#### Schedule

# (Subject to adjustment – changes will be announced on bc.instructure.com – check the site often for announcements or extra credit opportunities)

Week	Topics	Homework due	, Homework due	Exams and
	•	Tuesday	Thursday	Project
Sep 23	Review syllabus and course requirements. Watch The Joy of Statistics <u>http://www.gapminder.org/videos/the- joy-of-stats/</u> MODULE 1 Read Describing data 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		Resume 1.12, 1.14, 1.18, 1.24 (Classify scale as well) Solution manuals are available in the Business Study Center C207 Text data files are on bc.instructure.com)	
Sep 30	MODULE 1	<ul> <li>2.57, 2.67, 2.83 Plot stem leaf and do mean, median, mode, variance and standard deviation.</li> <li>For 2.177 only use Excel to plot histogram, show mean, median and mode, up to plus and minus three standard deviation, identify outliers – see Excel demo videos for more details.</li> <li>Worksheet A Summation</li> </ul>	2.166, 2.175, and 2.176	Oct 4 RAT 1 Office visit completed by Oct 4
Oct 7	MODULE 2 Read Probability 3.1,3.4, 3.5, 3.6, 3.7 Read Discrete Probability Distributions 4.1, 4.2, 4.3, 4.4 Read Normal distributions 5.1, 5.2, 5.3, 5.4	General Discrete 4.22, 4,36, 4.114, 4.116 For all problems, plot the entire distribution and show mean and plus and minus 3 std on graph. Team Project Selection Oct 10	Binomial 4.60, 4.61, 4.62, For 4.125 plot the entire distribution and show mean and plus and minus 3 std on curve on graph. Worksheet B Binomial/General Discrete	Oct 11 RAT 2 Team Project Selection Oct 10
Oct 14	MODULE 2 Test Review: 4.18, GD 4.22, 4.35, 4.57, BI 4.59, 4.61, 4.116, 4.117, 5.111, 5.119, 5.125, 5.121	Normal 5.38, 5.40, 5.42, 5.56, 5.60. For all problems, plot the distribution and show mean and plus and minus 3 std on curve on graph Worksheet C Normal Worksheet D Regression		EXAM 1 Module 1 and 2– Oct 17, 18 (Exams will take two sessions)
Oct 21	MODULE 3 Read Central Limit - 6.1, 6.2, 6.3 Confidence Interval - 7.1, 7.2, 7.3, 7.4, 7.5		Central Limit 6.34, 6.38, 6.58, 6.64 Large 7.16, 7.18, 7.22	

Oct 28	MODULE 3	Small 7.36, 7.38, 7.39 (Use Excel to do 7.39) Prop. 7.50, 7.54, 7.56 Sample size 7.70, 7.72, 7.74, 7.78.	Worksheet E Sample Means	Nov 1 RAT 3
Nov 4	MODULE 4 Read One population hypothesis testing - 8.1, 8.2, 8.3, 8.4, 8.5. Lab Location Nov 5 second half		Large 8.32, 8.34, 8.46 Small 8.64, 8.68. For all problems, draw curve, show mean, areas of rejection, decision rule, calculation of test statistic, and conclusion including p- value.	Nov 8 RAT 4
Nov 11	MODULE 4 and start Module 5 Read: Two populations 9.1, 9.2, 9.3, 9.4, 9.5 Test Review problems: 7.89,7.90, 7.91, 7.92, 7.93, 7.94, 7.99, 7.103, 7.75, 7.77, 7.79 8.145, 8.130, 8.131, 8.135, 8.138, 8.139, 8.144	Prop 8.80, 8.84.8.86 For all problems, draw curve, show mean, areas of rejection, decision rule, calculation of test statistic, and conclusion including p-value.	Worksheet F Single Population Hypothesis	INDIVIDUAL EXAM 2 Module 3 and 4 Nov 14, 15
Nov 18	MODULE 5 More than two populations 10.1, 10.2	Large sample 9.14, 9.110 For all problems, draw curve, show mean, areas of rejection, decision rule, calculation of test statistic, and conclusion including p-value.	Pooled Variance 9.20, 9.28, 9.134 Prop 9.58, 9.62, 9.66 For all problems, draw curve, show mean, areas of rejection, decision rule, calculation of test statistic, and conclusion including p- value.	Individual Project Due Nov 21
Nov 25	MODULE 5 and 6 Read Multiple Regression and Chi Square 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8 12.1, 12.2, 12.3, 12.4	Paired 9.41, 9.42, 9.46, ANOVA <u>More than two</u> <u>populations</u> 10.32, 10.34 For all problems, draw curve, show mean, areas of rejection, decision rule, calculation of test statistic, and conclusion including p-value.	.HOLIDAY	

Dec 2	MODULE 5 and 6 Test Review: 9.112, 9.113, 9.115, 9.117, 9.118, 9.120, 9.121, 9.122, 9.123, 9.125, 9.127, 9.130	Dec 3 RAT 5 Regression 11.102, 11.111, 11.113 May be completed on Excel. Chi Square: 13.24, 13.26, 13.28 For chi square problems, state the decision rule, show calculation of test statistic, and conclusion including p-value	Worksheet G Two population hypothesis Worksheet H Final Regression review sheet	Dec 6 Optional Final Team Project due Dec 10 Tuesday 7:30 am-9:20 pm <u>Comprehensive</u> <u>Final</u>
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#### **Course Requirements**

	Weight	Your score
Individual exams are two pages of notes (4 sides 8 ½ X 11) which may	650	
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 (200 each) and one comprehensive final (250)		
Individual Linear Regression Project. Detailed instructions and project	110	
template on Canvas course site		
Digital copy of the Project are on mybcc.net in the Project file.		
Videos on how to use Excel to complete the team project are		
available at:		
Website: <u>http://ba240.groups.live.com</u>		
Login: <u>ba240student@live.com</u>		
Password: 2013Fall		
No spaces "F" is capitalized.		
Once you signed in, click on documents.		
Individual Readiness Assurance Tests. Individual.	50	
Individual Readiness Assurance Tests. Team	50	
Class activities including in-class worksheets, participation and	50	
attendance		
Homework and worksheets. Homework must be turned in at the	90	
beginning of class on the date due. You must be in class to get credit		
for the homework.		
Multiple Regression may be done for EXTRA CREDIT 25 points		
TOTAL	1000	

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 placeTime: Tuesday/Thursday 8:30 to 10:20 am. Friday 9:30 to 10:20 am C208ContactTelephone: 425-564-4063<br/>Email: <u>llum@bellevuecollege.edu</u><br/>I will try to respond within 48 hours.<br/>BE SURE TO PUT BA 240 IN SUBJECT HEADING OF EMAIL FOR MORE TIMELY RESPONSE.<br/>Office mail: D110Office hoursOffice Location C207<br/>Lum Office Hours: TWThF 10:30 to 11:20 am or by appointment.

Websites	All practice exams keys and assignments are placed on the bc.instructure.com class website. Extensive videos and other materials are linked below Complete instructions on the Project are on bc.instructure.com in the Project file. Videos on how to use Excel to complete the team project are available at: Website: <u>http://ba240.groups.live.com</u> Login: <u>ba240student@live.com</u> Password: 2013Fall No spaces "F" is capitalized. <u>Once you signed in, click on documents.</u> Business Transfer Website: http://bellevuecollege.edu/business/transfer/default.htm
Required Texts	<b>Statistics</b> by McClave and Sincich, Pearson/Prentice Hall 2006 (This book may be rented from the bookstore) The <b>textbook data files</b> are posted in a zip file in the bc.instructure.com course website. All problem files are under Exercises. To use, open Excel first and then in the drop down menu right above the Cancel button, go to the tope for All Files (*.*). Browse to find the text data files and open it. You may have to format the file into columns before using it.
Other	Scantrons for quizzes.
Requirements	Calculator that can calculate standard deviations. For instructions on TI-83 statistical functions:
	http://www.angelfire.com/pro/fkizer/Instructions/tiusrmanstat83.htm
Goals	<ul> <li>Research and understand the nature of information and large data sets.</li> <li>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.</li> <li>Use software to solve statistical problems.</li> <li>Communicate data effectively with written and visual display.</li> <li>Apply statistical analysis to real data including framing the problem, sorting data, selecting appropriate statistical formulae, and coming up with relevant conclusions.</li> <li>Work in teams to complete projects.</li> </ul>
Resources	The solution manual is available at the Business Study Center in C207K. The best students <b>make</b> <b>extensive use of the study center</b> . Check C207K for hours. <b>Review sessions</b> 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	<ul> <li>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.</li> <li><u>Review all materials for a module answering the questions on your reading guide BEFORE</u> we cover the module. You will be tested on your reading on the individual and team RAT.</li> <li>We will spend two to three sessions on each module applying the concepts that you have learned.</li> <li>Your grade will be based on your individual Readiness Assurance Test, your team RAT, team problem solving and casework, team project, 3 individual exams.</li> <li>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.</li> <li>You must take personal responsibility for your learning to succeed in life: <ul> <li>Attend all classes and participate fully in the team process</li> <li>Use the reading guide to read textbook sections, view video lectures and do homework before and during Module work WITHOUT the solution guide.</li> <li>Help your team members learn. You learn the most when you teach others the concepts.</li> <li>Do all supplemental problems at the end of the chapter in review for the test</li> <li>Do practice exams without consulting key</li> </ul></li></ul>

Grading	93 - 100%	А	4			
Cruding	90 - 92	A-	3.7			
	86 - 89	B+	3.3			
	83 - 85	В	3.0			
	80 - 82	В-	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 80	F	0			
	A pass grade will not be giv	ien unless <u>all requireme</u>	<u>nts</u> of the course are cor	npleted.		
Standard of Behavior	All interactions will be evalu	uated as to whether they	are acceptable in the bu	isiness		
	environment. This includes	interactions in the class.	on online discussion for	ums. email		
	communications with the i	nstructor with fellow stu	idents and in the comm	unity		
	Inappropriate communicati	ons include jokes and dis	cussions your classmate	s find offensive		
		ber communications whi	sh would be typically de	s mu onensive,		
	excessive messages, and other		informed and averaged at			
	Inappropriate in the workpi	ace. The student will be	Informed and expected t	o comply with		
	requests for change and im	provement. <u>Cell phone a</u>	<u>nd laptops are not to be</u>	used in the class.		
Student Code	<ul> <li>Cheating includes, but is not limited to, copying answers on exams, grancing at hearby 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.</li> <li>Stealing includes, but is not limited to, taking the text, notes, exams, library books or other personal property of others without their permission.</li> <li>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.</li> <li>If you choose to cheat, steal or plagiarize, or if you assist anyone in cheating, the following actions will be taken:</li> <li>You will receive zero on the assignment or assessment.</li> <li>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.</li> <li>If you feel you have been unfairly accused of any of the above, you may appeal. For a description of due</li> </ul>					
	"Cheating, stealing and plag crediting the source) and in Student Code of Conduct at are not limited to: talking o allowing cell phones/pagers classmates. The instructor President of Student Service Specific student rights, resp of Conduct, available in the Code, Policy 2050, in its ent http://bellevuecollege.edu/	giarizing (using the ideas appropriate/disruptive c Bellevue College. Exam ut of turn, arriving late o to ring, and inappropria can refer any violation of es for possible probation onsibilities and appeal p office of the Vice Preside irety is located at: policies/2/2050 Studen	or words of another as o lassroom behavior are vi ples of unacceptable beh r leaving early without a te behavior toward the i the Student Code of Con or suspension from Belle rocedures are listed in th ent of Student Services."	ne's own without olations of the navior include, but valid reason, nstructor or nduct to the Vice evue College. ne Student Code The Student		

Affirmation of InclusionBellevue Community College is committed to maintaining an environment in which every<br/>member of the campus community feels welcome to participate in the life of the college, free<br/>from harassment and discrimination. We value our different backgrounds at BC, 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 <u>www.bellevuecollege.edu/drc</u>
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: <u>http://bellevuecollege.edu/publicsafety/</u> 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: <a href="https://www.lyris@list.bellevuecollege.edu">https://www.lyris@list.bellevuecollege.edu</a> . In the body of your message write SUBSCRIBE bccbusiness
	Social Science policies can be viewed at <u>https://bellevuecollege.edu/socsci/policies.asp</u>

LINKS TO RESOURCES	Power Point	Sample Excel Spreadsheets	VIDEO LECTURES	VIDEO PROBLEMS AND EXCEL DEMOS
Module 1 - Chapter 1, 2	Module 1	<u>Car file data for Excel 1</u> <u>Car file Demo Histogram</u> <u>Histogram/Normality</u>	<u>Module 1 Part 2</u> Communicating Data <u>Module 1 Part 3 Graphs</u> <u>Module 1 Part 4 Central</u> Tendency/Variability <u>Module 1 Part 5</u> Linear Regression	Mean Median Mode Stem Leaf Problem 2.37 Excel Histogram Excel Central Tendency and Variability Excel Simple Linear Regression
Module 2 - Chapter 3, 4, 5	Module 2	<u>z and t table</u> <u>Noncumulative</u> <u>Binomial Table</u>	Module 2 Part 1 Probability Module 2 Part 2 General Discrete Module 2 Part 3 Binomial Module 2 part 4 Normal	General Discrete Problem 4.11 Mean and <u>Standard Deviation</u> Binomial Problem 4.115 Normal Distribution 5.37 Excel Normality Plot
Module 3 - Chapter 6, 7	Module 3	<u>7.22</u> <u>7.40</u>	<u>Module 3 Part 1 Central Limit Theorem</u> <u>Module 3 Part 2 Confidence Interval</u>	Large Sample Means Confidence Interval Problem 7.22 Small sample means Confidence Interval Problem 7.40 Large sample proportion Confidence Interval Problem 7.48 Excel Random Sampling Excel Confidence Interval
Module 4 - Chapter 8 Module 5 - Chapter 9, 10	<u>Module 4</u> <u>Module 5</u>	<u>9.122</u>	Module 4 Part 1 One sample hypothesis testing Module 5 Part 2 Two sample hypothesis testing Module 5 Part 3 ANOVA	One pop. large <u>sample Problem 8.34</u> One pop. small <u>sample Problem 8.61</u> One pop. proportion <u>Problem 8.79</u> Two pop. pooled <u>variance Problem 9.19</u> Two pop. proportion <u>Problem 9.61</u> Two pop. paired Problem 9.122 ANOVA Problem 10.33
Module 6- Chapter 11, 12, 13	Module 6	Prediction Interval Chi Square	Module 5 Part 1 Multiple Regression Module 5 Part 2 Simple Chi Square Module 5 Part 3 Chi Square	Excel Demo for PROJECT Website: <u>http://ba240.groups.live.com</u> Login: <u>ba240student@live.com</u> Password: 2013Fall No spaces "F" is capitalized. Once you signed in, click on documents.

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,	General discrete probability distributions. (Expected value or mean, standard	Describe general discrete probability distribution. Give the formula for the mean/expected value and	Create a general discrete table from data, plot the graph, calculate the mean	Place mean and standard deviation on general discrete probability plot.	Create probability distributions. Construct normality plot.	Compare discrete distributions. Evaluate normality.

4.3, 4.4 Read 5.1, 5.2, 5.3, 5.4	deviation) Binomial probability distribution (mean and standard deviation). Trees (Bayesian).	the standard deviation. List the three conditions of a binomial distribution. Give the formula for binomial, mean, and standard deviation.	and standard deviation. Create a binomial table from data, plot the graph, calculate the mean and	Calculate binomial. Apply the empirical rule.	Calculate probability for various z-scores.	
	Normal probability distribution. Standard normal curve.	Explain the empirical rule and how it relates to normal distributions.	standard deviation. Identify normal probability distributions and do tests for normality. Calculate x and z and find probabilities using the z-table.			
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 and 5 Hypothesis testing Read 8.1, 8.2, 8.3, 8.4, 8.5. 9.1, 9.2, 9.3,	Null hypothesis. Alternate hypothesis. Alpha. One-tail Two-tail One population Two population	Define null. Define alternate. Type 1 and type 2 error. Setting alpha. Decision rule. Critical z or t.	Classify problem as large, small, proportion, pooled variance and unequal variance. Identify critical z or t.	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 actual studies.

9.4, 9.5	Critical t or z p-value					
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 6 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.