

LL 205 Quantitative Reasoning  
Summer 2008

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CLASS TIME: 6:00 P. M. sharp to 9:00 P.M. Tuesday (Loop Campus)

CREDIT HOURS: 4

COMPETENCIES OFFERED;

L – 6 Can use mathematical symbols, concepts and methods to describe and solve problems.

Criteria	Specifications for this Component of the Competency
Can apply mathematics or statistics to describe relationships between events in one's life.	Identifies various applications of mathematical or statistical techniques in describing or analyzing personal and/or social issues. Uses quantitative information effectively in working with data sets from many different disciplines.
Can explain how one's perspectives are influenced by mathematical language or reasoning.	Explains how mathematical and/or statistical concepts help interpret and reason with quantitative information. Analyzes various issues by making sense of the numbers that s/he comes across in modern life. Describes how the use of analytical approaches influences one's understanding of events. Writes critiques of quantitative arguments.
Can interpret data, charts, and graphs.	Describes information contained in charts and graphs. Draws relevant implications from data sets. Organizes quantitative information and translates it into charts and graphs.
Can solve problems using mathematical or statistical techniques.	Develops strategies for solving quantitative problems more effectively. Constructs logical arguments based on rules of inference. Uses simple calculations and estimates to put a perspective on situation(s) involving quantifiable information. Understands the difference between correlation and causality.
Can solve basic algebraic equations.	Uses algebraic formula and principles effectively to solve simple equations.
Can use basic statistical concepts to characterize data.	Understands and reflects the difference among basic measures of central tendency (mean, median, mode, standard deviation) in working with data sets. Explains the principles of normal distribution and their relevance for interpreting events. Applies basic principles of statistical inference and probability to the assessment of common situations (lotteries, risk assessment, etc.).

COURSE DESCRIPTION

This course provides an introduction to various topics in quantitative reasoning that most adults will be exposed to throughout their university course work, their careers and their daily lives and how to more effectively handle these topics. It covers different approaches to problem solving, how numbers are used in the real world, how to manage your personal finances, basic concepts in statistics and how they are applied in everyday settings and , finally, how money and populations grow and decay. Scientific calculators and the Excel spreadsheet program will be used as tools for exploring algebraic and statistical concepts. Excel spreadsheets and charts are used extensively to illustrate graphically how to display, analyze and interpret data. Using mathematical models to understand real-world phenomena and to make predictions is an important component of the course. Quantitative reasoning will be a large part of the class discussion.

## SPECIFIC LEARNING OUTCOMES

By the end of this class, students will be able to:

- Use units of measurement to solve problems and check answers.
- Apply a general set of guidelines and hints for effective problem solving.
- Use percentages and understand how they can be abused.
- Understand how to put very large and small numbers into perspective.
- Deal more effectively with uncertainty.
- Understand how errors can affect measured numbers.
- Critique how numbers may be deceiving.
- Understand the power of compound interest.
- Make informed decisions when comparing investment plans, savings plans and loan payments.
- Use various financial calculators to analyze investment plans, savings plans and loan payments.
- Understand the statistics that appear daily in newspapers, on TV and in magazine articles.
- Understand linear and exponential growth.
- Build linear and exponential models and use them to make predictions.
- Use Excel to manipulate, analyze and display data as pie charts, bar charts, maps and line graphs.
- Improve your critical thinking skills to more effectively interpret graphs.
- Appreciate more deeply how critical quantitative reasoning skills are to your survival to navigating a world exploding with numerical data.

## FACULTY BIOGRAPHICAL SKETCH

I have a PhD in Applied Mathematics and have been a Professor of Mathematics since 1985. My interest in teaching Math to adults is to help them apply the concepts to their everyday lives. One such places where Mathematics can be applied is the Financial Markets. Complex Financial Instruments like Derivatives are developed using Mathematics.

## LEARNING EXPERIENCE

The class session will include lecture, discussion and collaborative learning. Although attendance is not mandatory, I would highly recommend that you attend all class sessions. In my experience, students who attend all the sessions have an easier time in the course than students who don't.

## TEXT

Essentials of Understanding Mathematics: A Quantitative Reasoning Approach Bennett & Briggs, Addison Wesley, W/ My Math Lab Student Access Kit (MML SAK) ISBN: 032120559

## EVALUATION

Grades are based on quizzes, projects, class participation, and a final exam.

Any grade lower than C- is unacceptable for the SNL program. Students can opt for a Pass/Fail grade but must earn a 70% or higher to receive the passing grade. A passing grade does not factor into a student's GPA but a failing grade does.

Students will be expected to adhere to the University's guidelines on academic integrity found in the Students Handbook

Quizzes	Projects	Attendance/Class Participation	Final Exam
There are 8 quizzes worth 40%	There are 5 projects worth 20%	There are 5 discussion topics/assignments worth 15%	Worth 25%

Grading Scale	
90% - 100 %	A
80% - 89 %	B
70% - 79 %	C
60% - 69%	D
Less than 60%	F

Module	Text Chapter	Text Chapter Description	Time (weeks)
1	2	Approaches to Problem Solving	2
2	3	Numbers in the Real World	2
3	5	Statistical Reasoning	2
4	4	Financial Management	2
5	8	Exponential Astonishment	2