PLEASE READ THIS MEMORANDUM OF UNDERSTANDING (MU) THOROUGHLY BY JANUARY 20TH, 2021 AND BE PREPARED TO DISCUSS THE ASSIGNED READING MATERIAL FOR THE FIRST CLASS SESSION

COURSE NUMBER: MBA 708-51
COURSE TITLE: OPERATIONS FOR COMPETITIVE ADVANTAGE
SEMESTER: SPRING 2021
MEMORANDUM OF UNDERSTANDING (MU)

SPECIAL INSTRUCTIONS DURING THE COVID-19 (CORONAVIRUS) PANDEMIC (AS APPROVED BY THE FACULTY SENATE ON JULY 30TH, 2020)

As UNCG returns to face-to-face course offerings in the Fall 2020 semester, the campus community must recognize and address concerns about physical and emotional safety. As such, all students, faculty, and staff are required to uphold UNCG’s culture of care by actively engaging in behaviors that limit the spread of COVID-19. Such actions include, but are not limited to, the following:

- Wearing a face covering that covers both nose and mouth
- Observing social distance in the classroom
- Engaging in proper hand washing hygiene when possible
- Self-monitoring for symptoms of COVID-19
- Staying home if you are ill
- Complying with directions from health care providers or public health officials to quarantine or isolate if ill or exposed to someone who is ill.

Instructors will have seating charts for their classes. These are important for maintaining appropriate social distance during class and facilitating contact tracing should there be a confirmed case of COVID-19. Students must sit in their assigned seat at every class meeting and must not move furniture. Students should not eat or drink during class time.

A limited number of disposable masks will be available in classrooms for students who have forgotten theirs. Face coverings will also be available for purchase in the UNCG Campus Bookstore. Students who do not follow masking and social distancing requirements will be asked to put on a face covering or leave the classroom to retrieve one and only return when they follow these basic requirements to uphold standards of safety and care for the UNCG community. Once students have a face covering, they are permitted to re-enter a class already in progress. Repeated issues may result in conduct action. The course policies regarding attendance and academics remain in effect for partial or full absence from class due to lack of adherence with face covering and social distancing requirements.

For instances where the Office of Accessibility Resources and Services (OARS) has granted accommodations regarding wearing face coverings, students should contact their instructors to develop appropriate alternatives to class participation and/or activities as needed. Instructors or the student may also contact OARS (336.334.5440) who, in consultation with Student Health Services, will review requests for accommodations.

Health and well-being impact learning and academic success. Throughout your time in the university, you may experience a range of concerns that can cause barriers to your academic success. These might include illnesses, strained relationships, anxiety, high levels of stress, alcohol or drug problems, feeling down, or loss of motivation. Student Health Services and The Counseling Center can help with these
or other issues you may experience. You can learn about the free, confidential mental health services available on campus by calling 336-334-5874, visiting the website at https://shs.uncg.edu/ or visiting the Anna M. Gove Student Health Center at 107 Gray Drive. For undergraduate or graduate students in recovery from alcohol and other drug addiction, The Spartan Recovery Program (SRP) offers recovery support services. You can learn more about recovery and recovery support services by visiting https://shs.uncg.edu/srp or reaching out to recovery@uncg.edu

**COVID-19 Spartan Shield Video**

UNCG Chancellor Frank Gilliam has challenged us to create a Culture of Care at UNCG where we all wear face coverings and social distance, less to protect ourselves but rather more to protect everyone around us. It shows that you care about the well-being of everyone around you. We have created this video featuring your student body presidents to better explain how and why this is so important. Please watch this video before the first day of classes at the following web link: https://youtu.be/Mb58551qxEk

**PLACE**

Class sessions will be held in Room 204, Joseph M. Bryan School of Business and Economics.

**TIME**

2:00 p.m. to 4:50 p.m. on Wednesdays.

**FACULTY MEMBER**

Vidyaranya B. Gargeya

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Department of Information Systems and Supply Chain Management
424, Joseph M. Bryan School of Business and Economics
Phone Numbers: (336) 334-4990 (Work) (336) 334-5580 (Fax) (336) 545-9263 (Home)

**APPOINTMENT TIME**

5:00 p.m. to 6:00 p.m. on Wednesdays (via Zoom). You may drop in virtually during office hours to talk about any problems or suggestions you may have concerning the course, careers, benefits of advanced courses in operations management, or things in general. If you want to talk to the professor and find the appointment hours to be inconvenient, feel free to schedule any other appointment time.

**CATALOG DESCRIPTION OF THE COURSE**

The course examines design, operation, and control of organizations for gaining and maintaining competitive advantage in the marketplace. Strategic and tactical issues will be integrated with a systems approach.

**WITHDRAWAL DATE**

The last date to drop the course without receiving academic penalty is March 15th, 2021 (Monday).
DESCRIPTION OF THE COURSE

The course begins with an introduction to the managerial processes underlying operations in both service-providing and goods-producing organizations. In the initial phase of the course, specific topics to be covered include process design, capacity planning, facilities location and design, application of forecasting in operations, aggregate planning, inventory management, project management, and quality management. Later the course will focus on the development and implementation of production/operations strategy and the integration of this strategy with other functions of the organization. Topics in the latter half of the course include alternative production/operations strategies, choice of process, operations strategy selection and implementation, selection and adoption of new technologies (such as enterprise-wide resource planning systems), and the integration of information, quality, and productivity into the operations function. A global theme will run through the entire course. The course is fairly intensive and extensive with the integration of the strategic and tactical issues with case studies, an organization-based assignment, and an in-class interactive exam with a guest speaker presentation. To the extent relevant and feasible, the material to be presented will include the ethical issues, the influence of political, social, legal and regulatory, environmental, and technological issues, and the impact of demographic diversity with respect to the strategic role of operations.

READING MATERIALS

Text Book


Students can purchase the textbook at the UNCG Bookstore (in the Elliott University Center) with one of the following two options:

1) purchase the new edition of the Operations & Supply Chain Management (loose-leaf version of the textbook) with Connect (ISBN 9781264091676), or

Cases


The course pack (containing the two cases) can be purchased for $8.50 (that is, $4.25 for each case) at https://hbsp.harvard.edu/import/785361

Videos

There are 15 videos that should be viewed prior to the class sessions. The videos are placed in Box and will be shared with students. There is no need to purchase these videos. Those have been listed accordingly in the schedule of sessions.

Students should read and view the required materials prior to attending each class session. Students should have the appropriate reading materials available for each class session.
PRE-REQUISITE AND CO-REQUISITE COURSES

MBA 701 (Quantitative Analysis for Decision Making) is the prerequisite course. For a student to do well in the MBA 708 course, it is not just adequate if the student has taken the MBA 701 course. It is more important that the student be thorough with the content (Probability, Normal Distribution, Optimization Techniques, Risk and Decision Analysis, etc.), be able to analyze, integrate, synthesize, and communicate well in written and oral form. It is the responsibility of the student to prepare himself/herself adequately in these areas. The concepts and principles covered as part of the MBA 701 course will not be covered in MBA 708 course. There will be quantitative applications (in the form of statistical analysis, optimization techniques, and risk and decision analysis) and qualitative analysis exercises (in the form of written case analysis and in-class discussions) in the MBA 708 course. The students will be expected to learn new vocabulary related to the operations (and on occasion in the areas of financial and managerial accounting marketing; financial management; technology and innovation; leadership and sustainable business) early on in the first nine weeks and then apply the concepts in the latter half of the course.

UNIVERSITY OPERATIONS DURING ADVERSE WEATHER CONDITIONS

The University of North Carolina at Greensboro will remain open during adverse weather conditions unless an administrative decision on schedule changes is made by the Chancellor. If students have a question on whether classes are delayed, canceled, or if the university is closed, then they must call the Inclement Weather Hotline at (336) 334-4400 or the UNCG Switchboard at (336) 334-5000. A recorded message will give the most accurate information.

GRADING

The course grade is based on a mini-case analysis, an in-class written exam, an in-depth case analysis, a topic paper, an ACID Test (in-class interactive written exam), and class contribution. Grades are based on the following "absolute" scale (i.e., there will not be any "curving").

<table>
<thead>
<tr>
<th>Points</th>
<th>Date</th>
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<tbody>
<tr>
<td>First In-class Written Exam</td>
<td>50</td>
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<tr>
<td>Mini-Case Analysis</td>
<td>50</td>
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<tr>
<td>Second In-class Written Exam</td>
<td>50</td>
</tr>
<tr>
<td>Topic Paper</td>
<td>100</td>
</tr>
<tr>
<td>In-depth Case Analysis</td>
<td>100</td>
</tr>
<tr>
<td>ACID Test (In-class Interactive Written Case Exam)</td>
<td>100</td>
</tr>
<tr>
<td>Class Contribution</td>
<td>50</td>
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<tr>
<td>TOTAL</td>
<td>500</td>
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A ≥ 450; A- ≥ 433; B+ ≥ 416; B ≥ 400; B- ≥ 383; C+ ≥ 366; C ≥ 350; F < 350.
IN-CLASS WRITTEN EXAMS

Each in-class written exam (of 75 minutes duration) will include five short answer questions (i.e., multiple choice, true/false, and brief discussion questions) and two problems (which will involve computations). The exam content will be drawn from the textbook, vignettes, videos, and class discussions using the objectives listed in the schedule of sessions as a general guideline. The in-class exams are closed-book, and closed-notes.

RE-EXAMINATION POLICY

As a rule, re-examinations will not be held. Absence from the in-class written examinations due to illness, summons to jury duty, or any other compelling reason should be backed by the appropriate documents (e.g., medical certificate, etc.) in order to qualify for a re-examination. If possible, meet/talk with the professor before missing the examination to discuss the circumstances.

FACULTY STUDENT GUIDELINES

The faculty and students in the course are expected to adhere to the faculty student guidelines stated at the following web page: https://bryan.uncg.edu/wp-content/uploads/2017/08/Faculty-and-Student-Guidelines-2018-2019.pdf

HONOR POLICY

Students are expected to comply with the UNCG Honor Policy described at the following web page: http://academicintegrity.uncg.edu/complete/

MINI-CASE ANALYSIS

Each student is to submit a written analysis of Sustainability at TS Designs (TSD) mini-case. The TSD mini-case will be handed out to the students on February 17th, 2021. At 2:00 p.m. on February 24th, 2021, a set of questions on that case will be given to the students. Then the guest speaker (Mr. Eric Henry, President of TS Designs) will present for about ten (10) minutes. The next twenty (20) minutes will be devoted to a question/answer session. Students should refrain from asking any questions while Mr. Henry is making his formal presentation. The guest speaker will leave the class room at 2:30 p.m. The individual mini-case analysis is to be submitted in class at 2:00 p.m. on March 3rd, 2021. Late submissions will not be accepted. The mini-case analysis is “open book and open notes”. The weblink to TS Designs is tsdesigns.com. Unless otherwise instructed, the individual should take on the role of a manager who has been assigned to review the issue(s) of concern or interest to the firm which are presented within the case. The written analysis is his/her report and recommendations on that/those issue(s) paying particular attention to the questions that will be given on February 24th, 2021. Three (3) articles related to sustainability are provided in the readings for sessions 2 and 6 on Canvas. These articles must be used in developing the analysis. Other articles could also be found on Google Scholar (at www.scholar.google.com). If you need to make assumptions to accomplish this, feel free to do so and appropriately incorporate them in your written analysis. Discuss the issues in detail.

Students should work on this written analysis on an individual basis (and not as a team/group). Individuals should neither seek nor receive help from friends and family in completing this written analysis. The paper should be typed (maximum 12 point size lettering), double-spaced on 8.5” by 11” paper, with 1”
margins and appropriately paginated and stapled. No minimum or maximum length is specified, although the written analysis should not typically exceed 10 pages (excluding appendices) in length. Individuals are requested to refrain from repeating the details provided in the case (just to fill up space) in their written analysis. That is, individuals are requested to cover the topics thoroughly, but efficiently. Do not add verbiage for the sake of length. Feel free to include diagrams, or other types of illustrations in your written analysis. Oversized charts or drawings should be folded to fit the rest of the paper. Appendices should be appropriately numbered and referred to the write-up. References should be appropriately cited in the written analysis using the following manual:


In preparing the written analysis, write from an objective view, in third person. Do not use the words "I", "We", or "You". Use subheadings to correspond with specific issues posed for the mini-case. The written analysis will be graded on organization, thoroughness (depth and breadth of coverage of material), insight of analysis, and written communication skill. The questions that need to be addressed are given at the end of the mini-case. A separate cover page should include the course title, course number (and section number), name of the student, and the title of the assignment. Each student should attest to the statement that "I HAVE ABIDED BY THE ACADEMIC HONOR POLICY ON THIS ASSIGNMENT" on the cover page of the mini-case analysis assignment.

**TOPIC PAPER**

The topic paper assignment will be carried out by the student as a member of a team of two students. The names of students will be randomly chosen by the faculty member at 3:30 p.m. on January 20th, 2021. By the end of the first class session on January 20th, 2021, the student teams will be assigned one of the following topics to be related to Grass America, Inc. in Kernersville, NC:

1) Plant Level Performance Measures  
2) Managing Projects  
3) Quality Management  
4) Product Design  
5) Demand Management and Forecasting  
6) Strategic (Long Range) Capacity Planning  
7) Facility Layout  
8) Work Design (Machine and Human Interaction)  
9) Supply Chain Management  
10) Inventory Management  
11) Aggregate (Medium Range Capacity) Planning  
12) Materials Requirements Planning  
13) Shop Floor Scheduling and Control  
14) Just-in-Time/Continuous Improvement Systems

For facilitating a better understanding of the subject matter being studied, a plant tour to the Grass America, Inc. (GA) facility (located at 1202 NC 66, Kernersville, NC 27284) is being arranged from 9:00 a.m. to 12:00 noon on February 26th, 2021 (Friday). The paper would entail a good review of the literature (at least 8 to 10 relevant articles and books) on that subject and an analysis of that aspect as it relates to that organization. The review of the literature could be based on articles published in Production and
Inventory Management Journal, Quality Progress, Industrial Management & Data Systems, and other relevant journals. Articles should be from refereed journals with exact volume and issue number, year of publication, and page numbers provided in the list of references. Information/articles from websites (not connected to refereed journals) are not to be used. The refereed articles and books can be searched using Google Scholar (at www.scholar.google.com). A one-page abstract (which includes the title of the paper, specific topic from the course, how the topic relates to GA and a short bibliography of published articles and books) should be submitted to the faculty member at the beginning of the class period on February 3rd, 2021. The detailed listing of the references should be as per the following publication:


A list of questions/issues (based on a thorough review of the literature) for the visit should be submitted to the professor at the beginning of the class period on February 17th, 2021. The set of issues/questions for the plant visit should be based on your readings of the articles and books on the topic chosen and the website of Grass America, Inc. at https://www.grassusa.com/. The detailed set of references should be provided along with the issues/questions.

In general, the paper should be written for an audience (of practitioners and academics) that is interested to study more about the topic as it relates to the selected industry (in which the organization operates). Do not assume that the only person reading the paper is the faculty member (who is a content expert on the topic selected). The following outline should be used for the topic paper: Abstract, Introduction, Review of the Literature (including a summary/framework based on the review of the literature on how you plan to relate the subject matter to the organization being studied in the fifth section of the paper), Research Methodology (of a case study with a structured interview approach and the details of the organization), Findings (as they relate to the framework presented in the third section of the paper), Conclusions, and References. In addition to analyzing the topic as it exists in the organization, the paper should make recommendations for improvement in the concluding section. Limitations in the study and suggestions for future research could also be included in the concluding section. A structured interview approach could be adopted to collect the information from the executives in the organization. It is important that the list of questions/issues (for the structured interview approach) are developed after developing the framework at the conclusion of the literature review. That is, the review of the literature should be conducted before developing the list of questions. It is expected that the entire paper will be written based on data and information obtained from the interview(s) with the managers and secondary sources (such as books, articles, internet web sites, annual reports, etc.). You should review the literature and develop the framework on the topic before you begin to apply it GA. A few samples of papers have been placed in “Materials for Topic Paper” section in files on Canvas. That should give the students an idea of how to structure the topic paper. The research method is used in the topic paper is as per the following reference:


Yin (2003) must be used as a reference in the research methodology section of the topic paper. The following two papers (uploaded on Canvas) can be used as samples to write your topic paper:

Each student team is encouraged to develop the paper as we progress through the course. That would help to distribute the work associated with the topic paper more evenly over the semester. Feel free to discuss your topic paper with the faculty member as it is being developed. The paper should be typed (maximum 12 point size lettering), double-spaced on 8.5” by 11” paper, with 1” margins, and appropriately paginated and stapled. No minimum or maximum length is specified, although the papers are typically 15 to 25 pages long. Cover the topics thoroughly, but efficiently. Do not add verbiage for the sake of length. Include diagrams, photos, sketches, or other types of illustrations that will clarify your presentation. Citations should appropriately referenced at the end of the paper, and pages, tables, figures should be appropriately numbered.

In preparing the written analysis, write from an objective view, in third person. Do not use the words "I", "We", or "You". Use subheadings to correspond with specific issues posed for the mini-case. The topic paper will be graded on organization, thoroughness, insight of analysis/recommendations, and written communication skill. It is highly recommended that a project management approach be taken for ensuring the timely completion of the paper. The topic paper is to be submitted at the beginning of the session on March 31st, 2021. Late submissions will not be accepted. A separate cover page should include the course title, course number (and section number), names of the students, and the title of the assignment. Each student member of the team should attest to the statement that "I/WE HAVE ABIDED BY THE ACADEMIC HONOR POLICY ON THIS ASSIGNMENT" on the cover page of the topic paper assignment.

IN-DEEP CASE ANALYSIS

Each student must carry out an in-depth analysis of the “Boeing 787-Manufacturing a Dream” case. The individual should take on the role of a manager who has been assigned to review the issue(s) of concern or interest to the firm. The written analysis is his/her report and recommendations on that/those issue(s). The issues have been presented in the “schedule of sessions” section in this memorandum of understanding (MU). Much of the grade beyond a "passing score" depends on the student's ability to go beyond the "average" solution/answer, integrate the material from the course, and provide innovative perspectives, approaches, or solutions. Feel free to use the all the tools and the frameworks (in particular the “Operations for Competitive Advantage” framework) discussed in this course (and other courses) to substantiate the analysis. If you need to make assumptions to accomplish this, feel free to do so and appropriately incorporate them in your written analysis. Discuss the issues in detail.

The professor will facilitate the discussion for the case. There will not be any formal presentations of the case. Students should work on this written analysis on an individual basis (not in groups). Individuals should neither seek nor receive help from friends and family in completing this written analysis. Individuals are requested to refrain from repeating the details provided in the case (just to fill up space) in their written analysis. That is, individuals are requested to cover the topics thoroughly, but efficiently. Do not add verbiage for the sake of length. Feel free to include diagrams, or other types of illustrations in your written analysis. Oversized charts or drawings should be folded to the 8.5 " by 11" format. The paper should be typed (maximum 12 point size lettering), double-spaced on 8.5” by 11” paper, with 1” margins, and appropriately paginated. No minimum or maximum length is specified, although the written analysis (not counting the appendices) should not typically exceed 15 pages in

length. In preparing the written analysis, write from an objective view, in third person. Do not use the words "I", "We", or "You". Use subheadings to correspond with specific issues posed for the individual case. It should be noted that appropriate credit will be given for those individuals who are in a position to integrate their analysis with readings presented outside the case.

The written analysis will be graded on organization, thoroughness, insight of analysis, and written communication skill. The individual written analysis is to be submitted at 2:00 p.m. on April 14th, 2021. Late submissions will not be accepted. A separate cover page should include the course title, course number (and section number), name of the student, and the title of the assignment. Each student should attest to the statement that "I HAVE ABIDED BY THE ACADEMIC HONOR POLICY ON THIS ASSIGNMENT" on the cover page of the mini-case analysis assignment.

**ACID TEST (IN CLASS INTERACTIVE WRITTEN CASE EXAM)**

The in-class written exam will be held from 2:00 p.m. to 4:50 p.m. on April 28th, 2021. This exam, popularly called the ACID Test (ACID is an acronym for Analysis and Application, Content and Conceptualization, Integration and Implementation, and Decision making and Discrimination), will be a “live”/interactive/guest speaker presentation/final examination on the operations for competitive advantage at Grass America, Inc (GA). A note on the “live” case (viz., GA) will be handed out to the students on April 21st, 2021. At 2:00 p.m. on April 28th, 2021 a comprehensive (essay) question (or a set of questions) on that case will be given to the students. Then the guest speaker (Mr. Tom Kipp, President, Grass America, Inc.) will present for about fifteen (15) minutes. The next forty five (45) minutes will be devoted to a question/answer session. Students should refrain from asking any questions while Mr. Kipp is making his formal presentation. The guest speaker will leave the class room at 3:00 p.m. Then the students can begin writing the answer(s) to the final exam question(s) so as to finish by 4:50 p.m. The in-class written exam is “closed book and closed notes”. The only items to be brought to the final exam are the case on GA (with any comments that the students might have noted while reading the case or from the company web site), blank sheets of paper for writing the answer(s), and a calculator. Students may choose to type the answers on a lap top computer or using one of the computers (if the labs are open at that time) in the Bryan School of Business and Economics.

**CLASS CONTRIBUTION**

Each student should be prepared for an insightful discussion of all aspects of the material assigned for each class session, be it text/articles/supplementary material and/or cases. Students should be prepared to answer questions and raise issues when called upon to do so in the class. Students will be evaluated at each session on the quality (not quantity) of their participation/contribution. Class contribution points will be accumulated based on how perceptively a student analyzes the situation being studied, the usefulness of the observations and suggestions made by the student, and the student's ability to put across ideas with clarity and conviction. Class attendance alone will not directly count towards the points to be accumulated through class participation/contribution. However, poor attendance will dramatically reflect in a student's contribution grade. That is, a student cannot participate/contribute if absent from the class. As a further consideration, material obtained from class discussions could be used for answering question(s) for the assignments/exams.
FACILITATION OF LEARNING

Lectures, cases, a facility tour, videos, and situation vignettes will be used. The in-class sessions will rely on the “Socratic” method to the extent possible. All students are expected to attend each class session. If a student misses a specific class session, it is her/his responsibility to cover the topics so missed and contribute to class discussions by submitting the written responses to all the questions for the missed class session. Material covered in a previous class will not be repeated in a subsequent class. The schedule of sessions on the memorandum of understanding (MU) contains a listing of topics and assignments to be covered in the respective sessions. For a better understanding of the course content, each student should prepare for the topics and assignments (listed in the MU) prior to the appropriate class session. Each student should be prepared to discuss the assigned readings for each class session. The Discussion Questions and Objective Questions (from the specific chapters in the text book) and the questions/issues identified as WBCS ! in the respective class session should be Worked Before the Class Session. The information needed to answer the Discussion Questions and the questions/issues identified as WBCS ! is directly available in the appropriate chapter/supplement in the text book or the assigned video. On an individual basis, each student must work on the problems and questions. That would improve the effectiveness and efficiency of your learning process over the entire semester. This would also certainly assist you in preparing better for the course and exams. The assigned questions given in the MU are only representative of the content that can be expected on the exams. The list of questions is not an exhaustive one. The MU is a general plan for the course; deviations may be necessary.

COGNITIVE COURSE OBJECTIVES

Upon completing the course, the student should be able to:

1) Elaborate on various operations strategies for service/manufacturing firms and discuss various Key Performance Indicators (KPIs), also called performance measures for those organizational strategies.
2) Use project management techniques to plan and execute a project.
3) Explain the role played by total quality management (TQM) in enhancing the performance in organizations and utilize various process control charts.
4) Explain the factors that influence the location, layout, and capacity planning of service and manufacturing facilities.
5) Select appropriate production/operations systems for different types of product mixes (i.e., high volume standardized products vs. low volume specialty products) for different markets.
6) Critique the role of forecasting in the operations of an organization.
7) Describe the typical objectives and constraints in medium range (aggregate) planning related to both manufacturing and service organizations.
8) Differentiate the inventory management concerns between dependent demand items and independent demand items in manufacturing and service organizations and define the impact of JIT/TQC (Just-in-Time (JIT)/Total Quality Control) philosophies.
9) Differentiate between alternate methods of securing a competitive advantage with the operations function focusing on the appropriate order winner(s) and qualifiers required for various operations strategies.
10) Elaborate on and develop opportunities for sustainable operations in both services (logistics, banking, warehousing, transportation, retail, etc.) and manufacturing environments.
11) Demonstrate a thorough understanding of the tactical and strategic role of the operations function and its inter-relationship with other functional areas (such as marketing, finance, etc.) to effectively lead a multi-functional task force in building a global organization.
Vidyaranya B. Gargeya is a Professor in the Department of Information Systems and Supply Chain Management (ISSCM) in the Joseph M. Bryan School of Business and Economics at The University of North Carolina at Greensboro (UNCG). From 2006 through 2013, he was the Director of the Bryan Master of Business Administration (MBA) Program at UNCG and from 2013 through 2017, he served as the Head of the Department of Information Systems and Supply Chain Management. During the 2012-2014 period, Dr. Gargeya served as the co-Director of the Quality Enhancement Plan (QEP) process and a member of the Senior Leadership Team for UNCG as part of the re-affirmation of the university by the Southern Association of Colleges and Schools Commission on Colleges. Dr. Gargeya currently teaches primarily in graduate and executive programs. He holds a bachelor's degree in Chemical Engineering from Andhra University, Visakhapatnam (India), a Post Graduate Diploma in Management from the Indian Institute of Management, Bangalore, and a Ph.D. in Business Administration from Georgia State University. He has considerable work experience as an engineer, and manager in the petroleum industry.

Dr. Gargeya has taught at the University of Strathclyde (Glasgow, Scotland), Fachhochschule-Ludwigshafen (Germany), University of Hartford, Georgia State University, and the Jamnalal Bajaj Institute of Management Studies, University of Bombay (India). His expertise spans the areas of global operations strategy, supply chain management, total quality management and continuous improvement, customer relationship management, performance measurement, service operations management, and general management. Dr. Gargeya has received, for his contributions to teaching, numerous awards including The University of North Carolina Board of Governors Award for Excellence in Teaching (2008), Bryan School of Business and Economics Tenured Faculty Teaching Excellence Award (2007), UNCG Alumni Teaching Excellence Award (2006), Wick Skinner Award for Teaching Innovation from the Production and Operations Management Society (2003), Bryan School of Business and Economics Senior Faculty Teaching Excellence Award (2002), and the Bryan School of Business and Economics Teaching Excellence Award (1997). He received the Business Media Leader Mover & Shaker Award in 2009 and the Triad Business Leader of the Year Award, 2011. His teaching innovations include the ACID Test (an interactive case examination with a guest speaker presentation) and the year-long in-process integrative course (titled Pizza, Picasso, and the Pyramids) for first year students in the full-time day MBA program.

# SCHEDULE OF SESSIONS

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<th>SESSION #</th>
<th>DATE</th>
<th>TOPICS AND ASSIGNMENTS</th>
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<td>1</td>
<td>1/20</td>
<td><strong>DISCUSSION OF THE MEMORANDUM OF UNDERSTANDING</strong></td>
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<tr>
<td><strong>WBCS!</strong></td>
<td></td>
<td>INTRODUCTION TO OPERATIONS FOR COMPETITIVE ADVANTAGE</td>
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<tr>
<td><strong>WBCS!</strong></td>
<td></td>
<td>Chapter 7 (Manufacturing Processes): Discussion Questions 1, and 4. Objective Questions 8-10.</td>
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<tr>
<td><strong>WBCS!</strong></td>
<td></td>
<td>Video: Product-Process Matrix (Video Number 12 in the DVD)</td>
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<tr>
<td><strong>WBCS!</strong></td>
<td></td>
<td>Video: Louisville Slugger Aluminum Bat Plant Tour (Video Number 14 in the DVD)</td>
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<td></td>
<td>1) Describe the main elements of an “Operations Systems” model.</td>
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<tr>
<td><strong>WBCS!</strong></td>
<td></td>
<td>2) What are the primary differences between manufacturing and service operations?</td>
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<tr>
<td><strong>WBCS!</strong></td>
<td></td>
<td>4) Compare and contrast the different conversion processes (i.e., project, job shop, mass production/assembly line, and continuous process).</td>
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<tr>
<td><strong>WBCS!</strong></td>
<td></td>
<td>5) Be prepared to calculate the break-even volume for a process.</td>
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<tr>
<td>2</td>
<td>1/27</td>
<td>OPERATIONS FOR COMPETITIVE ADVANTAGE, SUSTAINABILITY, AND THE JOURNEY TO EXCELLENCE</td>
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**WBCS!**

**WBCS!**

**WBCS!**

1) Identify the key elements (including order winners and qualifiers) in the operations for competitive advantage framework for understanding how operations plays a role in gaining a competitive advantage.

2) What is the most simple and general form of the "productivity" formula?

3) Differentiate between a partial measure of productivity and total factor productivity.

4) Explain the difference between productivity, effectiveness, and efficiency.

5) Briefly describe the “Journey to Excellence” Model. Does it relate to the “Triple Bottom Line”? If so, how so? If not, why not?

6) How might one construct a productivity index for the Joseph M. Bryan School of Business and Economics?

**PROJECT MANAGEMENT**

**WBCS!**

**WBCS!**
Video: Project Management at Six Flags, New Jersey (Video Number 1 in the DVD)

1) Identify the three fundamental objectives in managing projects.

2) Differentiate between Gantt charts and networks.

3) What is the difference between Activity-On-Node and Activity-On-Arrow networks.

4) Given the requisite information, be prepared to develop an Activity on Node or Activity on Arrow network, identify the critical path(s) for a project, and discuss mechanisms for “crashing” a project.
SESSION #   DATE   TOPICS AND ASSIGNMENTS

3   2/3   SUBMISSION OF ABSTRACT OF TOPIC PAPER

QUALITY MANAGEMENT

WBCS!  Chapter 12 (Six Sigma Quality): Discussion Questions 3, 6, and 9.  Objective Questions 1, 2, and 4.
WBCS!  Video: Six Sigma at Caterpillar (Video Number 3 in the DVD)

WBCS!  1) How would you define the quality for a product and/or a service?
       2) Describe the tenets/facets of Total Quality Management.
WBCS!  3) Discuss the elements of Cost of Quality (COQ).
WBCS!  4) Distinguish between the ISO 9000 certification process and the Malcolm Baldrige National Quality Award.
WBCS!  5) Discuss the roles of cause/effect diagrams, Pareto Charts, Process Flowcharts and other tools for continuous improvement.

CONTINUOUS IMPROVEMENT

WBCS!  Chapter 13 (Statistical Quality Control): Discussion Questions 4 and 6.  Objective Questions 7, 10, and 11.

WBCS!  1) Describe acceptance sampling.  Why is it used?  Could it be used in services?
WBCS!  2) Describe Statistical Process Control.  Why is it used?  How can it be used in services?
WBCS!  3) Be prepared to develop process control charts for attributes and variable measurements and understand the situations under which further investigation is required.
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| 4         | 2/10 | **PRODUCT, SERVICE, AND PROCESS DESIGN**  
*WBCS!*  
Chapter 3 (Design of Products and Services): Discussion Question 2.  
Objective Question 11. Net present value is covered in the “Financial Management” (MBA 707) course.  
*WBCS!*  
Chapter 9 (Service Processes): Discussion Questions 5 and 6.  
*WBCS!*  
*WBCS!*  
Video: Manufacturing Design at Burton Snowboards (Video Number 5 in the DVD)  
*WBCS!*  
Video: Green Product Design and PHILL at Honda (Video Number 6 in the DVD)  
*WBCS!*  
1) Discuss the role of value analysis/value engineering.  
*WBCS!*  
2) Describe Design for Manufacturing and assembly (DFMA) Work. Is this applicable to service organizations? If not, why not? If so, why so?  
*WBCS!*  
3) Based on the video titled “Green Product Design and PHILL at Honda”, discuss the sustainability efforts of Honda.  
*WBCS!*  
4) Discuss the Service-System Design Matrix.  
*WBCS!*  
5) Draw the process flowchart for the advising/registration process for completing the MBA degree in the Bryan School.  

**DEMAND MANAGEMENT AND FORECASTING**  
*WBCS!*  
Chapter 18 (Forecasting): Discussion Questions 1 and 3. Objective Questions 8, 12, and 15.  
*WBCS!*  
Video: Service Processing at Buycostumes.com (Video Number 2 in the DVD)  
*WBCS!*  
1) Discuss the role of marketing and the sales function in developing a forecast.  
*WBCS!*  
2) Distinguish between short term, medium term, and long-term forecasting.  
*WBCS!*  
3) Describe simple moving average, weighted moving average, simple exponential smoothing, and regression analysis methods of forecasting.  
*WBCS!*  
4) Be prepared to use simple moving average, weighted moving average, simple exponential smoothing, and regression analysis methods of forecasting and assess the effectiveness of each technique.
SUBMISSION OF A DETAILED LIST OF QUESTIONS FOR THE VISIT TO THE GRASS AMERICA, INC. FOR THE TOPIC PAPER

FIRST IN-CLASS WRITTEN EXAM (75 Minutes)

LONG RANGE CAPACITY PLANNING

WBCS! Chapter 5 (Strategic Capacity Management): Discussion Questions 2, 4, and 5. Objective Question 8.

1) Define capacity and differentiate between output and capacity.
2) Distinguish between short-, medium-, and long-range capacity planning.
3) Describe the concepts of a focused factory and a Plant within a Plant.
4) Be prepared to solve a long-range capacity planning problem using the decision tree model.

SUSTAINABILITY AT TS DESIGNS (30 Minutes)


WBCS! Case Note: TS Designs (to be given to students on February 17th, 2020).

Guest Speaker: Mr. Eric Henry
President
TS Designs (Burlington, NC 27215)

FACILITY LOCATION


1) What are factors that would influence the facility location (macro level factors) and site selection (micro level factors) of a bank, and a paper mill?
2) Be prepared to solve facility location problem using the Transportation Method of Linear Programming. This method has been covered in the “Quantitative Analysis for Decision Making” (MBA 701) course.
3) Be prepared to solve facility location problem using the Centroid Method.
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<td>7</td>
<td>3/3</td>
<td>SUBMISSION OF MINI-CASE ANALYSIS</td>
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**FACILITY LAYOUT**
Chapter 8 (Facility Layout): Discussion Questions 1, 2, 3, 5 and 8. Objective Questions 5-7, 9, and 10.

- **WBCS!**
  1. Differentiate between product (flow shop) and process (functional) layout.
  2. What are the primary advantages and disadvantages of a cellular layout?
  3. What is cycle time? What is its role in designing an assembly line?
  4. Understand the relationship between the production rate and cycle time.
  5. Be prepared to balance a line and compute its efficiency.

**AGGREGATE PLANNING**

- **WBCS!**
  1. How are forecasting, aggregate planning, master scheduling, materials requirements planning, and operations control tied together?
  2. What is the objective function in the aggregate planning problem? Why does the problem exist? What is the typical planning period and planning horizon used in the aggregate planning problem?
  3. Is the aggregate planning problem long range, medium range, or short range in nature? Please give an explanation for your conclusion.
  4. What are the three typical strategies available for a manager in developing an aggregate production plan, i.e., what are the controllable variables?
  5. What are the typical costs affected by the aggregate production plan?
  6. What are the specific characteristics of industries where the three extreme strategies could be applied?
  7. Be prepared to develop an aggregate plan. Also, be prepared to compute the total cost using the three strategies for a given aggregate planning problem.
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<td>8</td>
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<td><strong>INVENTORY MANAGEMENT SYSTEMS FOR INDEPENDENT DEMAND</strong></td>
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<td>Chapter 20 (Inventory Management): Discussion Questions 1, 4, 5, 6, 9, and 10. Objective Questions 12 and 24.</td>
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<td>1) What are the two fundamental questions in developing an inventory policy?</td>
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<td>2) What are safety stock and service level? How are they related?</td>
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<td>3) What are cycle counting and physical inventory? What purpose do they serve?</td>
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<td>4) Given the required data, be prepared to compute the Economic Order Quantity, the Reorder Point, and Total Cost in a perpetual ordering system.</td>
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<td>5) Given the required data, be prepared to compute the Economic Order Interval (i.e., the time between orders), and the quantity to be ordered at a given point in time in a periodic ordering system.</td>
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<td>6) Under what assumptions would a fixed order quantity system be chosen over a fixed order interval system, i.e., what practical considerations would encourage the use of a fixed order quantity system over the use of a fixed order interval system?</td>
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| 9         | 3/17   | INVENTORY MANAGEMENT SYSTEMS FOR DEPENDENT DEMAND (MATERIAL REQUIREMENTS PLANNING --- MRP)  
WBCS! 1) Differentiate between independent and dependent demand inventory.  
WBCS! 2) What is a Material Requirements Planning (MRP) system?  
WBCS! 3) What are the primary inputs and outputs in a MRP analysis? What are the objectives of a MRP system?  
WBCS! 4) Discuss the role of Master Production Scheduling in developing the MRP.  
WBCS! 5) What is the significance of low level coding in developing an MRP.  
WBCS! 6) Be prepared to develop a Material Requirements Plan.  
WBCS! SCHEDULING  
WBCS! Chapter 22 (Workcenter Scheduling): Discussion 1 and 3. Objective Questions 8 and 9.  
WBCS! Video: Queuing at Disney (Video Number 13 in the DVD)  
WBCS! 1) Describe any four priority rules that can be used for scheduling jobs at a work center.  
WBCS! 2) What would be a good scheduling rule to use for a waiting line for teller services at a bank? Substantiate your response with a detailed explanation.  
WBCS! 3) Elaborate on four performance measures that can be used for a work/service center. |
| 10        | 3/24   | SECOND IN-CLASS WRITTEN EXAM (75 MINUTES)  
WBCS! GLOBAL SOURCING, LEAN SYSTEMS, AND SUPPLY CHAIN MANAGEMENT  
WBCS! Chapter 16 (Global Sourcing and Procurement): Discussion Questions 1 & 4.  
WBCS! Chapter 14 (Lean Supply Chains): Discussion Questions 1, 2, and 16.  
WBCS! Video: Ford Supply Chain Management (Video Number 8 in the DVD)  
WBCS! Video: Ford Supply Organization (Video Number 9 in DVD)  
WBCS! Video: Styro, Inc. (will be shown in the classroom)  
WBCS! 2) Discuss the challenges in managing global supply chains. |
SESSION # DATE TOPICS AND ASSIGNMENTS

11 3/31 SUBMISSION OF TOPIC PAPER

OPERATIONS FOR COMPETITIVE ADVANTAGE (Continued)

Video Films: GM Plant Closings, and Japanese Cars: Really Better? (will be shown in class).


WBCS! Parable: A Tale of Two Countries (attached to this MU).

WBCS! 1) Identify the two countries described in "A tale of two countries"?
WBCS! 2) Discuss the linkages between operations strategy, marketing strategy, and order winning criteria/qualifiers, in meeting corporate objectives.
WBCS! 3) Making use of the facts presented in the video films, identify the primary causes for the GM plant closings and the success of the Japanese manufacturers.

ENTERPRISE-WIDE RESOURCE PLANNING SYSTEMS IN GLOBAL OPERATIONS STRATEGY


WBCS! 1) Discuss the salient features of the Enterprise-wide Resource Planning (ERP) systems for global operations at VF Corporation, Inc.
WBCS! 2) Discuss the features of Enterprise-wide Resource Planning Systems in global operations. Elaborate on the functionality of vendor information in light of order winners and qualifiers.
WBCS!

1) "Mass customization could lead to regression in facilities focus". Comment on this statement.
2) Discuss product profiling and its strategic implications.
3) Elaborate how product profiling aids in the process of developing operations for competitive advantage.

OPERATIONS FOR COMPETITIVE ADVANTAGE IN SERVICES

WBCS!


WBCS!

1) Using the "*Compass Group: The Ascension Health Decision*” case, be prepared to detail the following:
   a) Draw up a time table of the major events described in the case study.
   b) Analyze the success of the Compass Group. Be as specific as possible.
   c) What should Gary Green do? Substantiate your answer with detailed explanations.
SESSION #  DATE  TOPICS AND ASSIGNMENTS

13  4/14  SUBMISSION OF IN-DEPTH CASE ANALYSIS
WBCS!  EVALUATION OF OPERATIONS FOR COMPETITIVE ADVANTAGE

WBCS!  1) Based on the "Boeing 787: Manufacturing a Dream" case, be prepared to discuss the following issues:
   a) What went wrong and why? Discuss in as much detail as possible.
   b) Was Boeing’s global-partnership model inherently flawed, as many of its critics and the media argued? Or was the global partnership model a fundamentally sound strategy whose implementation had been mishandled? Substantiate your answers with detailed analyses.
   c) Should Boeing continue to pursue a global partnership model for future airplane programs? And, in light of the 787 program, should the company reconsider Vision 2016? Substantiate your responses with detailed explanations.

14  4/21  CONNECTING THE DOTS AND “CHEWING THE CUD”!
   1) Discuss the mechanisms by which operations can enhance competitiveness.

“ACID TEST” COMMENCES WITH THE HANDING OF NOTE ON GRASS AMERICA, INC.

15  4/28  ACID TEST (IN-CLASS INTERACTIVE WRITTEN CASE EXAM)
       (2:00 p.m. to 4:50 p.m.)
OPERATIONS FOR COMPETITIVE ADVANTAGE AT GRASS AMERICA, INC.
Guest Speaker:  Mr. Tom Kipp
               President
               Grass America, Inc.
STUDYING AND LEARNING FROM CASES

The cases featured in this course are representative of real-world problems that managers in different organizations have to face and resolve. Although designed principally for use in classroom discussions, many of these cases can offer valuable insights to the individual reader.

The comments that follow are directed primarily at participants in courses and seminars who have been assigned one or more of these cases to prepare for subsequent class discussion. Unlike methods of instruction that use lectures and textbooks, the case method of instruction does not present students with a body of tried and true knowledge about how to be a successful manager. Instead, it provides an opportunity for students to learn by doing.

As a student, you may find that dealing with cases is very much like working with the actual problems that people encounter in their jobs as managers. In most instances, you’ll be identifying and clarifying problems facing the management of a company or non-business organization, analyzing qualitative information and quantitative data, evaluating alternative courses of action, and then making decisions about what strategy to pursue for the future. You may enjoy the process more—and will probably learn more—if you accept the role of an involved participant rather than that of a disinterested observer who has no stake, or interest, in resolving the problems in question.

The goal of case analysis is not to develop a set of “correct” facts but to learn to reason well with available data. Cases mirror the uncertainty of the real-world managerial environment in that the information they present is often imprecise and ambiguous. You may perhaps be frustrated that there is no one right answer or correct solution to any given case. Instead, there may be a number of feasible strategies management might adopt, each with somewhat different implications for the future of the organization, and each involving different trade-offs.

In this course, you’ll be exposed to a wide range of different management situations within a relatively short time. As a result, the cases presented in this course will collectively provide a much broader exposure to operations for competitive advantage issues than most managers experience in many years on the job.

CASES AND THE REAL WORLD

Recognizing that managerial problems are not unique to a particular institution (or even to a specific industry) forms a basis for developing a professional approach to management.

It’s important to recognize that even though case writers try to build realism into their cases, these cases differ from real-world management situations in several important respects. First, the information is prepackaged in written form. By contrast, managers accumulate their information through memoranda, meetings, chance conversations, research studies, observations, news reports, and other externally published materials—and, of course, by rumor.

Second, cases tend to be selective in their reporting because most of them are designed with specific teaching objectives in mind. Each must fit a relatively short class period and focus attention on a defined category of management problem within a given subject area. To provide such a focus—and to keep the length and complexity of the case within reasonable bounds—the writers may need to omit information on problems, data, or personnel that are peripheral to the central issue in the case.
In the real world, management problems are usually dynamic in nature. They call for some immediate action, with future analysis and major decisions being delayed until some later time. Managers are rarely able to wrap up their problems, put them away, and go on to the next “case.” In contrast, discussing a case in class or writing an analysis of a case is more like examining a snapshot taken at a particular point in time—although sometimes a sequel case provides a sense of continuity and poses the need for future decisions within the same organization.

A third, and final, contrast between case analyses and real-world management is that participants in case discussions and authors of written case reports aren’t responsible for implementing their decisions, nor do they have to live with the consequences. However, this does not mean you can be frivolous when making recommendations. Professors and students are likely to be critical of contributions that are not based on careful analysis and interpretation of the facts.

PREPARING A CASE

Just as there is no one right solution to a case, there is also no single correct way of preparing a case. However, the broad guidelines outlined in “Preparing a Case” may help familiarize you with the job of case preparation. With practice, you should be able to establish a working style with which you feel comfortable. The guidelines on initial analysis and on developing recommendations should also serve you well for preparing written case reports or case-based exams.

First, it’s important to gain a feel for the overall situation by skimming quickly through the case. Ask yourself:
- What sort of organization does the case concern?
- What issues does management appear to be facing?

Preparing a Case: A Brief Outline

I. Initial fast reading
   * No notes
   * Get a feel for what’s going on
   * Think about major problems and forces present

II. A second careful reading
   * Make notes identifying:
     Organizational objectives
     Nature of problem(s)
     Key facts
     Key decisions
   * Evaluate and analyze case data

III. Development of specific issues
    Identify alternative courses of action to meet objectives
    Consider implications of each action
    Provide recommendations, supported by analysis
An initial fast reading, without making notes or underlining, should provide a sense for what is going on and what information is being presented for analysis. Then you’ll be ready to make a very careful second reading of the case. This time, seek to identify key facts so that you can develop a situation analysis and clarify the nature of the problems facing management. As you go along, try to make notes in response to such questions as:

- What decisions need to be made, and who will be responsible for making them?
- What are the objectives of the organization itself and of each of the key players in the case? Are these objectives compatible? If not, can the problem be reconciled, or will it be necessary to redefine the objectives?
- What resources and constraints are present that may help or hinder attempts by the organization to meet its objectives?

You should make a particular effort to establish the significance of any quantitative data presented in the text of the case or, more often, in the exhibits. See if new insights may be gained by combining and manipulating data presented in different parts of the case. But do not accept the data blindly. In the cases, as in real life, not all information is equally reliable or equally relevant. On the other hand, case writers will not deliberately misrepresent data or facts to trick you.

**Developing courses of action on specific issues**

At this point in the analysis, you should be in a position to summarize your evaluation of the situation and to develop some recommendations for management. First, identify the alternative courses of action that the organization might have. Next, consider the implications of each alternative, including possible undesirable outcomes, such as provoking responses from stronger competitors. Ask yourself how short-term tactics fit with longer-term strategies. Relate each alternative to the objectives of the organization (as defined or implied in the case, or as redefined by you). Then, develop a set of recommendations for future action, making sure that these recommendations are supported by your analysis of the case data. Specific issues to be considered for each case are provided under the appropriate class session in the “schedule of sessions” section in the memorandum of understanding.

Your recommendations won’t be complete unless you give some thought to how the proposed strategy should be implemented:
* What resources—human, financial, or other—will be required?
* Who should be responsible for implementation?
* What time frame should be established for the various actions proposed?
* How should subsequent performance be measured?

**CLASS DISCUSSION**

Courses taught by the case method emphasize inductive learning, with conceptual frameworks and strategic guidelines developed from the analysis of a variety of real-world situations. This approach contrasts sharply with the deductive approach to learning used in lectures where the concepts are presented first and must then be applied to actual situations.
Role of the Professor

In class, you may find that the role played by a professor using the case method usually differs significantly from that of a lecturer. The professor’s role in case discussions is often similar to that of a moderator—calling on students, guiding the discussion, asking questions, and periodically synthesizing previous comments. Teaching styles vary, of course, from one case professor to another.

Many professors like to begin the class by asking a student to “lay out” the case, which may involve your being asked to identify key problems and opportunities, to present some preliminary data analysis, and perhaps to outline a possible plan of action.

Some professors, as in the current course, assign study questions in advance to help students with their case preparation; but others feel it is more realistic (albeit more demanding) to let students define for themselves how they should approach each new case.

Responsibilities of Participants

Instead of being a passive note-taker, as in lecture classes, you will be expected to become an active contributor to class discussions. Indeed, it is essential that you contribute, for if nobody contributes, there can be no discussion! If you never join in the debate, you’ll be denying other participants the insights that you may have to offer. Moreover, there’s significant learning involved in presenting your own analysis and recommendations and debating them with your classmates—who may hold differing views or else seek to build on your presentation. But do not be so eager to contribute that you ignore what others have to say. Learning to be a good listener is also an important element in developing managerial skills.

Occasionally, it may happen that you are personally familiar with the organization depicted in a case. Perhaps you are privy to additional information not contained in the case, or perhaps you know what has happened since the time of the case decision point. If so, keep this information to yourself unless, and until, the professor requests it. (This advice also holds true for written reports and case exams.) There are no prizes for 20/20 hindsight; injecting extra information that nobody else has is more likely to spoil a class discussion than to enhance it. Information on the organization beyond the date of the case is not relevant and useful for the discussion as of the date of the case.

Learning comes through discussion and controversy. In the case method of instruction, participants must assume responsibility not only for their own learning but also for that of others in the class. Thus, it’s important for students to be well prepared, willing to commit themselves to a well-reasoned set of analyses and recommendations, and receptive to constructive criticism. Students unwilling to accept this challenge are likely to find the case method aimless and confusing. On the other hand, if you do accept it, you will experience in the classroom that sense of excitement, challenge, and even, exasperation that comes with being a manager in the real-world situation.
A TALE OF TWO COUNTRIES

There once was an economic power that dominated the world’s industrial production. This country was the world’s leading manufacturer and its predominant exporter of goods. Much of its success was based on its basic research, its ability to invent, and its unparalleled technological leadership. A time came, however, when it began to decline relative to its international competitors and was challenged by another country whose ships, filled with new products, arrived with increasing frequency.

Several decades earlier, the two nations had been engaged in a bitter war, but they had become allies. Sometime after the war, the upstart country focused on its manufacturing prowess, eventually gaining renown for its new and unique production processes that turned out goods of high quality.

At first the dominant country had no fear of its lowly ally, which focused only on low-end products with small profit margins. It was not known for its quality, and all its products were basically limitations; inventiveness or creativity was not its strong suit. But the upstart country kept plugging away, improving its manufacturing processes, quality, exports, and market share in a number of industries.

As the number of industries in which the upstart country challenged the dominant one grew, people began to examine how and why this was happening. Articles were written, reports were commissioned and books were published to explain the new and powerful manufacturing process of the upstart country and to recommend how it could best be emulated. Many factors were identified to explain its success, including:

- A focused, orderly, and systematic manufacturing process that depended on the combination of highly skilled workers, automated machinery, and a new way for moving materials and goods through the factory.
- Strong and continual gains in productivity and quality, thanks to the involvement of workers in improving the process.
- Highly skilled and well-educated workers who maintained clean work environments and had high marks for attendance.
- Continual, incremental technological innovations.
- A high level of cooperation among national competitors, which helped the rapid diffusion of process innovations.
- A high degree of reliance on subcontractors for innovations and production skills.
- A strong education system.
- A culture that was unique and relatively homogeneous.

Thoughtful individuals in the dominant country warned of dire consequences if the nation as a whole did not change its ways and rise to the challenge. But the nation’s business leaders did not know quite how to respond. As the upstart country continued its march toward larger and larger market share, fears arose that it would eventually overwhelm its bigger ally and the rest of the world with its exports, putting domestic firms and even entire industries out of business. The dominant country was faced with the prospect of losing the economic superiority it had held for so long. Time appeared to be running out.