<u>Fall 2012 Course Plan</u>

Quantitative Methods in Health Management (32.506)

A. James (Jim) Lee, Ph.D.
Associate Professor

<u>Office</u>
301 Pinanski Hall

<u>E-Mail</u>
AJames_Lee@uml.edu

<u>Google Voice</u>
(978) 710-9310

The course teaches analytic methods that can be used to improve the decision making of healthcare managers, clinicians and others within the healthcare industry.

<u>Course Objective</u>

Students learn the following:

- A framework for decision making that stresses the importance of evaluation in program planning, implementation and control;

- Five evaluation techniques: monitoring, case studies, survey research, trend analysis and experimental design; and

- Basic methods important to evaluation, including general measurement issues; measurement of utility; sampling; operations research analysis; and cost benefit, cost effectiveness and cost utility analysis.

Textbooks

<u>Evaluation and Decision Making for Health Services</u>, James E. Veney and Arnold D. Kaluzny, Beard Books, 2004 (or 2005).

<u>Statistics without Tears: A Primer for Non-Mathematicians</u>, Derek Rowntree, Pearson Education, Inc., 2004.

Both are available from www.amazon.com as well as the South Campus Bookstore.

Software

Purchase a 6-month student license ($49.00 plus $4.95 download fee) for SPSS 20 <u>Statistics Standard GradPack</u> from the OnTheHub eStore:

http://e5.onthehub.com/WebStore/OfferingsOfMajorVersionList.aspx?ws=49c547ba-f56d-dd11-bb6c-0030485a6b08&vsro=8&pmv=123c1b20-14db-e011-b09a-f04da23e67f6&cmi_m

The software is available in both Windows and Mac versions.

Teaching Approach

The course is taught on a "blended" basis, with both face-to-face and "synchronous" online classes.

Face-to-Face Classes

The class meets six times on Monday evenings from 5:30 to 8:30 pm, with each class scheduled two or three weeks apart (see Face-to-Face Class Calendar below). You have assignments for <u>every</u> class, including the first.

- **Reading Assignment.** Unless otherwise indicated, the chapter numbers indicated from the class calendars below reference <u>Evaluation and Decision Making for Health Services</u>. The reading assignments shown in italics are available as PDF downloads from the Blackboard folder for each class.
- **SPSS Analysis Assignment.** For each face-to-face class, you will also have an SPSS assignment. Beginning with the second face-to-face class, you will post your SPSS assignment (prior to class) to the Assignments area in Blackboard.

The reading assignments are not optional. You will get so much more out of the course if you prepare adequately for our time together.

The face-to-face classes will be recorded, and the recordings will be available from the class web site. If you are not able to attend a class, you must listen to the recording on your own schedule and prepare a one-page report reflecting on what you learned.

Wimba (online) Classes

On the Monday nights (except Thanksgiving week) when the class does not meet face-to-face, the class will meet online from 7:30 pm to 9:00 pm (see Wimba Class Calendar below). If you are not available to participate in a Wimba class, you must listen to the archived recording on your own schedule and prepare a brief report. The archived class recordings will be available from Blackboard.

You will have reading assignments for each Wimba class, as indicated from the Wimba Class Calendar. Prior to each Wimba class, you are asked to answer a discussion question in writing and post your answer to Blackboard Vista, the course's web site. Your postings will be available for review and comment by the entire class. I recommend that you draft postings offline and then "cut and paste" into the message box. You are required to read through all postings for the week in preparation for Wimba class discussion. Postings are due on the dates indicated from the Wimba Class Calendar. **(Please don't use the Attachments feature in posting to the Discussion Board.)**

The online classes will be conducted using Wimba Live Classroom, an Internet-based communications facility accessed through Blackboard. To use Wimba Live Classroom, you will need a computer microphone and headset. Due to feedback, the use of desktop speakers is not allowed. If you are accessing the audio via phone, please mute your phone when not speaking.

The procedures for posting discussions to Blackboard will be demonstrated during the first face-to-face class. Prior to that class, you will receive information on accessing and using both Blackboard Vista and the Wimba Live Classroom conferencing facility. If needed, technical support is available.

Grading

Numeric grades will be calculated using the following weights:

     20%-- Class Participation

     40%-- SPSS Analysis Assignments

     40%--Wimba Discussion Questions

Each assignment posted to Blackboard (i.e., both SPSS analysis assignments and discussion postings) will be graded using a 10-point scale. Up to two points "extra credit" will be available to anyone making an extraordinary effort. Unless pre-approved, you will be penalized for late submittals.

If you miss more than one Face-to-Face class, your grade for the entire course will be reduced.

Letter grades will be assigned as follows:

Grade	GPA Equivalent	Numeric Range		Grade	GPA Equivalent	Numeric Range
A	4.0	93-100		C	2.0	73-76
A-	3.7	90-92		C-	1.7	70-72
B+	3.3	87-89		D+	1.3	65-69
B	3.0	83-86		D	1.0	60-64
B-	2.7	80-82		F	0.0	>60
C+	2.3	77-79				

Plagiarism (whether from published sources, unpublished sources or the Internet) is absolutely not allowed in preparation of written assignments. A first offense will mean a letter reduction in your grade for the entire course; a second offense will result in your failing the course. It is incumbent on you (the student) to learn and understand what is meant by plagiarism and act accordingly. I encourage you to read http://en.wikipedia.org/wiki/Plagiarism. No extenuating circumstances will be allowed, and no second chances will be given. If I find that so much as a single sentence is copied without attribution (even if a word or two is changed), the above sanctions will be applied.

Face-to-Face Class Calendar

Class Date	Reading Assignment	SPSS Assignment
September 10	Chapter 1—Framework for Improved Decision Making Chapter 2—Evaluation and the Decision-Making Process Statistics without Tears—Chapters 1, 2, 3 and 4	Purchase, download and install the SPSS software. Download one or more sample data sets from the *Resources* directory on Blackboard's home page. Open data in SPSS and investigate features.
October 1	Chapter 3—Monitoring as an Evaluation Strategy Chapter 4—Monitoring Techniques and Interpretation Chapter 13—General Measurement Issues Chapter 6—Determining Causation, *Quantitative Data Analysis: An Introduction*	Use the *Descriptives*, *Frequencies* and *Crosstabs* procedures to analyze a sample data set. You will find these procedures under the *Descriptive Statistics* submenu of the *Analyze* menu. Prepare a PowerPoint report.
October 15	Chapter 5—Case Studies as an Evaluation Strategy Chapter 6—Case Study Techniques and Interpretation *Methods in Case Study Analysis* *Multiple Linear Regression*	Conduct correlation and Chi Square analyses, testing one or more hypotheses from a sample data set. Prepare a PowerPoint report.
November 5	Chapter 7—Survey Research as an Evaluation Strategy Chapter 8—Survey Research Techniques and Interpretations *Air University Sampling and Surveying Handbook* *Principles of Path Analysis*	Use *OLS Linear Regression* and other regression procedures for multivariate analysis of a sample data set. Prepare a PowerPoint report.
November 26	Chapter 9—Trend Analysis as an Evaluation Strategy Chapter 10—Trend Analysis Techniques and Interpretation *Trend Analysis and Interpretation: Key Concepts and Methods for Maternal and Child Health Professionals*	Use sample data to investigate, analyze and prepare a PowerPoint report.
December 17	Chapter 11—Experimental Design as an Evaluation Strategy Chapter 12—Experimental Analysis Techniques and Interpretation *Introduction to Program Evaluation for Public Health Programs*	Use sample data to evaluate a program, intervention or product, and prepare a PowerPoint report.

Wimba Class Calendar

Class Date	Reading Assignment	Discussion Question(s)	Assignment Due Date
September 17	<u>Statistics without Tears</u>—Chapters 5 and 6	What did you learn from the reading assignment?	September 15
September 24	<u>Statistics without Tears</u>—Chapters 7, 8 and Postscript *Tumbling Dice & Birthdays: Understanding the Central Limit Theorem*	What did you learn from the reading assignment?	September 22
October 8	Chapter 16—Operations Research Techniques and Interpretation *The Principles of Clinical Decision Making: An Introduction to Decision Analysis*	Investigate and report on the use of "decision analysis" in healthcare.	October 6
October 22	Chapter 14—Measurement: Utility Measures *What is a QALY?* *How Much Does a Healthy Year of Your Life Cost?*	Questions14-3 and 14-4	October 20
October 29	Chapter 17—Cost-Benefit, Cost-Effectiveness, and Cost-Utility Analysis Common Mistakes in Cost Effectiveness Analysis	Questions17-1, 17-3 and 17-4	October 27
November 12	Chapter 15—Sampling http://en.wikipedia.org/wiki/Sampling_(statistics)	Questions15-2 and 15-3	November 10
December 3	*How to Predict Market-Share Sensitivity to Price Change*	How might conjoint analysis be usefully applied elsewhere in healthcare? What questions might it answer?	December 1
December 10	*Basic Concepts in Meta-analysis--A Primer for Clinicians* *Evidence-Based Case Management Practice-- Meta-analysis*	Find a meta-analysis in the literature and tell us what question it answers and how much value the meta-analytic technique adds.	December 8