

**QMS 001  
Business Statistics  
FALL 2015 COURSE OUTLINE**

**Prerequisite &/or Exclusions: None**

**CALENDAR COURSE DESCRIPTION:**

This course consists of an introduction to business statistics including methods of describing, summarizing, graphically presenting, measuring and analyzing statistical data, probability distributions, variance applications, sampling distributions and control charts. The course emphasizes how to apply various statistical techniques in the support of managerial decisions in the various functional areas of business. Students will be required to use the recommended calculator to present and analyse statistical data.

**COURSE OVERVIEW:**

| <b>Learning Goals</b>  | <b>Learning Objectives</b><br><b>The students will be able to...</b>  |
|--|---|
| Properly present and describe information                              | <ul style="list-style-type: none"> <li>• Organize and present data in tables and charts such as a stem-and-leaf display and frequency distributions</li> <li>• Graph the data in the form of a histogram, polygon or ogive</li> </ul>   |
| Descriptive Summary Measures<br><br>Probability<br><br>Quality Control | <ul style="list-style-type: none"> <li>• Describe a set of data by measuring the central tendency and the variability of the data.</li> <li>• Compare variability.</li> <li>• Summarize data with a box-whisker plot.</li> <li>• Decide when and how to use various probability distributions</li> <li>• Calculate the control limits for the various control charts and understand what a control chart is indicating</li> </ul> |

**TEXTS & READING LISTS:**

***Business Statistics: A Two-Semester Text, 12<sup>th</sup> edition*** for Ryerson University, Compiled by Darryl Smith and Clare Chua

**REQUIRED CALCULATOR:**

Required to buy **CASIO FX-9750GII calculator**. The CASIO FX- 9750G PLUS calculator or an equivalent calculator is acceptable. However your professor will not be supporting or using any calculator other than the CASIO **FX-9750GII** calculator in class. If you decide to use a calculator other than the CASIO **FX-9750GII** you are responsible for knowing how to use its functions on your own. It lacks important capabilities and you will have to use tables at tests and exams. You are not allowed to use a laptop or a portable/handheld computer in quizzes, test and exam.

**COURSE OBJECTIVES:**

On completion of the course, students will be able to:

1. Describe, present and analyze information
2. Describe a set of data by measuring the central tendency and the variability of the data
3. Apply the concept of probability to quantify uncertainty and assess business risk.

**EVALUATION:**

The grade for this course is composed of the mark received for each of the following components:

| Component             | Percent/Weight | Date                |
|-----------------------|----------------|---------------------|
| Quiz #1               | 10%            | October 3 at 11am   |
| Midterm Test          | 25%            | November 7 at 11am  |
| Quiz #2               | 10%            | November 28 at 11am |
| SPSS Group Project(s) | 5%             | TBA                 |
| Final Exam            | 50%            | TBA                 |
| TOTAL                 | 100%           |                     |

**TOPICS – TENTATIVE SEQUENCE & SCHEDULE:**

| <b>Week</b>   | <b>Topic</b>  | <b>Readings</b>   | <b>Suggested Activities &amp; Assignments</b>                     |
|---|---|---|---|
| 1   | Definition, Data Types, Measurement Scale, Stem-and-Leaf Plot                   | Chapters 1 and 3 (section 3.1 and 3.2)<br>Calculator lesson 1 on page 34          | Chapter 1, page 15: Q1.1, 1.2, 1.3, 1.4, and 1.5<br>Page 58, Q3.1 |
| 2   | Stem-and-Leave Plot, Graphing Techniques, Frequency Distribution,               | Chapter 3 section 3.2 to 3.6  | Page 58, Q 3.2 to 3.5<br>Page 82, Q3.6 to 3.9                     |
| 3   | Frequency Distribution, OGIVE and Percentile,                                   | Chapter 3 section 3.7 and 3.8 and section 3.11<br>Calculator lesson 2 on page 133 | Page 101, Q3.10 to 3.12<br>Page 110, Q3.13                        |
| 4   | Measures of Central Tendency<br>Which is a better measure of central tendency?  | Chapter 4 section 4.1<br>Calculator lesson 3 on page 145                          | Page 151, Q4.1 to 4.19  |
| 5   | Measures of Central Tendency and Measure of Variability<br>Measures of Skewness | Chapter 4 section 4.2 and Section 4.3<br>page 164<br>Lesson 3 on page 145         | Page 163, Q4.20 to 4.33   |
| <b>STUDY WEEK ( No class) October 10 to October 16.</b> |   |   |   |
| 6   | Box-Whisker Plot  | Chapter 4 section 4.4<br>Calculator lesson 4 on page 170                          | Page 174 Q4.50 to 4.53  |
| 7   | Basic Probability (emphasize on Contingency Table)<br>Discrete Probability      | Chapters 5 and 6 section 6.1.   | Page 212 Q5.12 to 5.15<br>Page 251 Q6.9 to 6.15                   |

| <b>Week</b> | <b>Topic</b>   | <b>Readings</b>  | <b>Suggested Activities &amp; Assignments</b>  |
|-------------|--|--|--|
| 8           | Binomial Distribution<br>Poisson Distribution                  | Chapter 6<br>section 6.2 and<br>6.3<br>Calculator lesson<br>5 (on Binomial<br>probability) on<br>page 261<br>Calculator lesson<br>6 (on Poisson<br>Probability) on<br>page 268 | Page 262, Q6.16 to 6.27<br>Page 269, Q 6.28 to 6.44                                      |
| 9           | Normal Distribution  | Chapter 7<br>sections 7.1 to 7.3<br>Calculator<br>Lesson 7<br>On page 283  | Page 284 Q7.1 to 7.6   |
| 10          | Central Limit<br>Theorem,<br>Sampling Distribution<br>Z-scores | Chapter 8  | Page 335, Q8.15 to 8.22<br>Review Questions: Page 337 Q8.23 to<br>8.41 and Q8.43 to 8.47 |
| 11          | Control Chart  | Chapter 9<br>Section 9.1 and<br>9.2  | Page 362, Q9.1   |
| 12          | Control Chart<br>Review  | Chapter 9.1 and<br>9.2   | Page 362, Q9.2 to 9.6  |

### **TEACHING METHODS:**

This course will incorporate the following teaching/learning methods:

Readings from the text will help you prepare for each class. Most concepts and procedures will be presented and discussed during classes each week. There may be some time provided in each class for you to practice with the various new statistical methods. You must then reinforce your understanding of the material with independent study and by solving the assigned problems. Ultimately, it is your responsibility to learn the course material. However, every attempt will be made to present the course in a manner that facilitates learning the subject matter. For example, course materials will be presented in a timely and logical manner, appropriate handouts will be provided, your feedback will be solicited regularly, and the two quizzes and the test will be graded and marks posted in a timely fashion. Also, where appropriate, you will be given instructions on how to use SPSS and/or the recommended calculator.