YukonCollege

Course Outline

# Business 307

# Statistics II

45.0 Hours
3.0 Credits

Prepared by      _____      Date: September 7, 2015

Brian Paul, Instructor

Approved by      _____      Date: _____

Margaret Dumkee, Dean, Applied Science and Management

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This course outline was prepared by Brian Paul on September 7, 2015.


Yukon College
500 College Drive
Post Office Box 2799
Whitehorse, Yukon Y1A 5K4

# Statistics II

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|---|---|
| **Instructor:** | Brian Paul, M.Sc., MBA |
| **Office Location:** | Room #A 2412 - Ayamdigut Campus |
| **Office Hours:** | 09:00 - 12:00, Monday<br>13:00 - 14:30, Tuesday and Thursday<br>09:00 - 12:00 & 13:00 - 16:00, Wednesday<br>13:00 - 16:00, Friday<br>(or by appointment) |
| **Telephone Numbers:** | 668-8756 (Ayamdigut)<br>667-6763 (Home)<br><br>668-8890 (FAX - Ayamdigut)<br><br>E-Mail:  bpaul@yukoncollege.yk.ca (Ayamdigut)<br>bpaul@northwestel.net (Home) |
| **Course Length:** | 45.0 hours (1.5 hrs/day; 2 days/week; 15 weeks) |

| | | | |
|---|---|---|---|
| **Course Days:** | Tue / Thur | **Course Time:** | 15:30 - 17:00 |
| **Class Room #:** | A 2204 | **Lab Room #:** | A 2301 / A 2408<br>A 2702 |

**Course Description:**

**Business 307** is a continuation of the introductory statistics course offered in the first year of the Business Administration program at Yukon College. Students successfully completing both **Business 111** and **Business 307** will have a solid grounding in basic business statistics.

Perhaps more so than in **Business 111**, the emphasis in **Business 307** will be on the application of statistical models to "real world" problems of uncertainty and variability. The instructor will continue to concentrate on building a sound knowledge of the use (and potential misuse) of statistical methods to provide students with a basis for future administrative problem solving and analysis. As in **Business 111**, a certain amount of mathematical development will

be involved, but we will look mainly at how the basic concepts are applied, rather than spending time on theorems and formulas.

**Business 307** will pick up where **Business 111** left off - with statistical inference. The instructor will cover analysis of variance techniques, chi-square analysis, a number of non-parametric techniques and linear regression and correlation during the first seven weeks of the course. A considerable amount of classroom time will then be spent on multiple regression and multiple regression models.

Towards the end of the course, the instructor will move on to cover some statistical applications specific to business and economics, namely time-series analysis and statistical quality control.

Just prior to the final examination, the instructor will re-visit the probability concepts covered very early on in **Business 111** and show how these concepts can be applied to decision making in different business situations.

## Course Goals / Learning Objectives:

1)  As in **Business 111**, one of the objectives of this course is to familiarize students with a number of statistical techniques applicable to business problem solving

2)  A second objective is to familiarize students with the analytical power of computer-based statistical packages. Students should be reasonably adept with *MINITAB* and/or *EXCEL* upon completion of this course.

3)  A third objective is to ensure that students become intelligent consumers of statistical data, particularly as this relates to the output from computer-based statistical packages.

4)  A final objective is to acquaint students with the methodology of applied research, in the hope that students - at some point - will be able to apply this methodology in the workplace.

## Course Prerequisites:

Students will normally have completed **Business 111** - Statistics I - prior to registering in this course.

The prerequisite for this course - **Business 111** or a similar introductory statistics course - may be waived by the instructor under certain circumstances.

## Course Format:

The course will be developed around selected chapters in *Statistics for Management and Economics - Tenth Edition*, by Gerald Keller. However, the instructor will support both the ninth and tenth editions of the text.

The instructor will proceed on the assumption that students have kept abreast of the assignment materials - some students may wish to read ahead in the text. An assignment schedule will be provided by the instructor during the first class. As the instructor will probably not cover all the material in the assigned chapters, the emphasis for examination purposes will be on the material covered during the classroom sessions.

The course will be delivered using a combined format of lectures and sample problems worked out in class. The lectures will follow the textbook for the most part, but will be augmented with a significant number of handouts. As the College no longer has in-house printing capability, the instructor may simply post these "handouts" to the course web page rather than distributing them in class.

You will be asked to apply the statistics and probability theory covered in the classroom to related problem exercises and assignments.

**Course Requirements:**

**How To Perform Well In This Course (!)**

A good understanding of the basic concepts of probability and statistics is the key success factor in this course. *It is absolutely essential that you keep abreast of the assignments and general course work*. The concepts covered in the course are cumulative and missing classes will put you out of sync in ways that won't be apparent until term test or examination time. If you must miss a class, it's a good idea to let the instructor know ahead of time so that arrangements can be made to cover the material outside of class.

**Assignments**

The main requirement for assignments is that they be submitted on the due date. *Late assignments will have ten percent (10%) deducted for every day they are late*. Unless prior arrangements are made with the instructor, or the instructor indicates otherwise, all assignments will be wordprocessed.

**Examinations**

Rewrites of the final examination may be allowed under certain conditions. If a student does poorly on the final examination, such that he or she fails the course, the instructor may allow the student to rewrite the final examination. Under no circumstances will a student be allowed to rewrite a final examination if that student has failed the term work component of the course.

**Academic and Student Conduct**

Information on academic standing and student rights and responsibilities can be found in the Academic Regulations:

http://www.yukoncollege.yk.ca//downloads/Yukon_College_Academic_Regulations_and_Procedures_-_August_2013_final_v1.pdf

**Plagiarism**

Plagiarism is a serious academic offence. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may result in dismissal from a program of study or the college.

Plagiarism involves presenting the words of someone else as you own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and to document sources from which they have taken material.

Whenever the words, research, or ideas of others are directly quoted or paraphrased they must be documented according to standard procedures (APA or MLA). Re-submitting a paper for which you have previously received credit is also an academic offence.

**Yukon First Nations Core Competency**

Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from any Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see

www.yukoncollege.yk.ca/yfnccr

**Academic Accommodation**

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he or she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

**Evaluation:**

A final grade for this course will be assigned on the following basis:

**Assignments / Cases**          50%

There will be five assignments, each worth 10%.

**Term Test**          20%

There will be one term test in this course, worth 20%. The term test has been tentatively scheduled for November 10, 2015.

**Final Examination**                    30%

The final examination has been tentatively scheduled for December 18, 2015.

                    Total:  100%

**Required Textbook:**

Keller, G. (2014): *Statistics for Management & Economics - Tenth Edition*: Cengage Learning, 909 pp.

The preceding textbook is available from the Yukon College bookstore; the hardcover edition of the book is priced at $185.11 at Amazon.ca (see the following link).

http://www.amazon.ca/Statistics-Management-Economics-Professor-Gerald/dp/1285425456/ref=sr_1_1?s=books&ie=UTF8&qid=1405622477&sr=1-1&keywords=9781285425450

An electronic version of the textbook can be downloaded for approximately $125 (Canadian) from the following internet address:

http://www.coursesmart.com/9781285425450

Earlier editions of the statistics text should be fine for this course, but the instructor will be using the page references in the ninth and tenth editions for any content summaries he provides.

Single copies of the ninth and tenth editions of the text have been placed on two-hour reserve in the Yukon College library.

**Software / Supplementary Textbooks / Internet Resources:**

Students will be able to access the *Minitab Release 17* in all of the College's computer labs.

Rental versions of *Minitab Release 17* can be downloaded from

http://www.onthehub.com/minitab/

for approximately $41. Having a personal copy of *MINITAB* will allow you the luxury of doing your assignments at home, rather than in the computer lab. A handout describing the download procedure for Yukon College students will be distributed during the first class. For further information on the download, please refer to the *MINITAB* home page at

http://www.minitab.com/en-us/academic/

*Data Analysis Plus* has been installed on the student server and this *EXCEL* macro will need to be activated if you are using *EXCEL* in the College computer labs. Additional information on the activation procedure will be provided in class.

Students can access some essential textbook resources by going to the following internet address:

[www.cengagebrain.com](www.cengagebrain.com)

Enter *9781285425450* (the text ISBN) in the search box and click on the green search button. Click on *Access Now* in the *Free Materials* tab to access the *Data Analysis Plus* add-in for EXCEL, the text data sets and the text appendices.

Supplementary textbooks are available in the Yukon College library, or from the instructor. If you need a reference on a specific topic, the instructor should be able to steer you in the right direction. The instructor has digital copies of the solutions manuals for the ninth and tenth editions of the Keller text, should students need detailed answers to text exercises outside the formal assignments.

A course web page has been set up in Moodle. The instructor anticipates that the course web page will serve mainly as a repository for the course materials handed out in class and the data files students will require to complete the five assignments. Content will be added to the web page as course progresses.

**Required Supplies:**

None

**Proposed Syllabus:**

| Class | Date | Text: Chapters | Topic |
|---|---|---|---|
| 1 | 09/10/15 | | Introduction to the Course |
| | 09/11/15 | | **Last Day To Register In Fall Semester Courses** |
| 2 | 09/15/15 | 11 | Hypothesis Testing - A Review |
| 3 | 09/17/15 | | MINITAB / DATA ANALYSIS PLUS - A Review [1] |
| 4 | 09/22/15 | 14 | Analysis of Variance |
| | | | **1st Assignment Handed Out** |

| Class | Date | Text:<br>Chapters | Topic |
|---|---|---|---|
| 5 | 09/24/15 | 14 | Analysis of Variance |
| 6 | 09/29/15 | 14 | Analysis of Variance |
| 7 | 10/01/15 | 15 | Chi-Square Tests |
| 8 | 10/06/15 | 15 | Chi-Square Tests |
| 9 | 10/08/15 | 19 | Non-Parametric Tests |
| | | | **2nd Assignment Handed Out** |
| | 10/12/15 | | **Thanksgiving Day Holiday** |
| 10 | 10/13/15 | 19 | Non-Parametric Tests |
| | | | **1st Assignment Due** |
| 11 | 10/15/15 | 19 | Non-Parametric Tests |
| 12 | 10/20/15 | 16 | Linear Regression and Correlation |
| | 10/22/15 | | **No Class - Instructor in Calgary** |
| 13 | 10/27/15 | 16 | Linear Regression and Correlation |
| | | | **3rd Assignment Handed Out** |
| 14 | 10/29/15 | 17 | Multiple Regression |
| | | | **2nd Assignment Due** |
| 15 | 11/03/15 | 17 | Multiple Regression |
| 16 | 11/05/15 | 17/18 | Multiple Regression |
| 17 | 11/10/15 | | **Term Test** |
| | 11/11/15 | | **Remembrance Day Holiday** |

| Class | Date | Text: Chapters | Topic |
|---|---|---|---|
| 18 | 11/12/15 | 17/18 | Multiple Regression [1] |
| | | | **3rd Assignment Due** |
| | | | **4th Assignment Handed Out** |
| | | | **Last Day To Withdraw From Fall Semester Courses Without Academic Penalty** |
| 19 | 11/17/15 | 17/18 | Multiple Regression [1] |
| 20 | 11/19/15 | 20 | Time Series Analysis & Forecasting |
| 21 | 11/24/15 | 20 | Time Series Analysis & Forecasting |
| | | | **5th Assignment Handed Out** |
| 22 | 11/26/15 | 21 | Statistical Quality Control |
| | | | **4th Assignment Due** |
| 23 | 12/01/15 | 21 | Statistical Quality Control |
| 24 | 12/03/15 | 22 | Decision Analysis |
| 25 | 12/08/15 | 22 | Decision Analysis |
| 26/27 | 12/10/15 | | **Review Session** |
| | | | **5th Assignment Due** |
| | 12/18/15 | | **Final Examination (To be Confirmed)** |

**Note:**

[1]  **The classes on September 17, November 12 and November 17 will likely be held in computer lab A 2408 (and these classes may run to two hours in length).**

[2]  **The final class on December 10 will likely be a two- to three-hour class so that we can complete the (all-important) final examination review. Details on this review class will be finalized at a later point in the semester.**