

Course Outline – Seattle Central Community College

Course Prefix & No.: MATH&146 (formerly math 109)	Title: Elementary Statistics	Credits: 5
Division: Science & Mathematics		Program/Department: Mathematics
Maximum Class Size: 32	Course length: 11 weeks	Prerequisite(s): Math 098 with a grade of 2.5 or better, or Math 116 with 2.0 or better, or instructor's permission
Total Contact Hours: 55 Lecture: 55 (11 h. = 1 cr.) Lab: (supervised; 22 hrs.=1 cr.) Clinical: Other: (unsupervised; 33 hrs. = 1 cr.)		Mode(s) of Delivery: <input checked="" type="checkbox"/> On campus self-contained <input type="checkbox"/> Correspondence <input type="checkbox"/> Tele-course <input checked="" type="checkbox"/> Online instruction <input checked="" type="checkbox"/> Hybrid (e.g., online and on campus) <input type="checkbox"/> Other (please describe): _____
Course Description	This is a course in statistical thinking. It Introduces students to basic concepts of statistics and how to work with data, graphically and numerically. Statistical inference concepts like hypothesis testing and confidence intervals are included. These topics help students develop critical reasoning skills necessary to understand our quantitative world.	
Learning Outcomes	As a result of taking this course, students will be able to: -Summarize and describe data graphically using bar charts, pie charts, histograms and others. - Summarize and describe data numerically using mean, median, standard deviation and others. - Use graphs and basic statistics to analyze, interpret and draw conclusions about the data. - Identify the pitfalls of bad sampling methods; Use real life data sets to discuss and identify good sampling techniques. - Use properties of basic probability to compute the probabilities of normally distributed data sets. -Apply concepts of sampling distributions and the central limit theorem and use these to analyze, describe and measure sampling variability. - Conduct hypothesis testing and calculate confidence intervals for one-sample mean, two-sample means, one-sample proportion and two-sample proportions. - Identify and explain the limitations of statistical inferences.	
Program/Degree Outcomes	This course addresses the following program or degree outcomes: -Develop and use skills in critical thinking, quantitative analysis -Develop and use skills for in-person interactions with individuals and within groups. -Use methods and modes of inquiry specific to mathematics -Demonstrate effective oral and written communication, teamwork and	

	collaboration in mathematical settings -Demonstrate academic honesty and ethical behavior
Topical Outline and/or Major Divisions	<p>This course covers the following topics:</p> <ul style="list-style-type: none"> • Graphical display using bar charts, pie charts, histograms, stem plots, scatter plots and box plots. • Numerical summaries of data using mean, standard deviation and the 5-number summary • Normal distribution and properties • Correlation and linear regression analysis, including residual plots • Data sampling Techniques and Experiments • Basic concepts of probability and sampling distributions • Central Limit Theorem and the Law of Large Numbers • Hypothesis testing and confidence intervals • Inference for one-sample and two-sample means • Inference for one-sample and two-sample proportions • Optional: ANOVA and chi-square •
Distribution Area	None of the above/Elective
Additional Information	Use of the graphing calculator and/or a statistical software may be required for this course, upon the discretion of the instructor.
CAC Use Only Special Designation (s)	<input checked="" type="checkbox"/> QSR <input type="checkbox"/> IS <input type="checkbox"/> C <input type="checkbox"/> GS <input type="checkbox"/> US <input type="checkbox"/> None
Outline Prepared by: Felice Tiu and Jerry Wright Date: April 25, 2011	