

**I. QMB 3600: Quantitative Methods in Business (3 credits)**

**II. Prerequisite Courses & Standing:**

MAC 2233, STA 2023, and junior standing

**III. Course Logistics:**

Fall 2011, Section 002 CRN 82290  
M W 12:30 – 1:50 pm, GS 120

**IV. Instructor:**

Name: Dr. **Jim C. Han**, Professor, Department of ITOM  
Email: [han@fau.edu](mailto:han@fau.edu)  
Telephone: (561) 297-2691  
Office: FL 214  
Office Hours: M W 2:00 – 5:00 pm

**V. Teaching Assistant Information: N/A**

**VI. Course Descriptions:**

Introduction to basic mathematical and statistical methods and models, as well as their software applications for solving business problems and/or in making decisions. Includes such topics as probability and probability distributions, decision analysis, forecasting and linear regression, linear programming, and waiting line models.

**VII. COURSE OBJECTIVES**

- 1) To provide a basic understanding of the value and use of quantitative methods in administrative and operational problem solving and decision-making.
- 2) To develop an understanding of a variety of statistical and quantitative techniques applicable to a wide range of business situations.
- 3) To recognize particular techniques and their applications so as to be able to apply these techniques in problem solving for management decision making.

This course is a prerequisite for other courses in the College of Business at FAU. We expect you to learn the material well enough to be able to use it in subsequent courses and in real life. Many of the techniques acquired through this course are used by business and the public sector. *A common comprehensive final exam accounting for 30% of your grade will be given at the end of the semester to assess your knowledge on the subject matters. The format of the final exam has not been finalized and will be made available to you as soon as possible. The final exam is given on the first Sunday of Exam week at 6:45 pm so please make all necessary arrangements to take the*

*exam during that time.* The material for the course is complex and demanding but reasonable given the prior coursework you have had. There are numerous courses which you have taken and prepared you for QMB 3600. We expect that you do have the knowledge you gained from courses such as *Algebra*, *Calculus*, and *Statistics*. It is not our responsibility to teach again basic concepts that were covered in those courses. Rather, we will briefly review when necessary but the primary responsibility resides with you, the student. If you feel that you have serious weaknesses in Math and/or Statistics, taking this QMB course at this time will be to your disadvantage. A review on your own of basic Math and Statistics is necessary for those that will continue on with QMB 3600.

***Please note*** that these prerequisites must be met for the student to remain in this class. Students taking this class without having met these prerequisites can be administratively dropped from this class at any time throughout the semester. If you have special circumstances that might warrant an exception to this rule, you must obtain an written permission from your advisor and submit it to the instructor of this class within the first ten days of the semester. No instructor can waive prerequisites for any student.

### **Minimum Skills Students should have coming into QMB 3600:**

- 1) Basic algebraic concepts
  - a) Understanding of the significance of an equation
  - b) Ability to manipulate linear equations and solve simultaneously
  - c) Understanding the concepts of slope (marginal value)
  - d) Ability to plot data points
- 2) Concepts of calculus/Understanding of derivative
- 3) Probability concepts
  - a) Continuous vs. discrete distributions and the concept of a random variable
  - b) Normal distribution and the ability to use the appropriate tables
  - c) Sampling distributions and sample mean
  - d) Frequency distributions and Histograms
  - e) Independent vs. dependent probability
  - f) Understanding the concepts of marginal, conditional, and joint probability
- 4) Problem solving
  - a) Ability to decipher a written statement and understand significant facts and the problem to be solved
  - b) Ability to apply a written scenario to a solution method
- 5) Computer skills: Ability to create a spreadsheet representation of a problem
  - a) Tabular (rows/columns)
  - b) Graphical

## **VIII. ACADEMIC LEARNING COMPACTS AND LEARNING GOALS**

**Content Knowledge (Declarative)** Students will learn and understand the value of quantitative methods in administrative and operational problem solving and decision-making. They will be introduced to a variety of statistical and quantitative techniques applicable to a wide range of business situations. Students will be able to recognize and apply techniques and their applications in problem solving for decision

making. Students will be introduced to quantitative business methods such as decision theory, forecasting, simple linear regression, linear programming as well as optional topics multiple linear regression and queuing theory.

**Content Knowledge (Technical).** Students will be introduced to software tools and their use for problem solving and decision making in applications such as linear programming and regression models.

**Critical Thinking (Apply/Analyze/Evaluate).** Students will apply quantitative techniques to business problem situations and analyze the results.

**Critical Thinking (Solve Problems/Design/Create).** Students will be able to demonstrate the problem solving dimension as referenced above.

## IX. REQUIRED MATERIALS

### Materials:

You are required to have (and to know how to use) a calculator with exponential ( $y^x$ ), factorial ( $x!$ ) and square root capabilities.

### Text:

Anderson, Sweeney, and Williams, Quantitative Methods for Business, 11<sup>th</sup> Edition, FAU Custom Edition for QMB3600, Thomson/South-Western, 2010. ISBN 10: 1-4240-7566-1.

## X. CALENDAR

### Important Dates:

Classes begin: 8/20/2011 (Saturday)  
 Last day to drop/add courses: 8/26/2011 (Friday)  
 Last date to withdrawal and receive a 25% tuition: 9/19/2011  
 Last day to withdraw without receiving an "F": 10/14/2011  
 Final Exam: 12/4/2011 (Sunday)  
 Semester Ends: 12/9/2011

Official University Holidays:

Labor Day: 9/5/2011 (Monday)  
 Veteran's Day: 11/11/2011 (Friday)  
 Thanksgiving: 11/24 – 11/27/2011

**Academic calendar** <http://www.fau.edu/registrar/pdf/Docs/acadcal1011.pdf>

**Exam schedule** <http://www.fau.edu/registrar/schedule/Finals1012.php>

**Blackboard** <http://bb.fau.edu>

## XI. COMPOSITION OF COURSE:

**Course content and tentative schedule:** A detailed course schedule including test dates, topics, readings and suggested problems is provided on Blackboard.

**Class Opportunities:** Opportunities to be discussed in class (10% of your grade).

**Problem sets:** Completing the suggested text and Blackboard problems before coming to class is absolutely necessary for your success. You must be prepared with regard to the exercises and readings if you want to do well on the exams. Problem sets and other documents are provided on Blackboard for each section to help develop the skills discussed in the lectures. It is imperative that you attempt the homework before seeing the solutions. If you do not, you may develop a false sense of security about your abilities.

**Exams:** The format of the sectional exams and the final exam will be made available to the class as soon as it is finalized. The content of the first three sectional exams will be primarily from that section of the course; each exam is worth 20% of your grade.

**The final exam, which is worth 30% of your grade, is required, comprehensive and given on Sunday, December 4, 2011 at 6:45pm to 9:15pm.**

**Supplemental Instruction (SI):** A free service similar to tutoring will be provided by the College of Business and offered through the Office of Student Retention. The SI Leader for your section will describe what is available during class.

## XII. CLASS POLICIES

### A. Attendance

Attendance may or may not be taken. However, you are responsible for everything said in class. Additional homework assignments, their due dates, and changes to the tentative schedule and due dates will be announced in class. Occasionally, unannounced in-class exercises (or quizzes) will be given; if missed, these cannot be made up. Due to the cumulative nature of the material it is imperative that students keep up with the course materials on a daily basis. Attendance is strongly suggested and is a prerequisite for successful completion of this course. Missing classes will adversely affect your performance. The probability of successfully passing the tests in the course is directly dependent on regular attendance, studying the assigned materials and completing suggested problems and lab exercises before coming to class. Punctuality is a must and students are required to be in class before the class begins.

### B. Academic Irregularities and Students' Academic Grievances:

Cheating, plagiarism, and unauthorized collaboration are unacceptable and subject to disciplinary actions. Plagiarism is turning in someone else's ideas as your own work. Cheating is copying from someone or giving your work to someone else. Such actions may include an "F" in the course and a letter of fact on your student record in accordance with the rules of the University and the College of Business. All students are referred to the Chapter 6C5-4.001 of the Student Handbook entitled "Honor Code, Academic Irregularities, and Student's Grievances." It is the policy of this instructor to adhere to the provisions of this section and to take action to secure the maximum penalty in the event of any observation of a violation. A fundamental principle of academic, business, and community life is honesty. Unless instructed otherwise, ALL work to be submitted for consideration toward a student's course grade is to be attempted and completed on an individual basis.

The university honor codes, Code of Academic Integrity:

[http://www.fau.edu/regulations/chapter4/4.001\\_Code\\_of\\_Academic\\_Integrity.pdf](http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf)

### **C. Students with Disabilities:**

Americans with Disabilities Act

[http://www.fau.edu/eop/ada/ada\\_policy.php](http://www.fau.edu/eop/ada/ada_policy.php)

If you are recognized as a student with learning disability by the university, please provide me with the necessary documentation as soon as possible (no later than the first two weeks of the semester) so that I can make arrangements for you to take tests etc. according to the prescribed procedures. If you have any other special needs please let me know. If you don't inform me of your special status and arrange for the paperwork with the Office of the Student Services, you will be given the same status as the rest of the students in class until you have provided the required information to me and the Office of Student Services. Grades will not be changed retroactively based on any information provided late.

### **D. Religious Accommodation:**

The religious accommodation policy – Religious Accommodation:

<http://www.fau.edu/academic/registrar/catalog/academics.php> (Listed under the "Policies for all students" section).

### **E. Incompletes:**

University policy states that an incomplete may be given only if a student has a passing grade in the course. An incomplete is only meant for students who are unable to complete the course due to severe hardships beyond their control. It is not meant to accommodate students who decide that the workload is too heavy. If an "I" is given, work must be completed within the time period specified by the instructor which is not to exceed 12 months from the time the incomplete is given.

### **F. Exam Make-up Policy:**

A semester exam missed with prior documented approval may be made up by the Final. The score earned on the Final will be used for both the final and for the missed exam. Exams missed without prior approval (or documented proof that the unapproved absence was unavoidable) cannot be made up.

### **G. Student Responsibilities:**

Each student is responsible for keeping up with the class schedule, checking your FAU email account, and checking the course Blackboard site on a regular basis. If you use a non FAU email address as your primary address, arrange for FAU email to be forwarded.

Grading errors do occur and you should mention those situations in your email or discuss it with your instructor during the office hours.

### **H. Email Policies:**

Whenever you send an email to me, you must adhere to the following rules; otherwise your email will not be acknowledged or will be sent to the “junk mail” folder (this policy is due to the extremely large number of spam I receive):

1. All emails, including replies, must have the following in the subject line: “QMB3600” (no space between “QMB” and “3600”)
2. All emails, including replies, must have your FULL NAME signature (no nickname) at the end of the email (In most email software, this can be setup to be automatically inserted when you send an email).
3. Please check your course-related emails using your MyFAU, not your private email application because some ISPs such as AOL or Yahoo spam out mass-distributed emails (such as FAU emails).

### **I. Inappropriate Behavior:**

Please realize that inappropriate behavior distracts both the instructor and students and takes away from the learning experience. Inappropriate behavior includes arriving late for class, leaving early, talking with others without being called upon, not following the instructions of the instructor, etc. Rude and inappropriate behavior will not be tolerated. It is important to have an environment that is conducive to learning for everyone in the class. Points may be deducted from the final grade of a student who chooses to repeatedly distract others and engage in inappropriate behavior. In particularly egregious cases the student may be permanently removed from the class. University policy states that cellular phones, pagers, beepers and other personal communication devices **MUST BE DISABLED** during class sessions.

## **XIII. GRADING CRITERIA**

### **Grading:**

Class Opportunities = 10% (quiz, homework, class participations, etc.)

Section Exams = 60% (three section exams at 20% each)

Final Exam = 30%

In fairness to all students, under no circumstances will grades be inflated at the end of the term.

### **GRADING STRUCTURE:**

A	=	(93-100) %	B-	=	(80-82.99) %	D+	=	(67-69.99) %
A-	=	(90-92.99) %	C+	=	(77-79.99) %	D	=	(63-66.99) %
B+	=	(87-89.99) %	C	=	(73-76.99) %	D-	=	(60-62.99) %
B	=	(83-86.99) %	C-	=	(70-72.99) %	F	=	< 60 %

Please note that this is a “core” course for which a grade of “C” or better is required to pass the course.

Last Update by Dr. Jim Han on February 28, 2012

<b>Fall 2011 Tentative Class Schedule Section 002 CRN 82290: M W 12:30 – 1:50 pm</b>			
<b>Week (Dates)</b>	<b>Topics</b>	<b>Textbook Readings</b>	<b>Chapter Exercise (Ref. 11 edition)</b>
Week 1 (8/22, 8/24)	Introduction Break Even	Syllabus & Chapter 1	12,13,14,15
Week 2 (8/29, 8/31)	Probability	Chapter 2	4,6,9,10,11,12,13,14,15, 18,20,24,25
Week 3 (9/5*, 9/7)	Probability	Chapter 3	2,4,6,8,9,10, 14,15,17, 18,19,20
Week 4 (9/12, 9/14)	Probability	Chapter 3	21,23,24,25, 27 & 29, 30,31,32,34
Week 5 (9/19, 9/21)	Review & Test		
9/21	Test 1	Wednesday	Chapters 1, 2 & 3
Week 6 (9/26, 9/28)	Decision Theory	Chapter 4	1, 2a&b, 3, 5, 6
Week 7 (10/3, 10/5)	Decision Theory	Chapter 4	8, 9, 10, 14, 15a & c, 16, 23
Week 8 (10/10, 10/12)	Forecasting	Chapter 6	2, 3, 4, 5, 7, 10, 12
Week 9 (10/17, 10/19)	Regression	Chapter 6	Use excel to determine the answers to these questions: 16, 18, 20, 21, 34 & 35
Week 10 (10/24, 10/26)	Review & Test		
10/26	Test 2	Wednesday	Chapters 4 & 6
Week 11 (10/31, 11/2)	Linear Programming	Chapter 7	7-10, 18, 20, 22
Week 12 (11/7, 11/9)	Linear Programming	Chapter 7	30, 35b&c, 36, 41, 42, 43
Week 13 (11/14, 11/16)	LP Waiting Line Models	Chapter 8 Chapter 15 Sections 1, 2, & 4	1, 3, 5, 6, 12, 13 3, 5, 6, 7, 10, 11
Week 14 (11/21, 11/23)	Review & Test		
11/23	Test 3	Wednesday	Chapters 7, 8 & 15
Week 15 (11/28, 11/30)	<b>Final Review</b>		
12/4	<b>Final Exam</b>	<i>Sunday</i>	<b>6:45pm – 9:15pm</b>