BUS 270-070: Introduction to Quantitative Analysis  
Summer 2017  
Mon-Wed 3:30-6:15 pm

Instructor: Islam Saleh

Contact Method: UR Courses email is preferred, or you can contact me @ Islam.Saleh@uregina.ca

Office Hours: Mon & Wed 2:00-3:00 pm or by appointment  
Office is located at ED 524.5

Classroom: ED 621  
Computer Lab when required, students will be notified in advance

Text Book: Introduction to Management Sciences  
Quantitative Approach to Decision Making  
Custom Edition  
ISBN-10: 0-17-66695-8

Course Summary: The course will introduce the students to some of management sciences techniques that help in taking decisions at the managerial level. Topics of linear programming, allocation of resources and inventory models will be discussed through this course.

Course Objectives: By the completion of this course the student should be able to:

- Develop linear programming models and provide their graphical and computer solutions to support decision-making process
- Use of the linear programming techniques at different applications: marketing, financing and operations management
- Understand and model the transportation network flow problems and find the optimum shortest route
- Understand and develop the integer linear programming model and be able to find the optimal integer solution
- Understand and analyze the inventory models with deterministic or probabilistic demand to design a cost-optimized inventory system
- Use decision analysis strategy to find optimal decision alternatives when facing uncertain future events
**Prerequisites:**
BUS 100 (or ADMN 100), MATH 103 and STAT100

**Evaluation:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Date, Time and Room</th>
<th>Duration</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment #1:</td>
<td>Due on July 24, 2017</td>
<td>1 week</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm</td>
<td>July 26, 2017 3:30-6:15 pm ED 621</td>
<td>165 min</td>
<td>30%</td>
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<tr>
<td>Assignment #2:</td>
<td>Due on Aug 14, 2017</td>
<td>1 week</td>
<td>10%</td>
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<tr>
<td>Attendance &amp; Participation</td>
<td></td>
<td></td>
<td>10%</td>
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<tr>
<td>Final Exam</td>
<td>Aug 23, 2017 2:00-5:00 pm ED 621</td>
<td>180 min</td>
<td>40%</td>
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<tr>
<td><strong>Total</strong></td>
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<td>100%</td>
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**Classroom Rules:**
- 100% class attendance is expected unless student have a recognized emergency
- Please be punctual and arrive class at time and don’t leave before the class ends
- Bring textbook, pens, pencils, graph sheets, basic scientific calculator and ruler with you for every class as you are required to finish practise problems by the end of the class
- The electronic devices including laptops and cell phones are source of distraction and the usage of them is prohibited during the class time

**Exams Rules:**
- All exams will be held at room ED 621
- Midterm exam will **start at 3:30 pm** so please arrive 5 minutes ahead
- **In case the student miss the midterm exam because of recognized emergency (proof documentation is required), the weight of the midterm will be added to the final exam**
- The midterm will cover the material taught up to date. The final exam will cover everything discussed during the term
- Midterm and final exams are closed book exams and only simple scientific calculator is allowed
- Bring your student ID with you to all exams

**Attendance & Participation**
There will be 10% of the course evaluation assigned for attendance and answering questions during the class. Excused absence will not be counted
Assignments’ Rules:
- Assignments will be posted on UR Courses and each student is expected to submit them back within the assigned due date.
- 10% will be deducted from the assignment total mark for late submission. **Solution will be posted after 24 hours of the due date, and then late submission will not be accepted.**
- All assignments should be submitted with an attached cover page, a template cover page will be posted on UR Courses.

Academic Integrity:
All work submitted by each student is expected to be the student sole work. Cheating and plagiarism will not be tolerated at any time. Any suspected cases will be reported to the undergraduate associate dean for further investigation.

Students with Special Needs:
If you need any special accommodation or exams, please let me know after the first class. You also need to contact the Coordinator of Special Needs Services at (306) 585-4631.

Tentative Course Outline:

<table>
<thead>
<tr>
<th>Textbook Chapter</th>
<th>Topics to be Covered</th>
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<tbody>
<tr>
<td>Chapter 1</td>
<td>Introduction: Quantitative Analysis and Decision Making, Models of Cost, Revenue and Profit</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>An Introduction to Linear Programming (LP): A Maximization Problem, Graphical Solution Procedure, Feasible Region, Extreme Points and the Optimal Solution, A Minimization Problem, Special Cases, Computer Solution, LP Notation</td>
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<tr>
<td>Chapter 3</td>
<td>Linear programming: Sensitivity Analysis and Interpretation: Graphical Solution, Range of Optimality, Reduced Cost, Dual Price, Slack and Surplus Variable, Standard Form, LP Format, Range of Feasibility, 100 % rule, Computer Solution.</td>
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<td>Chapter 6</td>
<td>Distribution and Network Models: Transportation, Assignment, Transhipment, Shortest Route, Maximal Flow, Production and Inventory Applications.</td>
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<td>Chapter 7</td>
<td>Integer Linear Programming: Types, Graphical and Computer Solution for an all integer LP, Applications with 0-1 variables.</td>
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<tr>
<td>Chapter 10</td>
<td>Inventory Models: EOQ, EPLS, Planned Shortages, Quantity Discounts, Probabilistic Demand Models.</td>
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<td>Chapter 13</td>
<td>Decision Analysis: Formulation, Decision Making with/without Probabilities, Risk Analysis, Decision Analysis with Sample Information, Computing Branch Probabilities, Bayes’ Theorem.</td>
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