

**COURSE APPROVAL DOCUMENT**  
Southeast Missouri State University

Department: Accounting

Course No. QM 530

Title of Course: Operations Analysis & Management

Date: 12/05/2014

Please check:  New  
 Revision

I. Catalog Description (Credit Hours of Course): Application of mathematical techniques to operations problems including waiting-lines, decision-making, project management, scheduling, location analysis, and capacity management. (3)

II. Co- or Prerequisite(s): QM 258 with a minimum grade of 'C'; senior standing.

III. Purposes or Objectives of the Course (optional):

- 1) Learn the basic terms and concepts of waiting-line models, decision models, and project management.
- 2) Develop a familiarity with some of the quantitative decision making techniques used in business today in order to provide a background in decision making under various conditions.
- 3) Analyze managerial problems involved in the operations of systems by learning to: gather essential data; interpret those data; to build one or more models; manipulate and experiment with those models; and then predict and make recommendations about future operations.
- 4) Learn to use cost-volume-profit analysis to evaluate alternatives related to capacity management, location strategies, and other operations problems.
- 5) Use computer applications of the techniques covered with the intent of improving the business processes.

IV. Student Learning Outcomes (Minimum of 3):

- 1) Develop and solve linear programming problems for a variety of applications.
- 2) Apply decision analysis theory under uncertainty (without probability) and risk (with probability) in decision making situations.
- 3) Use cost-volume-profit analysis to analyze capacity problems.

V. Optional departmental/college requirements:

(none)

VI. Course Content or Outline (Indicate number of class hours per unit or section):

*\*Indicates material that may involve the development and use of spreadsheets.*

- |    |  |         |
|----|--|---------|
| A. | *Waiting-Line Models<br>Characteristics of arrivals, waiting lines, and service<br>Queuing costs   | 6 hours |
| B. | *Decision-Making Tools<br>Decision making under uncertainty<br>Decision making under risk<br>Decision making under certainty<br>Decision trees | 9 hours |
| C. | *Project Management<br>PERT/CPM<br>Project scheduling<br>Probability of project completion   | 6 hours |

|    |  |         |
|----|--|---------|
| D. | *Capacity Management<br>Break-even analysis<br>Net Present value   | 6 hours |
| E. | *Location Strategies<br>Factor-rating analysis<br>Cost-volume analysis   | 6 hours |
| F. | *Short-Term Scheduling<br>Gantt charts<br>Priority rules   | 6 hours |
| G. | *Simulation<br>Advantages/disadvantages of simulation<br>Monte Carlo simulation<br>Simulation and inventory analysis | 6 hours |

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Total: 45 hours

Please Attach copy of class syllabus and schedule as an example

Signature: Leisa L Marshall  
Chair

Date: 12/16/2014

Signature: \_\_\_\_\_  
Dean

Date: \_\_\_\_\_

**Operations Analysis & Management**  
**QM 530**  
**Fall 2015**

**Syllabus**

**Catalog Description:** “Application of mathematical techniques to operations problems including waiting-lines, decision-making, project management, scheduling, location analysis, and capacity management. (3).” – SEMO Undergraduate Bulletin, 2015-2016.

**Class:** Section <#>: <days>, <time>, <location>

This class is: <pick one, if applicable>

“Lightly Blended” – 1-25% of the class meetings are held online instead of face-to-face.

“Moderately Blended” – 26-74% of the class meetings are held online instead of face-to-face.

“Highly Blended” – 75-99% of the class meetings are held online instead of face-to-face.

“Online” – 100% of the class times are held online.

**Instructor:** <name>

<office location>

573-<office phone>

<name>@semo.edu

Office hours: <hours – minimum of 3 per week>

Appointments can be scheduled by email.

**Course Text:** *Operations Management: Sustainability and Supply Chain Management*, Jay Heizer and Barry Render, 2014, Pearson.

**Course Objectives:** Upon completion of this course a student should be able to:

- 1) Learn the basic terms and concepts of waiting-line models, decision models, and project management.
- 2) Develop a familiarity with some of the quantitative decision making techniques used in business today in order to provide a background in decision making under various conditions.
- 3) Analyze managerial problems involved in the operations of systems by learning to: gather essential data; interpret those data; to build one or more models; manipulate and experiment with those models; and then predict and make recommendations about future operations.
- 4) Learn to use cost-volume-profit analysis to evaluate alternatives related to capacity management, location strategies, and other operations problems.
- 5) Use computer applications of the techniques covered with the intent of improving the business processes.

**Student Learning Outcomes:** Upon completion of this course students should be able to:

- 1) Develop and solve a linear programming problem.
- 2) Apply decision analysis theory under uncertainty (without probability) and risk (with probability) in decision making situations.
- 3) Use cost-volume-profit analysis to analyze capacity problems.

**Course Coverage:** The list of chapters and content covered includes:

*\*Indicates material that may involve the development and use of spreadsheets.*

|   |                 |
|---|-----------------|
| A. *Waiting-Line Models                                 | 6 hours         |
| Characteristics of arrivals, waiting lines, and service |                 |
| Queuing costs   |                 |
| B. *Decision-Making Tools                               | 9 hours         |
| Decision making under uncertainty                       |                 |
| Decision making under risk                              |                 |
| Decision making under certainty 2                       |                 |
| Decision trees  |                 |
| C. *Project Management                                  | 6 hours         |
| PERT/CPM  |                 |
| Project scheduling                                      |                 |
| Probability of project completion                       |                 |
| D. *Capacity Management                                 | 6 hours         |
| Break-even analysis                                     |                 |
| Net Present value                                       |                 |
| E. *Location Strategies                                 | 6 hours         |
| Factor-rating analysis                                  |                 |
| Cost-volume analysis                                    |                 |
| F. *Short-Term Scheduling                               | 6 hours         |
| Gantt charts  |                 |
| Priority rules  |                 |
| G. *Simulation  | 6 hours         |
| Advantages/disadvantages of simulation                  |                 |
| Monte Carlo simulation                                  |                 |
| Simulation and inventory analysis                       |                 |
|   | Total: 45 hours |

**Course Prerequisite:** QM 258 with a minimum grade of ‘C’; senior standing.

**Attendance and Punctuality:** Please note that there is not an attendance component in your final grade, but I am certain that your final course grade will be negatively affected by chronic absenteeism. *Regardless of your class attendance, you are responsible for any and all announcements made during class.*

**Emergency Situations:** Should an emergency arise either on campus or in the classroom, please follow the instructor’s directions and exercise due caution.

**Communication Policy:** A Moodle course webpage has been established for this class through the Southeast system:

<http://learning.semo.edu>

All course materials will be posted there for students to download. You should also check the Moodle page daily for important course announcements. Students are responsible for printing all course notes for use in class.

Student emails are answered within 24 hours (not including weekends and holidays).

Note: Students are required to use their Southeast email for all correspondence related to this class. Emails are required to be signed with your name. I reserve the right to ignore any emails not sent through the Southeast system or that are unsigned.

**Grading:** The following scale is used for assigning letter grades:

| <u>Undergraduate Students</u> |               | <u>Graduate Students</u> |               |
|-------------------------------|---------------|--------------------------|---------------|
| A                             | 90% and above | A                        | 90% and above |
| B                             | 80% - 90%     | B                        | 80% - 90%     |
| C                             | 70% - 80%     | C                        | 70% - 80%     |
| D                             | 60% - 70%     | F                        | 0% - 70%      |
| F                             | 0% - 60%      |                          |               |

Note that there will not automatically be “rounding up”. The instructor does reserve the right to lower the grade scale, if it is deemed appropriate.

Students who are enrolled in the course at the end of the term will receive the grade corresponding to their average (see above). If you are concerned about your progress in the course, you should make arrangements to meet with the instructor prior to the drop date to discuss continued enrollment in the course.

[http://www.semo.edu/registrar/academic\\_calendar.html](http://www.semo.edu/registrar/academic_calendar.html)

**Grade Disputes:** Once graded material has been returned either in class or online, a student has 48 hours to challenge the grade. Final course grades will not be changed unless a numerical error

has been made in computing the grade. There will be no “extra credit” or “makeup work” after the grades have been submitted. Please do not ask.

**Point Distribution\*:**

| <u>Undergraduate Students</u> |     | <u>Graduate Students</u>    |     |
|-------------------------------|-----|-----------------------------|-----|
| Homework                      | 35% | Homework                    | 35% |
| Exam 1                        | 15% | Exam 1                      | 10% |
| Exam 2                        | 15% | Exam 2                      | 10% |
| Exam 3                        | 15% | Exam 3                      | 10% |
| Final Exam<br>20%             |     | Project                     | 15% |
|                               |     | Final Exam                  | 20% |
| <b>Total</b><br><b>100%</b>   |     | <b>Total</b><br><b>100%</b> |     |

\*Assignments and weights may vary by instructor.

**Late Submission of Work:** Late work will not be accepted without a certified medical excuse or prior approval by the instructor.

**Accessibility:** Southeast Missouri State University and Disability Services remain committed to making every reasonable educational accommodation for students with disabilities. Many services and accommodations with aid a student’s educational experience are available for students with various types of disabilities. It is the student’s responsibility to contact Disability Services to become registered as a student with a disability in order to have accommodations implemented. Accommodations are implemented on a case by case basis. For more information visit the following site: [www.semo.edu/ds](http://www.semo.edu/ds) or contact Disability Services at 573-651-5927.

Information about the Americans with Disabilities Act (ADA) and Southeast Missouri State University’s Accessibility Plan can be found on page 4 of the 2014-2015 Responsible Redhawks Guide. Questions can be directed to Disability Services at 573-651-5927, [www.semo.edu/ds](http://www.semo.edu/ds), or by email ([ds@semo.edu](mailto:ds@semo.edu)).  
<http://www.semo.edu/pdf/redhawksguide.pdf>

**Civility:** Every student at Southeast is obligated at all times to assume responsibility for his/her actions, to respect constituted authority, to be truthful, and to respect the rights of others, as well as to respect private and public property. In their academic activities, students are expected to maintain high standards of honesty and integrity and abide by the University’s Policy on

Academic Honesty. Alleged violations of the Code of Student Conduct are adjudicated in accordance with the established procedures of the judicial system.

Information about the Code of Student Conduct can be found on pages 9-11 of the 2014-2015 Responsible Redhawks Guide: <http://www.semo.edu/pdf/redhawksguide.pdf>

**Academic Honesty:** Academic integrity is taken very seriously in this course. Students are expected to complete their own work, using only the resources that the instructor has specified. If you are unclear about the expectations in this area, please see the instructor for clarification. **In cases where academic dishonesty is suspected, the instructor will observe the procedures detailed in the Undergraduate Bulletin. The minimum sanction will be a grade of zero on the assignment in question.**

Information about Academic Honesty can be found on page 6 of the 2014-2015 Responsible Redhawks Guide. <http://www.semo.edu/pdf/redhawksguide/pdf>

**Class Schedule:** The calendar with details such as homework submission dates, online quizzes, etc. is located on the Moodle course webpage. Some of the most important dates are also below:

|                                      |  |
|--------------------------------------|--|
| Last day to drop with full refund    | <a href="http://www.semo.edu/pdf/SFS_WebCal.pdf">www.semo.edu/pdf/SFS_WebCal.pdf</a>                             |
| Last day to drop with partial refund | <a href="http://www.semo.edu/pdf/SFS_WebCal.pdf">www.semo.edu/pdf/SFS_WebCal.pdf</a>                             |
| Last day to drop                     | <a href="http://www.semo.edu/registrar/academic_calendar.html">www.semo.edu/registrar/academic_calendar.html</a> |
| Final Exam                           | <a href="http://www.semo.edu/registrar/academic_calendar.html">www.semo.edu/registrar/academic_calendar.html</a> |

Note: The instructor reserves the right to make any and all necessary changes to this syllabus at any time during the course of the semester. If any changes are made, an updated copy will be either distributed in class or posted electronically.

*Questions, comments or requests regarding this course or program should be taken to your instructor. Unanswered questions or unresolved issues involving this class may be taken to Dr. Leisa Marshall, Chair of the Accounting Department.*