Introduction to Management Science and Operations Management
Spring 2019

Course Information

Course title: Introduction to Management Sciences and Operations Management
Course Number: OPM-3050
Prerequisite(s): MATH-1320, OPM-2070, and ITM-2000 or high level of Excel recommended
Credits: 3
Meeting Times: MWF 11:00-11:50

Instructor Information

Name: Marta Moreno
Email: marta.moreno@slu.edu
Office hours: Monday, Wednesday 13:30-16:00, Tuesday 12:00-16:00 and by appointment
Office: Padre Arrupe Hall, Attic.

Course Description

Focus on the use of quantitative methods and models of potential means to facilitate managerial decision-making in modern business enterprises. Study of the most widely utilized operations research/management science and production planning models, along with their solution techniques. Use of computers and decision-science software to aid management decision-making.

Learning Objectives

After successfully completing this course, students shall be able to:

1. Students shall be able to formulate production and resource allocation problems as linear programming models.
2. Students shall be able to use business interpretation of computerizes results.
3. Students shall be able to solve transportation and logistics models.
4. Students shall be able to use inventory models.
5. Students shall be able to schedule personnel and resources to projects.

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to relevant accreditation requirements, the Campus regularly assesses its teaching, services, and programs for evidence of student learning outcomes achievement. For this purpose anonymized representative examples of student work from all courses and programs are kept on file, such as assignments, papers, exams, portfolios, and results from student surveys, focus groups, and reflective exercises. Thus, copies of student work for this course, including written assignments, in-class exercises, and exams may be kept on file for institutional research, assessment and accreditation purposes. If students prefer that Saint Louis University - Madrid Campus does not keep their work on file, they need to communicate their decision in writing to the professor.
Text books


Grading system:

Two midterms, an Excel test and one final will be given. They will emphasize the material presented in class but will also cover the reading assignments. There will be weekly cases assigned as well as weekly quizzes done in class. Each group will need to do the presentation of one of the cases as part of their class grade. Late cases will not be accepted. The lowest two grades in quizzes and cases will be dropped, there will be no make-up quizzes. It is necessary to pass this course to have at least 75% of the cases turned in on time and an average grade of at least 50 in exams.

- **Additional Information**
  - 20% class grade (cases, quizzes and presentation)
  - 20/25% first midterm*
  - 20/25% second midterm*
  - 10% EXCEL exam
  - 25% final exam
  *The lowest of the two grades will be assigned 20%, the other 25%

Attendance:

Although not mandatory, attendance and participation are a very important part of the learning process; I strongly urge you to attend all classes. On the other hand, you will be responsible for any announcements, information, problems or course changes that are made in all lectures. (See the section “Things that you should do in order to get a good grade in this class”)

Missed Exams Policy:

Midterm and final examinations must be written on their respective dates. No alternative examinations will be scheduled except in the case of excused medical absences. Cases of excused medical absences must be petitioned for through the Chair of the department. Make-up midterms are subject to approval by the professor, the Chair and the Department of Business and Economics. All changes to the final examination must be approved by the Academic Dean.
Important Dates:

Jan.20 – Last day to drop a class without a grade of W or to add a class.
        Last day to choose audit (AU) or pass/no pass (P/NP) options.
Feb.8 – (Friday) First Midterm exam, 14:00.
Feb.20 – Registration for summer semester opens.
Mar.17 – Last day to drop a class and receive a grade of W.
Mar.22 – Second Midterm exam, 14:00.
Apr.3 – Registration for fall semester opens.
Apr.29 – Last day of class for MWF classes.
May.9 – Final Exam, 8:30.

For other important dates, visit
https://www.slu.edu/madrid/services-and-departments/registrar/academic-final-exams-calendar.php
1. Introduction to Decision Theory
   - Problem Solving and Decision Making
   - Introduction to Quantitative Analysis
   - Models of Cost, Revenue and Profit

2. Introduction to Linear Programming
   - Maximization and Minimization Problems
   - Graphical Solution Procedure
   - Formulating Spreadsheet Models

3. Linear Programming: Sensitivity Analysis
   - Sensitivity Analysis – Ranges of optimality
   - Sensitivity Analysis – Shadow Prices and Ranges of feasibility
   - Interpretation of a sensitivity report

4. Linear Programming: Problems with more than two variables
   - Modelling with more than Two Decision Variables

5. Linear Programming Applications
   - Marketing Applications
   - Financial Applications
   - Production Management Applications
   - Blending Problems

6. Transportation, Assignment and Transhipment Problems
   - The Transportation Problem
   - The Assignment Problem
   - The Transshipment Problem

7. Integer Linear Programming
   - Types of Integer Programming
   - Applications Involving 0-1 Variables

8. Decision analysis
   - Structuring the Decision Problem
   - Decision Making with and without Probabilities
   - Decision Analysis with Sample Information
   - Computing Branch Probabilities

9. Project Scheduling
   - Creating a Project Network
   - PERT
   - Finding the critical path

10. Simulation
    - The Monte Carlos Simulation procedure
    - Applications of Simulation to Business problems
Things that you should do in order to get a good grade in this class:

- Don’t miss classes, but if you ever have to miss one, ask one of your classmates (not me) for the notes as soon as possible and go over them before the next lecture.

- Do ALL the solved exercises. I can’t emphasize this enough. All quantitative classes require practice and this is not an exception.

- Work every week, if possible, every day. If you don’t have an assignment or exercises to practice (that would be very rarely), review your class notes and go over the problems we have solved in class on your own one more time.

- Feel free to pass by my office to ask me if something is not clear from the lecture before the next lecture, you will probably have trouble understanding this otherwise.

- E-mail me, anytime, I’m pretty good responding mails, even during the weekends. If you have a question, try to make it clear and concrete, but do not hesitate to send it to me. If the question is complicated and requires a long explanation, better wait until the next day I have office hours or try to make an appointment if you can’t wait.

- Form study groups and make sure that all members participate and learn from each other. Experience shows that this kind of class is more effectively learned when you work in groups.

- Remember my office hours!!

Things that you shouldn’t do in this class:

- Miss classes…have I made it clear?

- Be late to the lectures, it is very disruptive to the other students and very disrespectful. Also, you miss the most important part of the lecture, where I say what we are going to do and sometimes do a short review of what we did in the previous class.

- Use your phone during the lectures, whether it is for texting or using internet or, obviously, talking, it is extremely disrespectful. I will not allow it.

- Think that by just coming to class, you have all the work done. If you don’t practice, you will not learn the material.

- Try to study everything two days before the test. It is impossible to really understand this topic by rushing over the material in a few hours.

- Skip homework and/or quizzes.

- Copy the homework from someone else. Not only it will be considered a violation of the academic honesty code, but it is completely useless. The only purpose of the homework is to help you learn.
University Statement on Academic Integrity:

*Academic integrity is honest, truthful and responsible conduct in all academic endeavors.* The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The governing University-level Academic Integrity Policy can be accessed on the Provost's Office website [here](#). Additionally, SLU-Madrid has posted its academic integrity policy [online](#). As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals.

The professor will review these matters during the first weeks of the term. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

University Title IX Statement:

Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU’s Title IX deputy coordinator, Marta Maruri, whose office is located on the ground floor of Padre Rubio Hall, Avenida del Valle, 28 ([marta.maruri@slu.edu](mailto:marta.maruri@slu.edu); 915-54-5858, ext. 213) and share the basic fact of your experience with her. The Title IX deputy coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidentialsource, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall ([counselingcenter-madrid@slu.edu](mailto:counselingcenter-madrid@slu.edu); 915-54-5858, ext. 230) or Sinews Multipleserapy Institute, the off-campus provider of counseling services for SLU-Madrid ([www.sinews.es](http://www.sinews.es); 917-00-1979). To view SLU-Madrid's sexual misconduct policy and for resources, please [our policy posted online](#). Additional information is available at the University’s website “[SLU is here for you](#).”

Academic Accommodations and Learning Resources:

In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean’s Office (San Ignacio Hall) or by reviewing the [Academic Resources website online](#).

Students with a documented disability who wish to request academic accommodations must contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also **must** notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at [disabilityservices-madrid@slu.edu](mailto:disabilityservices-madrid@slu.edu) or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, [more information is available on the SLU-Madrid webpage](#).
Note: Students who do not have a documented disability but who think they may have one are encouraged to contact Disability Services.

**Basic Needs Security Statement:**

Students in personal or academic distress and/or who may be specifically experiencing challenges such as securing food or difficulty navigating campus resources, and who believe this may affect their performance in the course, are encouraged to contact Marta Maruri, SLU-Madrid’s Director of Student Life (marta.maruri@slu.edu or 915 54 58 58, ext. 213) for support. Furthermore, please notify the instructor if you are comfortable in doing so, as this will enable them to assist you with finding the resources you may need.