BA 240 Statistical Analysis
Leslie Lum
Winter 2011 Course Syllabus

Schedule
(Subject to adjustment – changes will be announced on mybcc.net class site – check the site often for announcements)

Week	Topics	Due
Jan 3, 4	Review syllabus and course requirements. MODULE 1 Watch The Joy of Statistics http://www.gapminder.org/videos/the-joy-of-stats/	Jan 4 **Resume**
Jan 10 ,12	MODULE 1	**Jan 10 RAT Module 1** **Jan 12 Reading Guide and Module 1 HW due**
Jan 19	MODULE 2	**Team Project Selection Jan 19**
Jan 24, 26	MODULE 2	**Jan 24 RAT Module 2** **Jan 26 Reading Guide and Module 2 HW Due**
Jan 31 **Feb 2**	MODULE 3	**INDIVIDUAL EXAM 1 Module 1 and 2– Jan 31**
Feb 7, 9	MODULE 3	**Feb 2 Lab A132 second half of class** **Phase 1 Team Project Due Feb 9 (Peer eval)** **Reading Guide and Module 3 HW Due Feb 9**
Feb 14, 16	MODULE 4	**Feb 14 RAT 4**
Feb 23	MODULE 4	**INDIVIDUAL EXAM 2 Module 3 and 4 (Single Population only) Feb 23**
Feb 28 **Mar 2**	MODULE 4	**Reading Guide and Module 4 HW due Mar 2**
Mar 7, 9	MODULE 5	**Lab Mar 9 A132 second half of class**
Mar 14, 16	MODULE 5	**Reading Guide and Module 5 HW due Mar 14** **Draft Project due Mar 14** **Mar 16 – Team Project due (Peer eval done)** **Mar 23 11:30 am-1:20 pm Comprehensive Final**

Course Requirements

	Weight	Your score in points/ Total	Weight X Your Percent
Individual exams are two pages of notes (4 sides 8 ½ X 11) which may NOT include the practice exams which must be turned in with the exam. You may use a calculator. Laptops and cell phones are prohibited. 2 exams (20% each) and one comprehensive final (25%)	65%		
Individual (10%) and Team Project (5%) Detailed instructions and project template on mybcc.net course site. **(Instructor reserves the right to adjust points based on contribution.)**	15%		
Individual Readiness Assurance Tests. Individual.	5%		
Individual Readiness Assurance Tests. Team	5%		
Class activities, participation and attendance	5%		
Homework and Reading Guide Completion	5%		
TOTAL	100%		

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Math 138 is required for this course.
BA 240 transfers as STATS 311 at UW.and is a rigorous 300 level course that requires your full participation in class and on your own time.

Time and place

Time: M W 12:30 am to 2:40 pm
Room: C208

Contact

Telephone: 425-564-4063
Email: llum@bellevuecollege.edu
BE SURE TO PUT BA 240 IN SUBJECT HEADING OF EMAIL FOR MORE TIMELY RESPONSE.
Office mail: D110

Office hours

Office Location C207
Lum Office Hours: MTWTh 11:30 to 12:20 pm or by appointment.

Websites

All practice exams keys and assignments are placed on the mybcc.net class website.

http://personal.bellevuecollege.edu/llum (Extensive videos and other materials)

Business Transfer Website: http://bellevuecollege.edu/business/transfer/default.htm

Required Texts

Statistics by McClave and Sincich, Pearson/Prentice Hall 2006 (This book may be rented from the bookstore)

Other Requirements

Scantrons for quizzes.
Calculator that can calculate standard deviations.

Goals

- 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 C207K. The best students **make extensive use of the tutoring center**. Check C207K for hours.

Review sessions may be scheduled prior to exams. These are often conducted by instructors in other sections. Attend the review sessions to help you do better in the exams.

How to succeed in this course

- This course requires that you work in teams for a project. Teams will be selected by the instructor and you will be expected to behave according to professional workplace standards in dealing with your team members. This includes in-class, out-of-class, and in email communication.
- 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 grade will be based on your individual Readiness Assurance Test, your team RAT, team problem solving and casework, team project, 3 individual exams.
- The Team Project requires that you apply what you learn to real problems or issues. This requires

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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 WITHOUT the solution guide.
- 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

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.

Standard of Behavior

All interactions will be evaluated as to whether they are acceptable in the business environment. This includes interactions in the class, on online discussion forums, email communications, with the instructor, with fellow students, and in the community. Inappropriate communications include jokes and discussions your classmates find offensive, excessive messages, and other communications which would be typically deemed inappropriate in the workplace. The student will be informed and expected to comply with requests for change and improvement. Cell phone and laptops are not to be used in the class.

Student Code

Cheating includes, but is not limited to, copying answers on exams, glancing at nearby exams, turning in assignments or papers that have been used in other classes, and giving or receiving help during an exam. Cheating includes, but is not limited to, purchasing or selling notes, assignments or examination materials. Having a cell phone in view for any reason during an exam will result in a zero in the exam.

Stealing includes, but is not limited to, taking the text, notes, exams, library books or other personal property of others without their permission.

Plagiarism is presenting the words, ideas, and/or work of others as if it is an individual's own work. It includes, but is not limited to, using other's papers as one's own and including parts of published works without giving credit where credit is due.

If you choose to cheat, steal or plagiarize, or if you assist anyone in cheating, the following actions will be taken:
You will receive zero on the assignment or assessment.
A report of the incident will be forwarded to the Dean of Student Services. He/she may file the report in your permanent record and/or take further disciplinary action.
If you feel you have been unfairly accused of any of the above, you may appeal. For a description of due process, see WAC 132H-120, available in the Dean's office.

"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

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.

Accommodations

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

Participating in Business Learning Community

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 Transfer Program 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.bellevuecollege.edu. In the body of your message write SUBSCRIBE bccbusiness

Social Science policies can be viewed at https://bellevuecollege.edu/socsci/policies.asp

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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 populations Read 4.1, 4.2, 4.3, 4.4 Read 5.1, 5.2,	General discrete probability distributions. (Expected value or mean, standard deviation)	Describe general discrete probability distribution. Give the formula for the mean/expected value and the standard	Create a general discrete table from data, plot the graph, calculate the mean and standard deviation.	Place mean and standard deviation on general discrete probability plot. Calculate binomial.	Create probability distributions. Construct normality plot. Calculate probability for various z-scores.	Compare discrete distributions. Evaluate normality.

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5.3, 5.4	Binomial probability distribution (mean and standard deviation). Trees (Bayesian). Normal probability distribution. Standard normal curve.	deviation. List the three conditions of a binomial distribution. Give the formula for binomial, mean, and standard deviation. Explain the empirical rule and how it relates to normal distributions.	Create a binomial table from data, plot the graph, calculate the mean and standard deviation. Identify normal probability distributions and do tests for normality. Calculate x and z and find probabilities using the z-table.	Apply the empirical rule.		
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 Read 8.1, 8.2, 8.3, 8.4, 8.5.	Null hypothesis. Alternate hypothesis. Alpha. One-tail Two-tail	Define null. Define alternate. Type 1 and type 2 error. Setting alpha.	Classify problem as large, small, proportion, pooled variance and unequal variance.	Calculate test statistic. Find p-value.	Interpret test statistic. Evaluate p-value.	Analyze the cost of type 1 and type 2 error. Evaluate and improve on

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9.1, 9.2, 9.3, 9.4, 9.5	One population Two population Critical t or z p-value	Decision rule. Critical z or t.	Identify critical z or t.			actual studies.
Analysis of Variance More than two populations Read 10.1, 10.2,	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.	Evaluate use of ANOVA and follow-on tests.
MODULE 5 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.	Evaluate the usefulness of test.