COC Math 140X In-Person 16-week TTh Homework Schedule
Project-Based Curriculum / Teachout Textbook / Spring 2024 / Updated 5-23-24

Date	Schedule	Assignments
Feb 6	Syllabus Schedule Section 1A	Read syllabus and schedule. Let Teachout know project partner and choice of project questions. Lecture on types of data. Textbook Problems 1A#1,2,3. Finish Stat Support Activity#1 – Excel Basics (copy,paste, highlighting and widening columns)
Feb 8	Section 1B	Start collecting data for project#1. Work on project#1. Lecture on methods of collecting data. Textbook Problems 1B#1-15 all. Affective Domain Activity#1 Growth Mindset. Excel Activity#2 typing project data, creating "Other" category and doing a "Custom Sort".
Feb 13	Section 1C	Collect data for project. Work on project#1. Lecture on types of bias in data. Textbook Problems 1C#1-11 all. Affective Domain Activity#2 Grit. Intro to StatKey Activity.
Feb 15	Section 1D	Work on project#1. Lecture on Experimental Design. Ruler Experiment Activity. Textbook Problems 1D#1-6,17-27.
Feb 20	Section 1E	Work on project#1. Stat Support Rounding Activity. Proportion % Conversion Lecture. Estimating Amounts Lecture. Calculating Proportions and Percent of Increase Lecture. Putting Categorical Data into StatKey Lecture. Intro to Pie charts lecture. Textbook Problems 1E#1-11,13-14,16,18-22
Feb 22	Sections 1E & 1F	**Finish Project#1!** Binomial Probability Lecture. Textbook Problems 1E#25,26. Stat Support Activity Normal Shape. Stat Support Activity: Mean Average. Stat Support Standard Deviation Activity.
Feb 27	Section 1F	**Project#1 Due Today!** Start project#2. Normal Data Analysis Lecture. Z-score Lecture. Empirical Rule Lecture. Normal Probabilities Lecture. Textbook Problems 1F#1,2,6,7,9,10,11,14,15,19,21,22,24,25
Feb 29	Section 1G	Work on project#2. Shape Activity. Median Activity. Quartiles & IQR Activity. Box-Plot & Outliers Activity.
Mar 5	Sections 1G & 2A	Work on project#2. Skewed & Non-normal Data Analysis Lecture. Textbook Problems 1G#2,3,4,7 Other Quantitative Statistics Activity. Sections 2A Statistics & Parameters Lecture, Textbook problems 2A#2-25 all
Mar 7	Sections 2B & 2C	Work on project#2. Sampling Distribution Coin Activity, Sampling Distribution Coffee Activity, Sampling Distribution & Central Limit Theorem Lecture, Textbook problems 2B#1-3,5-8,19,20 & 2C#1-7,9,10,17,18.
Mar 12	Section 2D	Work on project#2. Confidence Interval Calculation & Sentence Lecture, Textbook Problems 2D#1-10, Finding Statistic and Margin of Error Lecture, Textbook Problems 2D#11-20, Understanding "Confidence" Activity (2D#21-32). COC Shelter in Place Drill.
Mar 14	Section 2E	Work on project#2. Critical Value Z-scores StatKey Activity. Population Proportion Confidence Interval Calculations and Conditions. Textbook Problems 2E#1,4-11. Critical Value T-scores StatKey Activity. Population Mean Average Confidence Interval Calculations and Conditions. Textbook Problems 2E#2,12-19.
Mar 19	Sections 2E & 2F	**Finish project#2!** One-Population Mean and Proportion Bootstrap Confidence Interval Lecture. Textbook Problems 2E#3,20-27. Stat Support Difference Activity. Two-Population Confidence Interval Interpretations. Textbook Problems 2F#4-12

Mar 21	Section 2F	**Project#2 Due Today!** Start Project#3. Lecture & Stat Support Activity: Calculations for two-population proportion confidence interval. Stat Support Activity: Two-population degrees of freedom and critical value T-scores. Lecture & Stat Support Activity: Calculations for Two-population mean confidence interval from independent groups. Lecture: Matched Pair Confidence Interval Calculations Affective Domain Activity#4 Stress
Mar 26	Section 2F	Work on project#3. Stat Support Activity: Calculations for Matched Pair mean confidence intervals. Lecture: Two-population confidence intervals conditions and bootstraps. Textbook problems 2F#13-20 Go over Project#3
Mar 28	Section 3A & 3B	Work on project#3. Stat Support Activity: Inequalities & Population Parameters. Section 3A Null & Alternative Hypothesis Lecture. Finish textbook problems 3A#1-20 all. Section 3B Intro to Test Statistic (Tail Rule) Lecture. Finish textbook problems 3B#1-20 all.
Apr 2 & 4	**Spring Break**	Work on project#3. Catch up on make-up work.
Apr 9	Section 3B & 3C	Work on project#3. Stat Support Activity: Significance Levels *(Also includes drawing distributions and labeling critical values & test statistics)* Section 3B Lecture: Using StatKey and Significance level to Calculate Critical Values. Finish problems 3B#21-29 all. Section 3B Lecture: One-Pop. Test Stat Sentences and Calculations. Finish problems 3B#30-35 all. Section 3C Stat Support Activity: Scientific Notation *(Also includes Scientific Notation to % conversions.)*
Apr 11	Section 3C	Work on project#3. Lecture: 3C Introduction to P-value. Finish problems 3C#1-32 all. Lecture: P-value in Hypothesis Test Example 3C#33 Finish problems 3C#33-37 all. Lecture: StatKey Theoretical Distribution P-value Calculations. Finish problems 3C#38-45. Stat Support Activity: Drawing P-value, Significance Level, Test Statistic and Critical Value on same distribution (#1-10)
Apr 16	Sections 3C & 3D	**Finish project#3!** Affective Domain Activity: Mistakes Lecture: Section 3D Hypothesis Test Conclusions. Stat Support Conclusion Activity#1-16. Conclusion with Scientific Study Example 3D#17. Finish textbook problems 3D#18-23. Stat Support StatKey Activity: Randomized Simulation.
Apr 18	Sections 3A-3D Review & 3E	**Project#3 Due Today!** Ch 3 Review Sheet#3-6,8-11 3E Lecture: Type 1 and Type 2 Errors. Finish textbook problems 3E#1-15.

Apr 23	Section 3F	**Class Cancelled due to instructor illness.** • Go to the "Statistics" page on www.matt-teachout.org Watch all 3 of the online lectures on "Section 3F One-Population Proportion Hypothesis Test". Take hand-written notes on all of the video lectures. • Finish problems 3F#1,4-7. • Watch all 3 of the online lectures on "Section 3F One-Population Mean Hypothesis Test". Take hand-written notes on all of the video lectures. • Finish problems 3F#2,8-11. • Go to the "Pre-Stat" page on www.matt-teachout.org and open the Stat Support Activity: One-Population Test Statistics. Read notes and do problems 1-6. • Watch all 3 of the online lectures on "Section 3F One-Population Mean and Proportion Hypothesis Tests with StatKey and Statcato". Take hand-written notes on all of the video lectures. • Do textbook problems 3F#12,13,18,23 **Note: All nine of Section 3F Lecture Video Notes, Section 3F Textbook Problems assigned, and Activty#1-6 will be collected.**
Apr 25	Section 4B	• Lecture Section 4B: Intro to ANOVA, Ho, Ha, Conditions • Stat Support Activity: ANOVA and F-test statistic Calculations#1-3 • Finish problems 4B#1-4,21-24 • Lecture and Problems Section 4B: Traditional ANOVA test example. Finish problems 4B#25,26 • Lecture and Problems Section 4B: Randomization ANOVA test example. Finish problems 4B#29,32 • HW: Finish Activity Problems, Finish 4B problems, and start on project#4.
Apr 30	Section 4C	• Lecture Section 4C: Intro to two-pop. proportion Z-test. (Ho,Ha,test stat) • Stat Support Activity: Z-test statistic Calculations#1-3 • Problems 4C#1-10 • Lecture Section 4C: Conditions and Example Test • Problems 4C#22,26-30 • Lecture Section 4C: Two-pop. proportion experiments and randomization. • Problems 4C#21,23,31-34,35ab • HW: Finish Activity Problems, Finish 4C problems, and work on project#4.
May 2	Section 4A	• Lecture 4A: Intro to the Two-Population T-test statistic • Stat Support Activity: 2-population T-test statistic Calculations#1-4 • Problems 4A#1-10 • Lecture 4A: Two-Population Mean Hypothesis Test for Independent Groups. (Example 4A#31,37) • Problems 4A#22,23,25,29,30,34,36 • Lecture 4A: Matched Pair Population Mean Difference Hypothesis Test. (Example 4A#28,35) • Problems 4A#21,24,28,32,35 • HW: Finish Stat Support Activity Problems, Finish 4A problems, and work on project#4. • **NOTE: Last day to drop is 5/4/24!**

May 7	Section 4D	• Lecture 4D: Intro to Chi-Square Test Statistics • Problems 4D#1-25 • Lecture 4D: Traditional Goodness of Fit Hypothesis Tests • Problems 4D#30-32 • Lecture 4D: Randomization Goodness of Fit Hypothesis Tests • Problems 4D#26-29 • Homework: Work on project#4. Finish problems 4D. Finish and turn in make-up work.
May 9	Sections 4E	• Lecture 4E: Contingency Table Marginal Proportions • Problems 4E#3,4,11,12,19,20,27,28 • Lecture 4E: Contingency Table Joint Proportions • Problems 4E#5-8,13-16,21-24,29-32 • Lecture 4E: Contingency Table Conditional Proportions • Problems 4E#1,2,9,10,17,18,25,26 • Work on project#4. Finish Problems 4E. Finish and turn in make-up work.
May 14	Section 4F	• Chi-Square Critical Values and P-values Activity 4F#1-20 • Lecture 4F: Categorical Association Test • 4F#23-31 • Lecture 4F: Categorical Association Test with Randomization • 4F#32-35 • Work on project#4. Finish problems 4F. Finish and turn in make-up work.
May 16	Section 4G	• Lecture: Explanatory & Response variables, Scatterplots, Correlation Coefficient (r), coefficient of determination (r^2). • Stat Support Correlation Activity#1-11 • Lecture: Regression lines, slope, y-intercept • Stat Support Regression Line Activity#1-8 • Lecture: Predictions, Extrapolation, Residuals, Standard Deviation of the Residual Errors (s_e) • Problems 4G#1-8,11,13,15 • **Finish Project#4!** Finish and turn in make-up work. Homework: Finish Correlation Activity problems#1-11, Regression Line Activity Problems#1-8 and 4G#1-8,11,13,15.
May 21	Section 4H	• **Project#4 Due Today!** • Lecture: Correlation Test Ho & Ha. Correlation Test Activity#1-5 • Lecture: r with critical values. Correlation Test Activity#6-13 • Lecture: StatKey T-test statistics, Critical Values & P-values. Correlation Test Activity#14-21 • Lecture: Residuals, Residual Plots, Correlation Test Conditions • Problems 4H#21-28 • Homework: Finish 4H problems and Activity problems **Finish and turn in make-up work**.
May 23	Final Review #1	• Section 1A-1G Review Lecture. Ch1 Review Sheet #1,2bdgh,4,5,6 • Section 1E-1G Review Lecture. Ch1 Review Sheet #7abc,8,9,12abc,14-18 • Ch2 Review Lecture. Ch2 Review Sheet#1($n,\pi,\hat{p},\mu,\overline{x},r$), 9(bootstrapping, standard error), 10abefgh, 11,12,15,16. • Homework: Finish Ch1 & Ch2 Review Sheet problems. **Study for Final Exam! Finish and turn in make-up work.**

May 28	Final Review #2	Ch3 Review Sheet#3,4,5,8,9,10,11,13,14,15. Ch4 Review Sheet#1-15 all **Study for Final Exam! Finish and turn in make-up work.**
May 30	**Cumulative Final Exam**	**Last day to turn in make-up work!!** **Math 140 is over! Have a great Summer!**