

Course Catalog:	QMT 109
Course Title:	Business Research and Statistical Methods
School Year:	2012 – 2013
Semester:	First Semester
Units:	3 units
Lecturer:	John Carlos B. Clerigo

### Course Description

The quality of management decision-making will depend on a proper understanding and definition of the problems to be addressed, the availability of reliable information, and the validity of models or frameworks used for analysis and evaluation of options. Even mathematical optimization techniques depend on the validity of the assumptions underlying the mathematical models used for analysis.

This course provides students with the tools and approaches to undertake business research and capture the behavior of observed phenomena or variables using statistical modeling techniques.

### Course Objective

At the end of the course, the student should be able to:

1. Formulate a research problem. Define objectives, methods, and deliverables.
2. Perform data preparation, visualization and analysis using inferential statistics and multivariate modeling techniques.
3. Demonstrate proper model building and validation. Deploy results of data analysis.
4. Be familiar with the use of statistical software as a tool for computation and analysis.

### Course Outline

Topics and Coverage	Reference	Timeline
<b>MODULE 1</b>		
<b>Research Methods</b> <ul style="list-style-type: none"> <li>• The Research Process</li> <li>• Problem Definition</li> <li>• Research Design</li> <li>• Sampling Design</li> <li>• Measurement Concepts</li> <li>• Data Collection and Data Sources</li> </ul>	Making Sense of Data I (Chapter 1-2)	4 Meetings
<b>Descriptive Statistics</b> <ul style="list-style-type: none"> <li>• Visual and Graphical Methods</li> <li>• Numerical Methods</li> </ul>	Business Statistics in Practice (Chapter 2-3 )	4 Meetings
<b>Probability Distributions</b> <ul style="list-style-type: none"> <li>• Discrete</li> <li>• Continuous</li> </ul>	Business Statistics in Practice (Chapter 5-6)	6 Meetings
<b>MODULE 2</b>		
<b>Estimation Techniques</b> <ul style="list-style-type: none"> <li>• Sampling Distribution</li> </ul>	Business Statistics in Practice	6 Meetings

<ul style="list-style-type: none"> <li>Confidence Intervals</li> </ul>	(Chapter 7-8)	
<b>Inferential Statistics</b> <ul style="list-style-type: none"> <li>Hypothesis Testing</li> </ul>	Business Statistics in Practice (Chapter 9)	3 Meeting
<b>Comparative Statistics</b>	Business Statistics in Practice (Chapter 10)	4 Meetings
<b>MODULE 3</b>		
<b>Association/Dependence</b> <ul style="list-style-type: none"> <li>Test of Independence</li> <li>Analysis of Variance</li> <li>Correlation</li> </ul>	Business Statistics in Practice (Chapter 11-13)	6 Meetings
<b>Prediction</b> <ul style="list-style-type: none"> <li>Linear Regression</li> <li>Logistic Regression</li> <li>Discriminant Analysis</li> </ul>	Business Statistics in Practice (Chapter 14-15) Multivariate Data Analysis (Chapter 2-3)	12 Meetings
<b>Clustering (Optional)</b> <ul style="list-style-type: none"> <li>Cluster Analysis</li> <li>Factor Analysis</li> <li>Principal Component Analysis</li> </ul>	Multivariate Data Analysis (Chapter 6-8)	3 Meetings

### Primary References

Bowerman ,O'Connell and Murphree. Business Statistics in Practice. 6th Edition, McGraw-Hill Irwin, 2011.

Hair, Jr., Anderson, Tatham. Multivariate Data Analysis with Readings. 2<sup>nd</sup> Edition. Macmillan. 1987

Myatt, Glenn J. Making Sense of Data: A Practical Guide to Exploratory Data Analysis and Data Mining. Wiley. 2007

### Suggested Readings

Anderson, David, Sweeney, and Williams. Modern Business Statistics with Microsoft Excel. 1st Edition, Thomson South-Western, 2003.

MacNeal, Edward. Mathsemantics.

### Course Requirements

3 Long Exams	60%
Group Project	20%
Quizzes	15%
Recitation	<u>5%</u>
<b>TOTAL</b>	<b>100%</b>

## Grade Equivalents

92 - 100	3.76 – 4.00	A	70 - 76	1.81 – 2.30	C
88 - 91	3.31 – 3.75	B+	60 - 69	1.00 – 1.80	D
83 - 87	2.81 – 3.30	B	Below 60	Below 1.00	F
77 - 82	2.31 – 2.80	C+			

1. There shall be three long exams (open notes and open books). These may be held outside class hours with a three-hour duration. These may or may not include a take-home part. The three exams shall have equal weights.
2. There shall be no make-up exams, unless there is a legitimate and immediate reason (for medical-related concerns, submission of a valid doctor's certificate is required). The lecturer or the department secretary must be notified not later than 12 noon of the examination date. Failure to comply with the aforesaid requirement will warrant a grade of 'F' for the exam.
3. For long exams, students are given at most three (3) school days after the return of the booklets to make the necessary appeals and requests for corrections. After the said period, grade changes will no longer be entertained. A letter explaining what needs to be corrected should be submitted together with the original exam to the Department Secretary (Ms. Anna Geronimo). The course instructors reserve the right to review all your answers in the exam, not just the one you requested to be regarded. Note that this may result to an increase or decrease in your total score. All regrade decisions are final.
4. There will be three (3) quizzes throughout the semester. It will be given 1 to 2 weeks before a long test. There will be no make-up quiz. If a student is absent on the day a quiz is given without any valid reason, he/she will automatically get a 0 (F) for the quiz. If there is a legitimate reason for the absence, then the student's grade in the next quiz will serve as his/her grade in the missed quiz (For the last quiz, the grade in the previous (2nd) quiz will be used.)
5. Short recitation quizzes shall be given throughout the semester. A student needs at least 10 recitation points in order to get the full 4% for the recitation grade. If a student receives more than 10 points, the extra points will be added on to the quiz scores.
6. Peer rating shall be applied on the final project grade.

## Classroom Policies

1. The teacher will check the attendance at the start of the period (ex. 10:30 am). After 15 minutes, the teacher will check the attendance again. Any student who is not in the classroom by that time will be considered absent and will receive a cut. A student is entitled to 9 cuts for M-W-F classes and 6 cuts for T-Th classes.
2. The students must submit a 3 x 5 white index card with the following information:
  - a. Name
  - b. ID Number/Course
  - c. Highschool
  - d. Cellphone Number AND Landline Number
  - e. E-mail Address
  - f. Special concerns/needs (ex. Problems in hearing or seeing, etc.)

A 1x1 ID picture must be pasted at the upper right hand corner of the index card. The picture must be a **headshot**. Once you have pasted the picture, write your nickname directly below the 1x1 ID picture.

This index card must be submitted on the second meeting of class. The index card will be used for the checking of your attendance. Failure to submit the index card by the second meeting will merit a cut for **that day and each succeeding day** until the student submits an index card with the specifications above.

3. A beadle will be selected on the first day of class. He/she will be tasked to check the attendance of the teacher. Contact the ADAA for the procedure. If the beadle is going to be absent, he/she must assign another student to check the attendance of the teacher.
4. The use of cellphones, ipods, mp3 players and other electronic devices (except for calculators) in class is prohibited. If a cellphone rings, makes a sound or is seen by the teacher, the owner of the cellphone will have to leave the room and he will be considered absent for that meeting. If no one in the class admits that he/she is the owner of the cellphone, the whole class will receive a cut for that meeting.
5. Other kinds of behavior that disturb the classroom proceedings shall warrant the same punishment as number 4.
6. Sitting-in is allowed but the person who will sit in must ask permission from the teacher before the start of the period. Once the class has started no sit-ins will be allowed to enter the classroom.
7. The SOM Dress Code will be strictly followed. A student who attends the class in inappropriate attire will be sent out and shall be considered absent.
8. Academic dishonesty in any form (ex. Copying in exams, plagiarism, fabrication of data) will warrant a **final grade of F in the course** and a **disciplinary case**.
9. Consultation will be strictly by appointment.

**The instructor reserves the right to make changes to this syllabus as the pace and environment of the class dictates.**