

BA 240 Statistical Analysis

Leslie Lum

Fall 2009 Course Syllabus

Time and place	Time: T TH 12:30 am to 2:40 pm Room: A109
Contact	Telephone: 425-564-4063 Email: llum@bcc.ctc.edu <u>BE SURE TO PUT BA 240 IN SUBJECT HEADING OF EMAIL FOR MORE TIMELY RESPONSE.</u> Office mail: A242
Office hours	Office Location A255 Lum Office Hours: MTWTh 11:30 to 12:20 pm Or by appointment.
Websites	http://facweb.bcc.ctc.edu/llum (Extensive videos and other materials) For other stats resources: http://ba240.spaces.live.com Login: ba240student@live.com Password: 2009Fall F is upper case Business Transfer Website: http://bellevuecollege.edu/business/transfer/default.htm
Required Texts	<u>Statistics</u> by McClave and Sincich, Pearson/Prentice Hall 2006 Assistance on Excel: Excel for Statistics by Leslie Lum (available on website)
Other Requirements	Scantrons for exams. Calculator that can calculate standard deviations and media to save files from lab.
Goals	<ul style="list-style-type: none">• Research and understand the nature of information and large data sets.• Calculate solutions to statistical problem sets including measures of central tendency, measures of variability, probability, binomial distributions, normal distributions, confidence intervals, hypothesis testing, correlation, and regression.• Use software to solve statistical problems.• Communicate data effectively with written and visual display.• Apply statistical analysis to real data including framing the problem, sorting data, selecting appropriate statistical formulae, and coming up with relevant conclusions.• Work in teams to complete projects.
Resources	The solution manual is available on reserve at the Library and in the Business Division Tutoring center in A255. Tutors are available. Check A255 for hours. This course requires that you demonstrate and develop your writing and research skills. We recommend that you consult the Reading/Writing lab (A262 http://www.bcc.ctc.edu/writinglab/ with the drafts of your assignments and that

BA 240 Statistical Analysis

Leslie Lum

Fall 2009 Course Syllabus

you make use of the Library Media Center (L Building <http://www.bcc.ctc.edu/lmc/>) in doing research.

If you intend to and have not already done so, declare your business major. Make sure you have consulted with an advisor and laid out your courses. The Business Division recommends that you subscribe to the Business listserv which provides notices of application deadlines and events. To subscribe to the listserv, individuals should send a message to: lyris@list.bcc.ctc.edu. In the body of your message write SUBSCRIBE bccbusiness.

How to succeed in this course

This course requires team-based learning:

- Teams will be selected by the instructor.
- We will have 5 modules in this class. Review all materials for a module answering the questions on your reading guide BEFORE we cover the module. You will be tested on your reading on the individual and team RAT.
- We will spend two to three sessions on each module applying the concepts that you have learned. Your team will be expected to show mastery on the concepts.
- All team members will be peer evaluated at the end of each module and your team points will be adjusted according to your peer evaluation. The team points will be lost not added.
- Your grade will be based on your individual Readiness Assurance Test, your team RAT, team problem solving and casework, team project, 3 individual exams. The class will determine how to allocate 50% of the grade.
- The Team Project requires that you apply what you learn to real problems or issues. This requires that you apply research, analysis and evaluation skills that will be required in your professions.

You must take personal responsibility for your learning to succeed in life:

- Attend all classes and participate fully in the team process
- Use the reading guide to read textbook sections, view video lectures and do homework before and during Module work
- Help your team members learn. You learn the most when you teach others the concepts.
- Do all supplemental problems at the end of the chapter in review for the test
- Do practice exams without consulting key

Course requirements

Individual exams are open textbook plus two pages of notes which may NOT include the practice exams which must be turned in with the exam. (The reading guide provides a nice summary for notes.) You may use a calculator but not a laptop.	50%
Individual Readiness Assurance Tests.	Class determined
Team Project.	Class determined
Group Readiness Assurance Tests and group case studies. Preparation, homework and team participation to be monitored by team.	Class determined
TOTAL	100%

BA 240 Statistical Analysis

Leslie Lum

Fall 2009 Course Syllabus

Assignment Policies

Assignment deadlines are announced well in advance so there are no accommodations for late assignments.

Grading

95 - 100%	A	4
90 - 94	A-	3.7
86 - 89	B+	3.3
83 - 85	B	3.0
80 - 82	B-	2.7
76 - 79	C+	2.3
73 - 75	C	2.0
70 - 72	C-	1.7
66 - 69	D+	1.3
60 - 65	D	1.0
Below 60	F	0

A pass grade will not be given unless all requirements of the course are completed.

Student Code

“Cheating, stealing and plagiarizing (using the ideas or words of another as one’s own without crediting the source) and inappropriate/disruptive classroom behavior are violations of the Student Code of Conduct at Bellevue College. Examples of unacceptable behavior include, but are not limited to: talking out of turn, arriving late or leaving early without a valid reason, allowing cell phones/pagers to ring, and inappropriate behavior toward the instructor or classmates. The instructor can refer any violation of the Student Code of Conduct to the Vice President of Student Services for possible probation or suspension from Bellevue College. Specific student rights, responsibilities and appeal procedures are listed in the Student Code of Conduct, available in the office of the Vice President of Student Services.” The Student Code, Policy 2050, in its entirety is located at:

http://bellevuecollege.edu/policies/2/2050_Student_Code.asp

Disability Resources

The Disability Resource Center serves students with a wide array of learning challenges and disabilities. If you are a student who has a disability or learning challenge for which you have documentation or have seen someone for treatment and if you feel you may need accommodations in order to be successful in college, please contact DRC as soon as possible.

If you are a person who requires assistance in case of an emergency situation, such as a fire, earthquake, etc, please meet with your individual instructors to develop a safety plan within the first week of the quarter.

The DRC office is located in B 132 or you can call at 425.564.2498. Deaf students can reach us by video phone at 425-440-2025 or by TTY at 425-564-4110. . . . Application information and other helpful links at www.bellevuecollege.edu/drc

Public Safety

The Bellevue College (BC) Public Safety provides personal safety, security, crime prevention, preliminary investigations, and other services to the campus community, 24 hours per day, 7 days per week. Their phone number is 425.564.2400. Public Safety is located in K100 and on the web at:

BA 240 Statistical Analysis

Leslie Lum

Fall 2009 Course Syllabus

<http://bellevuecollege.edu/publicsafety/> for campus emergency preparedness information, campus closure announcements and critical information in the event of an emergency.

Affirmation of Inclusion

Bellevue Community College is committed to maintaining an environment in which every member of the campus community feels welcome to participate in the life of the college, free from harassment and discrimination. We value our different backgrounds at BCC, and students, faculty, staff members, and administrators are to treat one another with dignity and respect.

Code of Honor

By being a student in this course you acknowledge that you are a part of a learning community at Bellevue College that is committed to the highest academic standards. As a part of this community, you pledge to uphold the fundamental standards of honesty, respect, and integrity, and accept the responsibility to encourage others to adhere to these standards.

BA 240 Statistical Analysis

Leslie Lum

Fall 2009 Course Syllabus(Subject to adjustment – changes will be announced at the beginning of class) Last Updated **09/14/09**

Week	Topics	Due
Sep 22, 24	Review syllabus and course requirements. MODULE 1 (see following pages for detailed description of modules)	Sep 24 Resume preferably with picture due. Sep 24 Get student id and password for computer lab.
Sep 29, Oct 1	MODULE 1	Complete your reading guide before RAT. Sep. 29 RAT Module 1
Oct. 6, 8	MODULE 2	Team Project Selection Due Oct. 6 Complete your reading guide before RAT. Oct. 8 RAT Module 2
Oct 13, 15	MODULE 2	INDIVIDUAL EXAM 1 Module 1 and 2– Oct 15
Oct 20, 22	MODULE 3	Complete your reading guide before RAT. Oct 20 RAT 3
Oct 27, 29	MODULE 3	Phase 1 Team Project Due Oct. 29
Nov 3, 5	MODULE 4	Complete your reading guide before RAT. Nov 3 RAT 4
Nov 10, 12	MODULE 4	
Nov 17, 19	MODULE 4	INDIVIDUAL EXAM 2 Module 3 and 4 Nov. 19
Nov 24	MODULE 5	Complete your reading guide before RAT. Nov 24 RAT 5
Dec 1, 3	MODULE 5	Draft project due – Dec 3 Dec. 7 – Team Project due Dec. 8 – Comprehensive Final 11:30 am

BA 240 Statistical Analysis
Leslie Lum
Fall 2009 Course Syllabus

Module	Knowledge DESCRIBE what the following are:	Comprehension IDENTIFY	Application USE	ANALYZE (hand, TI-83 and Excel)	CREATE (using Excel) TEAM PROJECT	EVALUATE
MODULE 1 Communicating Data Read 1.1, 1.2, 1.3, 1.4, 1.5. and 1.6 Read 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8	descriptive and inferential statistics sample, random qualitative and quantitative data continuous and discrete nominal, ordinal, interval and ratio data histogram, pie chart, scatter plot, simple linear regression, box plot and stem leaf mean, median, mode minimum, maximum, range, standard deviation (sum of squares) Percentile, z-score, outliers Skewness, kurtosis Summation	Classify data by qualitative, quantitative, continuous, discrete, nominal, ordinal, interval and ratio Identify mean, median and mode in a data set Identify minimum, maximum, range Describe what a histogram, pie chart, scatter plot, box plot and stem leaf shows. Describe what a linear regression is.	Calculate mean, median, mode, variance, min, max, range, standard deviation, percentile, or z-score for a data set of up to 25. Create a histogram, pie chart, scatter plot, or stem leaf with proper labeling from a data set of up to 25. Hand calculate simple linear regression including correlation and R square for a data set of up to 12.	Interpret mean, median, mode, variance, standard deviation, percentile, z-score relative to each other and what they mean for the population.	Select a set of more than 50 data. Generate descriptive statistics on Excel and interpret what it says about the data set. Organize visual display to effectively communicate what the data shows.	Compare and analyze various kinds of visual display of data. Compare and contrast measures of central tendency and variation and their implications to the data. Predict from visual display. Identify the limitations of data.
MODULE 2 Describing	General discrete probability	Describe general discrete probability	Create a general discrete table from	Place mean and standard deviation	Create probability distributions.	Compare discrete

BA 240 Statistical Analysis
Leslie Lum
Fall 2009 Course Syllabus

populations Read 4.1, 4.2, 4.3, 4.4 Read 5.1, 5.2, 5.3, 5.4	distributions. (Expected value or mean, standard deviation)	distribution. Give the formula for the mean/expected value and the standard deviation.	data, plot the graph, calculate the mean and standard deviation.	on general discrete probability plot. Calculate binomial. Apply the empirical rule.	Construct normality plot. Calculate probability for various z-scores.	distributions. Evaluate normality.
	Binomial probability distribution (mean and standard deviation).	List the three conditions of a binomial distribution. Give the formula for binomial, mean, and standard deviation.	Create a binomial table from data, plot the graph, calculate the mean and standard deviation.			
	Trees (Bayesian).		Identify normal probability distributions and do tests for normality.			
	Normal probability distribution.	Explain the empirical rule and how it relates to normal distributions.	Calculate x and z and find probabilities using the z-table.			
	Standard normal curve.					
MODULE 3 Estimation Read 6.1, 6.2, 6.3 7.1, 7.2, 7.3, 7.4, 7.5	Define central limit theorem, standard error, and sampling error. Define confidence level, alpha, and confidence intervals. Define margin of error. Explain what a t distribution is and when you use it.	Describe the central limit theorem and the relationship between the population and the sample means curve. Define standard error. Define confidence interval. Define sampling error.	Identify which should be used in large sample, small sample and large sample proportion. Apply t distribution and probability. Identify the margin of error. Describe the effect that sample size has on accuracy.	Calculate probability for the sample means curve. Calculate confidence intervals. Differentiate between t and z distributions. Calculate the sample size necessary for a margin of error.	Interpret confidence intervals. Evaluate whether two populations are the same.	Evaluate and interpret polls. Identify the limitations of polls. Evaluate the predictive quality of polls.
MODULE 4 Hypothesis testing	Null hypothesis. Alternate	Define null. Define alternate.	Classify problem as large, small,	Calculate test statistic.	Interpret test statistic.	Analyze the cost of type 1 and

BA 240 Statistical Analysis
Leslie Lum
Fall 2009 Course Syllabus

Read 8.1, 8.2, 8.3, 8.4, 8.5. 9.1, 9.2, 9.3, 9.4, 9.5	hypothesis. Alpha. One-tail Two-tail One population Two population Critical t or z p-value	Type 1 and type 2 error. Setting alpha. Decision rule. Critical z or t.	proportion, pooled variance and unequal variance. Identify critical z or t.	Find p-value.	Evaluate p-value.	type 2 error. Evaluate and improve on actual studies.
	Analysis of Variance More than two populations Read 10.1, 10.2, MODULE 5	Null hypothesis Alternate hypothesis Test statistic (F statistic)	Define null. Define alternate. F-statistic.	Classify as one or two factor ANOVA. Checking ANOVA assumptions.	Calculate F-statistic. Find p-value.	Interpret test statistic. Evaluate findings.
Multiple Regression Read 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8 12.1, 12.2, 12.3, 12.4	Dependent variable. Independent variable. Intercept Slope Residual Correlation R square Prediction Prediction interval Confidence interval Assumptions (mean equal 0, variance equal, variance constant, normal) Outlier removal	Identify, define and discuss intercept, slope, residual, correlation, r-square.	Identify if regression is appropriate for the data. Describe the relationship between x and y.	Calculate intercept, slope, correlation, Rsquare, prediction, prediction interval, confidence interval.	Interpret results.	Evaluate if data transformation is necessary. Provide predictions from the analysis.
	Chi-square Read 13.2, 13.3, 13.4	Contingency table Null hypothesis Alternate hypothesis Test statistic Observed frequency Expected frequency	Identify null and alternate		Calculate expected frequency. Calculate chi-square.	Interpret results.