesday): February 20

Mid-Semester Break (No class)

Week 8 (Thursday): February 22

Mid-Semester Break (No class)

Week 9 (Tuesday): February 27

Managing Transportation and Distribution in Supply Chains

Video: DHL's Distribution Management in Hospital Supply Chains

Required Reading: Chapter 5 of Course Textbook

Week 9 (Thursday): March 1

Managing Transportation and Distribution in Supply Chains cont'd.

Group Case Discussion 4: Shimamoto Toy Company

[Read this case ahead of our class meeting and come prepared for group discussion in class]

Week 10 (Tuesday): March 6

Returns Management in Supply Chains

Video: Reverse Logistics at Ryder

Group Case Analysis Report 1 is due: The case is -- 3M Canada – The Healthcare Supply Chain (Ivey Business School Case)

Required Reading: Chapter 6 of Course Textbook

Week 10 (Thursday): March 8

Returns Management in Supply Chains cont'd.

Individual Homework Exercise 2 (Fall Line, Inc. Ski Manufacturer Location Exercise) is due

Week 11 (Tuesday): March 13

Personnel Management & Customer Service in Supply Chains

Quiz 3: Based on content in Chapters 5 and 6 of Course Textbook

Video: FedEx Critical Supply Services

Required Reading: Chapters 8 and 10 of Course Textbook

Week 11 (Thursday): March 15

Risks and Resilience in Supply Chains

Video: DHL and Supply Chain Risk Management

Required Reading: The HBR Supplemental Reading on Supply Chain Disruption (indicated below)

Supplemental Reading: Harvard Business Review Article: From Superstorms to Factory Fires: Managing Unpredictable Supply Chain Disruptions

Week 12 (Tuesday): March 20

Sustainability Management and Supply Chains

Quiz 4: Based on content in Chapters 8 and 10 of Course Textbook

Video: Sustainability at Subaru Automotive Company

Required Reading: The SMR Supplemental Reading on Sustainability (indicated below)

Supplemental Reading -- Sloan Management Review Article: The Benefits of Sustainability-Driven Innovation

Week 12 (Thursday) March 22

Sustainability Management and Supply Chains cont'd.

Group Case Discussion 5: Supply Chain Sustainability at Clif Bar & Company (Page 597Krajewski)
[Read this case ahead of our class meeting and come prepared for group discussion in class]

Individual Homework Exercise 3 (Rightway Speed Express Scheduling Exercise) **is due**

Week 13 (Tuesday): March 27

Matchstick Simulation Game

Week 13 (Thursday): March 29

Matchstick Simulation Game cont'd.

Group Case Analysis Report 2 is due: Foxconn Technology A (Harvard Business School Case)

Week 14 (Tuesday): April 3

Technologies for Managing Supply Chains

Video: UPS Plans to Use Drones to Facilitate Package Delivery

Required Readings: The 2 Technology-related Supplemental Readings for this topic (indicated below)

Supplemental Reading 1: Supply Chain Mgt. Review Article: Disruptive Technologies Enabling Supply Chain Revolution

Supplemental Reading 2: Amazon Patent Train for Delivery Technologies Rolls On with Still More Recent Awards

Group Case Discussion 6: Getting the Data Right (Page 502 of Fawcett)
[Read this case ahead of our class meeting and come prepared for group discussion in class]

Individual Homework Exercise 4 (Greater Miami Food Bank Delivery Exercise) **is due**

Week 14 (Thursday): April 5

Project Day

Week 15 (Tuesday): April 10

Finish up & Project Presentation (Session 1)

Hardcopy of Term Project report is due for submission.

Week 15 (Thursday): April 12

Project Presentation (Session 2) & Final Exam Review

Examination Week (Examination date, time, and venue are in accordance with OU schedule)

Notes

- (1) The instructor will make the course textbook, supplemental readings, as well as the “Group Case Discussion” items available to you through our Moodle website. Download them and use as appropriate. Please note that I am making these resources available to you with the understanding that copyright regulations will not be violated, say for example, by printing a large number of copies and selling them. Please print 1 copy for yourself only.
- (2) The two cases that are to be used for preparing the “Group Case Analysis Reports” cannot be provided to you by the instructor. You have to buy them from Harvard Business Publishing. The instructor will set up an account for our class that allows you to buy the cases at a reduced price. He will send you the link to use for this purpose in due course.
- (3) The instructor requires you to provide him with a 1-page term project proposal on Tuesday, February 13. It should describe the supply chain segment that you plan to study or the innovative business venture you intend to propose. This proposal will not be graded, but it provides the instructor the opportunity to make suggestions that would help you execute the project properly. Names of all members undertaking the project should be indicated in the proposal.
- (4) It is recommended and would be helpful for you to do all the required readings specified for a given day ahead of the pertinent class meeting.

Evaluation for the Course

(1) Quizzes

There will be four quizzes administered in the course. These typically comprise a mix of true-false questions, multiple-choice questions, and a few descriptive questions. There would be no computational problems. The quizzes, which would be administered at the beginning of class on their designated dates in the syllabus, will be done under closed-book format and would last for about 10 – 15 minutes. As much as possible the instructor will try to ensure that the quizzes are

done on the dates indicated in the syllabus. However, if for unavoidable reasons such as weather or class pace being slower than anticipated, there needs to be a change in these dates, the instructor will promptly notify you. The focus of a given quiz is the designated chapters in the required course text ONLY. The primary goal of these quizzes is to assure that you have read the designated chapters of the course textbook.

(2) Examinations

There would be 2 Examinations – one would take place around mid-semester and the other one would take place at the end of the semester. These are comprehensive examinations that cover all material studied up to the point when they are administered. While the mid-term examination is a closed-book exam, you are allowed to come in for the final examination with 3 pages of handwritten notes (that is, notes written on three sides of a regular 8.5 inch by 11 inch paper). For purpose of clarity, notes written on 2 sides of 1 sheet of paper and 1 side of another sheet of paper constitutes 3 pages. The content of these examinations will be a balance between materials in the course textbook and those in the instructor's lectures. It is advised that you take good notes in class during such lectures. These examinations comprise a mix of true-false questions, multiple-choice questions, short descriptive questions, and mini-case and/or case scenario analysis. There will be no computational problems.

(3) Group Case Analyses

You are required to analyze and report on 2 extensive cases on Supply Chain Management that are both of which are available from Harvard Business Publishing. You will need to buy these cases from them, but the instructor will set up an account to enable you buy these cases at a discounted price. The cases would need to be worked on by ALL those in your group as a team and they should be submitted to the instructor on their designated dates. Even though these are group assignments, you should only put the names of those who actually participated in doing the analysis and write-up. Names of those who did not participate AT ALL should not be included – such students will not earn the grade for the assignment. The instructor will give students an opportunity to rate/rank other students in their group on all group assignments and group activities conducted throughout the semester.

As far as format is concerned, the case report should be typed. It should be 5-6 pages long, written with Times New Roman 12 point font, with double-line spacing, 1-inch margin on all sides. You can include appendixes to your report beyond the 5-6 page requirement. In analyzing the case, here are some of the key points to consider:

- (1) Who are the key persons and/or decision makers identified in the case? **[5%]**
- (2) What are the key issues that are being addressed? **[15%]**
- (3) What types of information in the case exhibits will facilitate decision making and how would they do so? **[10%]**
- (4) Which issue(s) need urgent attention and why do you think so? (If no issue needs urgent attention, then justify why you think that is the case) **[5%]**
- (5) Briefly describe how you – as a manager – would tackle the most important issue identified in the case and provide clear and logical justification for your approach for dealing with that issue. Include analysis and calculation/estimation, where appropriate. **[15%]**
- (6) Lessons about supply chain management you have learned from the case **[15%]**

(7) Relate the case to relevant practical issues of the same type that person(s) in the group have experienced in the company for which the person(s) work(s) or has (have) worked. In the absence of actual relevant experience, provide related examples published in reputable business magazines (you need to cite such sources) [15%].

Each case will be assessed based on the following criteria: How well each of the 7 items above have been addressed (80% -- relative weights are shown above); Spelling, Grammar and Flow of the write-up [15%]; and Extent of adherence to prescribed format for the write-up [5%].

(4) *Individual Homework Exercises* (Must be done by you alone - Collaboration is prohibited)

There are 4 individual homework exercises and they are computational problems relating to different aspects of supply chain management. While some of the underlying concepts are entirely new to you, others draw upon knowledge you have gained in previous courses. Where appropriate, the instructor will provide a brief review to show you how to answer the problems.

(5) *Term Project*

(A) Objective

- (1) To develop a deeper understanding of supply chain issues and how they impact supply chain performance
- (2) Propose recommendations for dealing with problem(s) or anticipated problems in supply chains and thus making them more competitive.

(B) Requirements

The instructor will require you to work in your designated group on a project throughout the semester. Two full days of class time have been specifically designated to enable you work on the term project with other members of your group.

Your group may choose from one of the following two project options.

(I) Analysis of an actual (existing) supply chain segment

Here you will be conducting field research on an actual supply chain. Since most supply chains are very complex, comprising several links, it is sufficient to base your study on a portion of the chain. You are required to examine two or more inter-company links in the chosen supply chain. Examples include a Supplier/OEM/Distributor system, an OEM/Distributor/Retailer system, a Tier-2-Supplier/Tier-1-Supplier/OEM system, etc. These are some of the issues you should address (This listing is not exhaustive – please include other relevant issues as you deem appropriate):

- The characteristics of the product(s) and where the supply chain fits in “Fisher’s Supply Chain Grid”
- Map out this supply chain segment showing flows of information, goods/services, and money

- The nature of relationships among entities in the supply chain. Are they appropriate given the specific situations in the company/industry and nature of the products?
- What impact would coordination, collaboration, or integration have and what are some challenges to this being realized?
- What logistic strategy is currently adopted? Is there room for changes that could positively impact the supply chain?
- How does the supply chain respond to unanticipated events? Do you consider it to be resilient? If not, what might be done to make it resilient?
- How is the issue of outsourcing, offshoring, or reshoring currently addressed? Are there better approaches to dealing with them, and what are the ramifications?
- What metrics are currently used to assess performance? Are they appropriate or adequate? What suggestions do you have?
- Provide estimates of cost reduction or increase in revenue/profits that you anticipate from suggestions you make for improving the supply chain

Consider yourselves as consultants who will be providing expert advice. The study will require interviews with appropriate personnel in a manufacturing plant, retail store, or logistic service provider; e.g., plant manager, supply chain manager, procurement manager, etc. Your findings from the interviews should be documented in the appendix of your report. (If confidentiality is a concern, you may choose to use arbitrary names for the companies.) Please note that this project should not be based simply on information you gather about the companies from the internet or company reports. If you need a letter to an official in the organizations you plan to study, please contact me and I will write one for you. A one-page abstract describing the supply chain segment you plan to study should be submitted to the instructor on the date indicated in the class schedule.

(II) Proposing an innovative business venture that will provide goods and/or services and addressing pertinent supply chain issues

Your team needs to come up with a business venture that will provide customers with a specific good and/or service. It is important that the venture be innovative and one that will capture a niche market. (Similar goods/ and or services may currently be in the market). You would need to provide justification in this respect by including pertinent information – based on data from public sources – suggesting that the business idea will not only survive but that it will flourish. Then position this business venture in its pertinent supply chain, indicating flows of information, goods and/or services, and money. Identify and explain the challenges you expect the supply chain to face. Discuss the supply chain in relation to pertinent topics covered in our supply chain management course. Specific items that should be addressed include (This is not an exhaustive listing – please include other relevant items as you deem appropriate):

- Provide a mission statement and clearly indicate the value proposition of the venture
- How will you address the issue of outsourcing, offshoring, or reshoring? Which aspects would you outsource or maintain and why?
- Indicate actual companies with which the venture will be connected in both the downstream and upstream sides of the supply chain, where applicable.
- What type of information technology will you use and how will it create competitive advantage for the supply chain?
- What metrics do you consider appropriate for assessing performance of the associated supply chain?

- How will you ensure that the supply chain is capable of responding to unanticipated events? Consider how to balance this against the cost of providing excess capacity.
- Describe plans of action and how and when they will be rolled out. Explain any assumptions you make and discuss contingency plans if anticipated plans of action do not materialize.

(C) Write-up

As far as format is concerned, you need to provide brief background information about the companies in the segment you are studying, including the products and processes. The article should be clearly and concisely written. (15 pages in length with 1.5 line spacing, using Times New Roman 12 point font, 1-inch margin on all sides, not counting exhibits, illustrations, and questionnaire) There are no restrictions as to the number and title of sections, other than that the report should have an “Introduction” section, a “Recommendation” section (or Business case for providing the good and/or service for project type II), and relevant references. There should be two cover pages. The first one should have the names of the companies in the supply chain studied (or business venture for project type II) as well as the names of the authors. The second cover page should be about 150-word executive summary that highlights what is addressed as well as the group’s main recommendations (or business case for project type II).

(D) Presentation

You will be required to make a PowerPoint presentation (about 10 minutes) to the class on the date scheduled in the syllabus. It is highly desirable that one person makes the presentation on behalf of members of the group. If more people are making the presentation, please ensure that there is seamless flow during the presentation. The instructor and members of the class will ask you questions about your presentation. Any member of the group making the presentation is free to provide the answers.

(E) Assessment

Grades for this term project will comprise the instructor’s component (80%), within-group peer evaluation component (10%) and outside-group peer evaluation component (10%). The within-group peer evaluation is derived from peer assessment of contribution to the work while the outside-group peer evaluation and instructor’s evaluation will be based on items such as: the design and execution of your study, analysis and recommendations for improving the supply chain studied (or for project type II, the innovativeness of the proposed business venture and how well pertinent supply chain issues are addressed), the oral presentation and answers to questions posed to the group. The instructor will provide a detailed template for these evaluations in due course.

Note: Please send the executive summary of your project report by e-mail to the instructor by 6:00 pm, Monday, April 9, 2018. The instructor will upload the material in Moodle so that other persons not in your group can be familiar with the essence of your report before you present it to the class.

(6) Class Participation

The main component of class participation is from the in-class activities that will be done throughout the semester. This includes the case discussions and the experiential exercises -- this will account for between 50% and 60% of the grade for participation. A student who is absent from class on days when these activities are done will earn zero for the associated activity. However, students who were ill or who have a serious personal or family emergency such as death in the family or those representing OU on a sports team would not earn zero points. Also, on a case-by-case basis, the instructor will make exceptions for those participating in a job interview for employment purposes. In all of these exception cases, students need to present valid proof. In case of illness, for example, a doctor's note would be required. The reason the instructor asks for appropriate documentation is not to probe into students' private matters. Rather, it allows him to provide fair and equal treatment for all students. Falsifying documentation presented to the instructor is a very serious matter and such cases would be referred to the appropriate authorities in Oakland University for action. There would be no make-up for missed activity by students described above. Their grades will be computed based on activities that they have participated in during the semester. Sometimes, the instructor may ask you to do an assignment in class or to investigate an issue and provide a report during the next class meeting. Points awarded for such activities will count toward class participation and there will be no make-up for them.

Another important component of class participation is your presence in class as recorded in the class journal which will be filled out each class meeting day. This will account for between 20 – 25% of the class participation grade.

Other components of class participation are the instructor's assessment of each student's participation, the student's self-assessment of his/her contribution to class discussion (not within group discussion), as well as peer-assessment within and outside the group. As part of this process, the instructor will ask you to rate/rank students in your group and you will be asked to provide names of the top 2 or 3 people who have made the best contribution to overall class discussions throughout the semester. In order to ensure integrity in peer assessment, the instructor will ask you to provide explanation for the points you award to a fellow student. Using his judgment, all of the above information would be collated appropriately to determine a student's class participation grade.

The weights of the various components for the evaluation are as follows:

Quizzes: 3 x 30 points = 90 points (Grades for the best 3 out of the 4 quizzes)

Examinations: (Exam 1 = 140, Exam 2 = 270) = 410 points

Case Analyses (Group): 35 x 2 = 70 points

Individual Homework Exercises: *Exercise 1* (15%), *Exercise 2* (20%), *Exercise 3* (40%)
Exercise 4 (25%) [Total = 150 points]

Term Project: 140 points

Class Participation: 140 points

Total Number of points = 1000 points

As you can see above, examinations and quizzes comprise a total of 50% of the overall grade. This is the standard (Scheme A) that will be applied to all students. However, the instructor will allow each student to opt for one of THREE other possible schemes. Schemes B, C, and D will have a

weight of 45%, 55% and 65%, respectively, applied to examinations and quizzes. The student needs to inform the instructor in writing no later than February 8, 2018, indicating which scheme he/she desires to be used for him/her instead of Scheme A, the standard scheme. The instructor is offering this flexibility in grade weighting structure in order to accommodate students who have different strengths. For example, some students believe that they can do better on the written examinations and quizzes as compared to some of the other items – such as cases – for which appropriate work experience is valuable. On the other hand, others believe that they have significant relevant work experience, and thus would prefer to be weighted less on the examinations and quizzes. If you want a scheme different from those given above to be applied to you, you would need to make a request to the instructor in writing, providing your justification. The limits are 70% weight for quizzes/examinations on one extreme and 40% for quizzes/examinations on the other extreme. Approval of such request is solely at the instructor’s discretion. Again, please note that the standard scheme A will be used for any student who does not respond by February 8, 2018. Final Grade Points will be determined using the adjusted OU grade system shown below OR it will be based on the new OU grading scheme that is currently undergoing review (when it is approved). In other words, the OU scale supersedes the one indicated here (when approved). The instructor will provide further information to you on this matter in due course.

Grade Point	Score	Grade Point	Score
4.0	945.0 and above	2.4	720.0 –729.9
3.9	935.0 – 944.9	2.3	710.0 –719.9
3.8	918.0 – 934.9	2.2	700.0 –709.9
3.7	899.0 – 917.9	2.1	690.0–699.9
3.6	883.0 – 898.9	2.0	680.0 –689.9
3.5	867.0 – 882.9	1.9	670.0 –679.9
3.4	850.0 – 866.9	1.8	660.0 –669.9
3.3	825.0 – 849.9	1.7	650.0 – 659.9
3.2	810.0 – 824.9	1.6	640.0 – 649.9
3.1	795.0 – 809.9	1.5	630.0 – 639.9
3.0	780.0 – 794.9	1.4	620.0 – 629.9
2.9	770.0 – 779.9	1.3	610.0 – 619.9
2.8	760.0 – 769.9	1.2	600.0 – 609.9
2.7	750.0 –759.9	1.1	590.0 – 599.9
2.6	740.0 –749.9	1.0	580.0 – 589.9
2.5	730.0 –739.9	0.0	Below 580.0

Class Administration Issues

- (1) The instructor considers class attendance and active participation to be very important. Item 6 in the previous page describes details of the class participation policy. In addition to that, please note that missing class more than 5 times throughout the semester would lead to automatic failure in the class. Attendance would be based on the record of your presence in the class journal passed out during every class meeting. Please make sure you indicate your presence by signing the class journal each class meeting. This policy is put in place by the

instructor in good faith to help increase your chance for success in the class. Needless to say that you cannot sign the class journal for another student. That amounts to academic dishonesty and it would be handled through the appropriate authorities. Use the maximum of 5 times allowed absences for truly serious situations so that you do not run into the problem of not having fulfilled the attendance requirement for the class.

- (2) Please take full advantage of the office hours. You may arrange alternative times with the instructor if the designated times are not suitable for you.
- (3) If you have any concerns, please feel free to send an e-mail or arrange to discuss with the instructor. Also, if you have questions about your grades, arrange to discuss with the instructor outside class time.
- (4) Anyone with disabilities requiring special accommodation should inform the instructor as soon as possible.
- (5) Late submission are not allowed for any case report or assignment for the class. If you know you would be absent from class on a day when an assignment is due, then send it by e-mail to the instructor as a record that you met the deadline.
- (6) Oakland University's policy on academic misconduct will be enforced. Please be familiar with the terms. Cheating, plagiarism, and submitting portions of a paper (or all parts of a paper) meant for, or already used for another class or previous semester for this class, are some examples of acts that are prohibited. A student involved in academic misconduct will earn a failing grade in the course. This is in addition to any penalties that will be imposed by OU's Academic Conduct Committee.
- (7) We operate in an academic environment where it is especially important for freedom of expression of your thoughts as they pertain to the materials being discussed. In light of this, you do not need to agree with the professor's opinion or those of your classmates. Nevertheless, it goes without saying that in order to create an environment that is conducive for learning, caution should be exercised to ensure that you show respect to your professor and fellow classmates, even if you do not agree with their points of view.

Some Useful Reference Books

- (1) Principles of Supply Chain Management: A balanced approach, 2005, by Joel Wisner, Keong Leong, and Keah-Choon Tan (Thomson).
- (2) The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer, 2004, by Jeffrey Liker (McGraw Hill).
- (3) Streamlined: 14 Principles for Building and Managing the Lean Supply Chain, 2004, by Mandyam Srinivasan (Thomson).
- (4) Supply Chain Redesign: Transforming Supply Chains into Integrated Value

Systems, 2002, by Robert Handfield and Ernest Nichols (Prentice Hall).

- (5) Supercharging Supply Chains: New Ways to Increase Value Through Global Operational Excellence, 1998, by Gene Tyndall, Christopher Gopal, Wolfgang Partsch, and John Kamauff (Wiley).
- (6) The Machine that Changed the World, 1991, by James P. Womack, Daniel T. Jones, and Daniel Roos (Harper-Collins, New York.)

Some Useful Web links

- (1) Industry Week: <http://www.industryweek.com/>
- (2) Stanford Global Supply Chain Forum: <http://www.stanford.edu/group/scforum/>
- (3) Supply Chain Management Review: <http://www.scmr.com/>
- (4) Supply Chain Brain: <http://www.supplychainbrain.com/content/index.php>

Listing of Required Readings for the Course

- SCD (2017) Amazon Patent Train for delivery Technologies Rolls On with Still More Recent Rewards, Supply Chain Digest, <http://www.scdigest.com/ONTARGET/17-01-10-2.PHP?cid=11778&ctype=content>
- Vyas, N. (2016). Disruptive technologies enabling supply chain evolution. *Supply Chain Management Review*, 20(1), 36-41.
- Simchi-Levi, D., Schmidt, W., & Wei, Y. (2014, Jan). From superstorms to factory fires: Managing unpredictable supply-chain disruptions. *Harvard Business Review*, 92, 96-101.
- Kiron, D., Kruschwitz, N., Reeves, M., & Goh, E. (2013). The benefits of sustainability-driven innovation. *MIT Sloan Management Review*, 54(2), 69-73.
- Gilmore, J. H., & Pine, B. J. (1997, Jan). The four faces of mass customization. *Harvard Business Review*, 75, 91-101.

Appendix

Individual Homework Exercise Number 1

Technovation's Supplier Selection Exercise [15% of Total Homework Exercise Score]

Technovation, Inc. is a major Tier 1 supplier of electrical and electronic parts, with operations in more than 80 countries around the globe. It supplies the parts to Original Equipment Manufacturers (OEMs) in a wide range of industries, including; automotive, aerospace, healthcare, and electronics manufacturing.

In the recent past, it has experienced significant growth due to several new contracts received. The company is in the process of identifying suppliers for a critical component that goes into the product it makes. Technovation's buyer team has shortlisted 4 potential suppliers and requested that they provide a self-assessment of their performance in different areas. Based on this information and others that include the facilities' site visits, the 4 suppliers were given scores as shown in the table below. Also, the team of evaluators went through a series of iterative processes to arrive at weights for each of the criterion. These values are also provided in the table (shown in brackets). The team's intent is to use this information to determine the 2 suppliers to narrow down to so as to engage in negotiations with them. Depending on the post-negotiation result, the team would decide to either use 1 of the suppliers or split the production volume between these 2 suppliers.

Factors (Weights)	Robin, Inc.	Powell, Inc.	Tulane, Inc.	Rider, Inc.
(1) Technical (0.15)				
(a) Design (0.10)	90	85	85	80
(b) Experience (0.05)	70	80	75	70
(2) Management (0.15)				
(a) Experience (0.10)	85	75	90	70
(b) Expertise (0.05)	80	90	85	80
(3) Quality (0.30)				
(a) Defect rate (0.20)	90	70	85	75
(b) Best practice (0.10)	65	85	90	70
(4) Delivery (0.20)				
(a) Lead time (0.10)	75	70	60	65
(b) On-Time Performance (0.10)	80	90	70	75
(5) Price (0.20)	85	90	80	75

(a) Help the team determine the 2 suppliers to which it should narrow down this list [Apply the Weighted Factor Analysis (WFA) method. Use Microsoft Excel for your calculations].

[40 points]

(b) Do you think the team should eventually use 1 supplier or split the volume between these 2 suppliers? Fully discuss why you are in favor of one over the other. **[5 points]**

- (c) What other factor(s) do you think the team omitted and which they should have included? Briefly explain. **[5 points]**

Individual Homework Exercise Number 2

Fall Line, Inc. Ski Manufacturer Location Exercise [20 % of Total Homework Exercise Score]

Fall-Line, Inc. is a Great Falls, Montana manufacturer of a variety of downhill skis. Fall-Line is considering four locations for a new plant: Aspen, Colorado; Medicine Lodge, Kansas; Broken Bow, Nebraska; and Wounded Knee, South Dakota. Annual fixed costs and variable costs per pair of skis are shown in the table below.

Sample Skis manufactured by Fall-Line, Inc.



Location	Annual Fixed Costs	Variable Costs per pair
Aspen	\$8,000,000	\$250
Medicine Lodge	\$2,400,000	\$130
Broken Bow	\$3,400,000	\$90
Wounded Knee	\$4,500,000	\$65

- (a) Plot the total cost lines for all locations on a single graph. Indicate on the graph the range in volume over which each location would be best. (Please draw to scale. Use graph paper – you may choose to use the one that the instructor will provide to you through Moodle. – the graphing *must not* be done by using any graphing software and it should not be done by hand on paper.)

[18 points]

- (b) What breakeven quantities define each of the following transitions? Do this algebraically and comment on how your algebraic results compare with your graphical results in part (a) above.

[I] Wounded Knee versus Broken Arrow transition **[10 points]**

[II] Broken Bow versus Medicine Lodge transition [10 points]

- (c) Based on the cost information provided in the table above, can Aspen be the best place to locate the ski plant? Explain your answer [5 points].
- (d) Fall-line believes that both the demand and the price the ski can be sold for depend on where they are made. The following table shows the projections for price of the ski and the forecast demand. Based on this new information, determine the best location in terms of total annual profit (which is the difference between the total annual revenue and the total annual costs) [7 points]

Location	Price per pair	Forecast demand per year (pairs)
Aspen	\$500	60,000
Medicine Lodge	\$350	45,000
Broken Bow	\$350	43,000
Wounded Knee	\$350	40,000

Individual Homework Exercise Number 3

Rightway Speed Express Scheduling Exercise [40% of Total Homework Exercise Score]

Drusco, Inc. is a Tier-2 automotive supplier that operates in several parts of the United States, including Tennessee. It provides to the Big 3 US automakers as well as to some foreign automakers various types of parts used in manufacturing the automobile. Its primary motto as a company is: “We are Leaders in Reliability, Quality, and Efficiency in the Supply Chain”. It primarily uses several 3rd party logistics firms to meet its transportation needs when supplying the OEMs with ordered parts. Consistent with its motto, sometimes, this company has had to use premium shipments in order to eliminate or minimize OEM penalties for parts that are not supplied on time. One company that Drusco relies heavily on during such times is Rightway Speed Express, Inc.

Rightway Speed Express, Inc. is a shipping service that guarantees overnight delivery anywhere in the continental United States. The company has various operations centers, called hubs, at airports in major cities across the country. Packages are received at the hubs from other locations and then shipped to intermediate hubs or to the final destinations.

Mr. Stuart Kim is the manager in charge of Speed Express’ hub in Memphis, Tennessee. He is concerned about labor costs at the hub and is interested in determining the most effective way to schedule workers. He could schedule workers in such a way as to minimize the number of workers needed, as a surrogate for minimizing labor costs or he could schedule the workers to directly minimize the labor costs.

The hub operates 7 days a week, and the number of packages it handles each day varies from one day to the next. Using historical data on the average number of packages received each day, Mr. Kim estimates the number of workers needed to handle the number of packages as:

Day of Week	Number of Workers Required
Sunday	18
Monday	27
Tuesday	22
Wednesday	26
Thursday	25
Friday	21
Saturday	19

The package handlers working for Rightway Speed Express, Inc. are unionized and are guaranteed a five-day work week with two-consecutive days off. The base wage for the handlers is \$655 per week. Because most workers prefer to have Saturday or Sunday off, the union has negotiated bonuses of \$25 per day for its members who work on these days. He needs to schedule the workers so that there is sufficient enough workers available each day.

Consider the following shifts with the prescribed days off.

Shift	Days off
1	Sunday and Monday
2	Monday and Tuesday
3	Tuesday and Wednesday
4	Wednesday and Thursday
5	Thursday and Friday
6	Friday and Saturday
7	Saturday and Sunday

- Determine a schedule of workers that minimizes the total number of workers used per week as a surrogate measure for minimizing total weekly labor cost. How much will this cost the company in labor per week? **[20 points]**
- Determine a schedule of workers that directly minimizes the weekly labor cost. How much will this cost the company in labor per week? **[23 points]**
- How much annual savings (loss) will Mr. Stuart incur for using approach (b) instead of approach (a)? Indicate whether it is a savings or loss. There are 52 weeks in a year.

[Note: Microsoft Excel Solver is needed for solving this problem. **[7 points]**

You would need to determine the weekly wage for the shifts/days off provided in the table above. Schedule of workers in parts (a) and (b) above mean how many workers should be assigned to each of the 7 shifts. Do the relevant calculations and attach the Excel Worksheets used for solving the problem. The instructor will provide a sample problem and solution for determine a schedule that minimizes number of workers needed. You should be able to extrapolate to other parts of the problem by using the same principles [This should be done by you alone – No Collaboration or copying from another student is permitted!!].

Individual Homework Exercise Number 4

Greater Miami Food Bank Delivery Exercise [25% of Total Homework Exercise Score]

Ms. Esther Rumble recently graduated with a degree in Supply Chain Management from the University of Miami. Ms. Kimberly Lee, her supervisor, is the General Manager of the Greater Miami Food Bank. This company collects food donations from local grocery stores and transports them back to a distribution center where they are sorted and transferred to local food kitchens that feed the needy. Due to tight budgets and growing environmental concerns, it is crucial that driver capacity and fuel be used efficiently. Thus, Ms. Lee has tasked Ms. Rumble to ensure that the collection vehicles are routed in the most efficient manner. The distances in miles between any pair of stores, including the depot is shown in the table below. This company's van follows a chosen route from Monday through Saturday, each week of the year, except for a break of 2 weeks in the year. One is in June and the other one is in December. The vans run on 15 miles per gallon of gasoline. The estimated price of gasoline is \$2.45 per gallon and the estimated cost for vehicle maintenance and depreciation is \$0.17 per mile. Put yourself in Esther Rumble's position and answer the following questions.

From/To	Depot	Store A	Store B	Store C	Store D	Store E
Depot	--	10	24	60	40	26
Store A	10	--	34	46	35	44
Store B	24	34	--	48	20	15
Store C	60	46	48	--	15	35
Store D	40	35	20	15	--	12
Store E	26	44	15	35	12	--

- The route currently being used for operation is: Depot → Store A → Store B → Store D → Store E → Depot. How much does it cost the Food Bank annually to run this operation from the viewpoint of fuel and maintenance costs? **[10 points]**
- Using the Nearest Neighbor (NN) heuristic, determine another route for the operation and find out the percentage reduction in total annual fuel and maintenance costs and comment on your result. **[14 points]**

- (c) If Mr. Tom Brady, the manager for Store B, suggests that the truck should start the pickup from his store every day before going to other stores, what are the cost implications of following his suggestion (based on the NN heuristic) if:
- (i) the truck need not start at the Depot and end at the Depot each day **[13 points]**
 - (ii) there is a requirement that the truck needs to leave from the Depot initially every day before going to and leaving from store B and eventually returning back to the Depot after arriving at store B **[13 points]**.

Clearly show full calculations and provide appropriate discussions of the results you have obtained.