Office: 540.5 Education Building, University of Regina
Hours: My phone has voice mail. You can call any time and leave a message when and where to call you back at a particular time. Please be sure to leave your phone number. If you can’t reach me to set up an “appointment”, you can contact me by computer through the URcourse site.
Phone: Office- 585-4710. There is voice mail on this line.
Res Phone: 789-6578 Not all of us work 9-5. So if you have any questions that can’t wait, do call me at home. I’ll have a textbook handy and should be able to look at the same question that is bothering you. Just recognize that I’m a little foggy at 2:00am.
E-mail: You can also talk to me by e-mail at James.Mason@uregina.ca I check this a few times a day and will get back to you as soon as I can. However our class URcourse site is more reliable. Please use it.

COURSE SUMMARY:

Administration 270 is an introduction to the use of quantitative modeling techniques as an aid to managerial/organizational decision-making. Emphasis will be on formulation, solution, and sensitivity analysis of results. We will study decision theory, resource allocation problems using linear programming, integer linear programming, and inventory problems.

COURSE OBJECTIVES:

In general, our primary purposes are to introduce you to a number of the more common mathematical modeling approaches used by decision-makers. The analysis of problems requiring decisions based on quantitative analysis will help develop an understanding of problem solving methods, their underlying assumptions, the limitations of the technique, problem formulation, analysis, solution and sensitivity analysis.

Specifically, we want to develop:

1. A structured, systematic approach to problems,
2. A critical approach to problem solving, and
3. An appreciation of the modeling-analytic-decision process.

Each chapter has specific learning objectives to guide your studies. You will find them helpful. They’re part of the solutions on the URcourse site.
Our emphasis is significantly different! We will be more concerned with problem formulation, sensitivity analysis and interpretation of results; and less concerned with mastering the mathematical technique for technique's sake. We want to make this course relevant and practical to students and professionals. There are four basic ways this is accomplished.

1. **Teaching by example.** We believe that the best way to learn quantitative concepts and modeling is by working through examples and completing plenty of problems. This approach is not new. The feedback we have received from many of you appears to confirm this approach is effective.

2. **Integrate the material with finance, marketing, operations management and the other functional areas of management.** This is an important feature of this course. Few of you will go on to concentrate in this discipline. Although many examples are drawn from operations-management, the application of modeling to the other functional areas is too important to ignore. Throughout the course we use scaled down, but real examples from all functional areas to illustrate the power of the approach.

3. **Teach modeling and not just models and formulae.** Poor attitudes and performance by students in the past can be attributed to the way in which they were taught, and in the way in which they approached the content. Emphasis on algebraic formulations and model memorization lead to a superficial understanding of the mechanics and little appreciation of the process. Because real problems and the application of real models often include limitations or alternative approaches, we will take time to discuss these important matters. It is important to see the forest in spite of the trees.

4. **Work numerous problems and cases.** We spend little time in lecturing. The text is extremely well written and provides substantive content. Use it well. We will do many problems in “class” and the lab. Do not limit your study and practice to these and the suggested problems. Solutions will be provided on the web-CT site. I am prepared to go beyond and assist you.

**TEXT:**


**Other References:** See the University of Regina library classifications HD 38 and HD 69 for decision-making material. Section HD 20 covers much of the material on quantitative methods and operations research. More advanced material can be found in sections Q 175 and T 57. You should not have to go beyond the textbook to do well in this course.

**PREREQUISITES:**

A student must be competent with the concepts of: slope, straight line, equation of a straight line or linear function, the graphing of a linear function, and the algebraic solution of a system of
linear equations. The statistics prerequisite (Stats 151) is also relevant. You are expected to understand the concepts of random variable, its probability density function, cumulative distribution function, its expected value, variance, and standard deviation, testing for the independence of two random variables, normal and uniform distributions…. All this sounds a bit overwhelming perhaps? Keep the faith! We will develop your understanding rather than dependence on the technical formulae and what not.

It has been my experience that students are not comfortable with Excel Solver, so we will use a canned program called the Management Scientist. It is no longer on the computers in the accounting computer lab so I will provide the output for you.

TESTS AND EXAMS:

There will be one mid-term tests and a comprehensive final. There are no formal hand-in assignments. These exams will be closed book, no past exam materials or notes! Each of these elements will be weighted to arrive at a final grade for the course: two mid-terms (25% each) and a comprehensive Final 50%.

You will find samples of my past exams on the URcourse site. Please look at their structure. I think you will find them very different than you would expect. Instead of asking you to formulate and solve a problem, the questions are designed so that an error in one part of the question will not affect your mark for an answer in another part. I try to probe your understanding of the material rather than simply your ability to do arithmetic. One word of caution though! Be aware that the computer input/output is based on a different software package. I word and structure the question to reflect the nature of our discussions. You may find some of the questions do not make easy sense to you, or the wording may not be quite what we’ve done in our class. Do not let this throw you.

Arithmetical accuracy, clarity and neatness will be required in all work. You will be allowed to bring a programmable calculator (Bring a back-up calculator and spare batteries!). You will not be allowed to bring in books, notes or material from past exams, as they tend to confuse rather than help. All answers in assignments, mid-term and final exam must be properly explained and justified. A "correct" answer without any indication of how it was obtained will not fetch you many marks. On the other hand, an arithmetic slip will not be too costly if you show the correct approach.

GENERAL COMMENTS:

You can do well in this course by reading the text before we cover the material in class, by listening and asking questions. The keys are to do a lot of problems so they become second nature, and to attend class.

You will notice the authors have put the answers to the even numbered questions in Appendix E at the back of the book. They have also provided answers to the “Self test” questions. You will be expected to work on your own without consulting the answers until you have done the
problem. **Doing problems does have a significant impact on your understanding and performance.** Solutions will be available on the URcourse site.

I will not “lecture” exhaustively in the usual sense. I will provide “power point” notes on the URcourse site. These notes present the key content of the chapters that we will study. They are not sufficient!

The textbook is very well written and provides clear explanations. If you do have difficulty with the material, please talk to me. I will use problems to illustrate the theory and modeling process, to show how to formulate problems, and to interpret the results. We may do some of the cases at the end of the chapters to strengthen our understanding.

*If you require special accommodations of any kind in this course because of a disability, please discuss this with your instructor, and contact the Coordinator of Special Needs Services at 306-585-4631.*
# TOPIC OUTLINE AND TENTATIVE SCHEDULE:

<table>
<thead>
<tr>
<th>Class</th>
<th>Topic</th>
<th>Material</th>
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<tbody>
<tr>
<td><strong>1</strong> Jan 8</td>
<td><strong>Introduction</strong></td>
<td>Chapter 1 #’s 12, 13</td>
</tr>
<tr>
<td>2-5 Jan 10-22</td>
<td><strong>Decision Analysis</strong> (no risk profile or inference diagrams) Suggested Assignment</td>
<td>Chapter 13 #’s 3, 4, 9, 11, 14, 23, 25 (not 16-22)</td>
</tr>
<tr>
<td>6-9 Jan 24-Feb 5</td>
<td><strong>Linear Programming: Graphical Method</strong> Suggested Assignment</td>
<td>Chapter 2 #’s 4, 5, 8, 12, 15, 16, 33, 47, 48</td>
</tr>
<tr>
<td>10-11 Feb 7-12</td>
<td><strong>Graphical Sensitivity</strong></td>
<td>Chapter 3 sections 3.1, 3.2 #’s 1, 3, and 5 graphically</td>
</tr>
<tr>
<td><strong>12</strong> Feb 14</td>
<td><strong>MIDTERM EXAM</strong></td>
<td>Material to date</td>
</tr>
<tr>
<td>12-16 Feb 26- Mar 7</td>
<td><strong>Linear Programming: Formulation, Computer Formulation, Solutions and Interpretation</strong> Suggested Assignment</td>
<td>Chapters 3, and 4 3: #’s 16, 18, 19, 27, 32 4: #’s 3, 4, 10, 16, 22, 25</td>
</tr>
<tr>
<td>17 Mar 12</td>
<td><strong>Integer Linear Programming</strong> Suggested Assignment</td>
<td>Chapter 7 #’s 2, 4, 7, 11, 14, 20</td>
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<tr>
<td><strong>18</strong> March 14</td>
<td><strong>MIDTERM EXAM</strong></td>
<td>Material since first midterm</td>
</tr>
<tr>
<td>19-22 March 19-28</td>
<td><strong>Distribution and Network Problems</strong> Suggested Assignment</td>
<td>Chapter 6 #’s 4, 7, 8, 12, 16, 19, 22, 23, 30, 32</td>
</tr>
<tr>
<td>23-25 April 2-9</td>
<td><strong>Inventory Models:</strong> Suggested Assignment</td>
<td>Chapter 10 #’s 6, 12, 17, 20, 29, 30</td>
</tr>
<tr>
<td>26 April 11</td>
<td><strong>Review</strong></td>
<td></td>
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<tr>
<td><strong>April 18</strong></td>
<td><strong>FINAL EXAM 2:00 pm April 18</strong></td>
<td>Comprehensive</td>
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