COC Math 140X In-Person 16-week MW Homework Schedule / Spring 2025
Project-Based Curriculum / Teachout Textbook / Last Updated 4-3-25

Date	Schedule	Assignments
Feb 10	Syllabus Schedule Section 1A Excel Basics	• Go over Syllabus and HW schedule Lecture. • Finish Stat Support Activity#1 – Excel Basics (copy,paste, highlighting and widening columns) • Section 1A Lecture on categorical vs quantitative data and nominal vs ordinal categorical data. • Textbook Problems 1A#1,2,3,4. • Go over project#1. Choose project questions and population of interest. • Homework: Finish Problems 1A. Read Syllabus. Choose Project questions and population.
Feb 12	Section 1B & 1C	• Section 1B Lecture on methods of collecting data. • Textbook Problems 1B#1-15 all. • Section 1C Lecture on types of bias in data. • Textbook Problems 1C#1-11 all. • Homework: Finish 1B and 1C probblems. Start collecting data and work on project#1.
Feb 17	**COC Holiday**	• **Happy Presidents Day**
Feb 19	Section 1D	• Excel Activity#2 typing project data, creating "Other" category and doing a "Custom Sort". • Lecture on Experimental Design. • Ruler Experiment Activity and Problems 1D#1-6 • Textbook Problems 1D#7-27. • Homework: Finish 1D problems. Collect data for project. Work on project#1. • **February 23rd is the Last Day to Drop with a Refund and without a "W".**
Feb 24	Section 1E (part 1)	• Work on project#1. • Stat Support Activity: Rounding (Lecture and #1-12) • Stat Support Activity: %, Proportions, Scientific Notation (%-Proportion Lecture and #1-20) (Scientific Notation Lecture and #21-32) • Lecture: Frequencies, Total, Proportions, and Estimating Amounts. Textbook Problems 1E#3-10 • Homework: Finish Activity Problems and 1E#3-10. Collect data for project. Work on project#1.
Feb 26	Section 1E (part 2)	• Percent of Increase: Lecture and Textbook Problems 1E#11,13,14,15 • Stat Support Activity Intro to StatKey: Lecture and Problems#1&2 • Stat Support Activity Categorical Graphs: Lecture and Problems#1-4 • Binomial Probability: Lecture and Textbook Problems 1E#25,26,27,28,29 • Homework: Finish Activity Problems and 1E#11,13-15,25-29. Collect data for project. Work on project#1.
Mar 3	Sections 1F (part 1)	• Stat Support Activity: Normal Quantitative Graphs. Lecture & Problems#1-3 • Stat Support Activity: Mean Average. Lecture & Problems#1&2 • Stat Support Activity: Standard Deviation. Lecture & Problem#1 all • Homework: **Finish Project#1!** Finish Activity Problems and 1F#9-18

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Mar 5	Section 1F (part 2)	• **Project#1 Due Today! Turn in printed spreadsheet with the two columns of custom sorted data you collected. Also turn in answers #1-15 from Project#1 directions.** • Z-score Lecture & Problems 1F#9-15 all • Normal Data Analysis Lecture & Textbook Problems 1F#2,5,7,8 all • Empirical Rule Lecture & Textbook Problems 1F#19-21 all • Normal Probabilities Lecture & Textbook Problems 1F#23-25 all • Homework: Finish Problems 1F. Work on project#2.
Mar 10	Section 1G (part 1)	• www.matt-teachout.org. Pre-Stat Page. Stat Support Activities • Other Quantitative Shapes Lecture & Activity#1-7 (Bear Data) • Median Lecture & Activity#1-4 • Quartiles/IQR Lecture & Activity#1-3 • Box-Plot/Outliers Lecture & Activity#1-3 • Homework: Finish Activity Problems. Work on project#2.
Mar 12	Sections 1G (part 2) & 2A	• Skewed & Non-normal Data Analysis Lecture. • Statistics Page: Problems 1G#2,3,4 Data Sets Page: "Bear Data" • Go over project#2 • Pre-Stat Page. Stat Support Activities: Other Quantitative Statistics Lecture and Activity#1-4. • Statistics & Parameters Lecture. • Statistics Page: Problems 2A#2-12 all • Homework: Finish 1G, 2A, Other Stats Actvity problems, Work on Project#2
Mar 17	Sections 2B & 2C	• Work on project#2. • Sampling Distribution Lecture. • Coin Sampling Distribution Activity (Part 1) #1-12 • Coin Sampling Distribution Activity (Part 2) #13-17 • Coffee Sampling Distribution Activity (Part 1) #1-11. Data Sets Page: "Sampling Distribution Data 1 Coffee" • Coffee Sampling Distribution Activity (Part 2) #12-16. Data Sets Page: "Coffee Data" • Central Limit Theorem Lecture. • Problems 2C#1-7,9,10,17,18. • Homework: Finish Sampling Distribution Activities & 2C Problems. Work on project#2.
Mar 19	Section 2D	• Confidence Interval Lecture. • Problems 2D#1-10. • Back solving for Sample Statistic and Margin of Error Lecture and Problems 2D#11-20 (parts a & b only). • Understanding "Confidence Levels" Lecture and Problems 2D#21-32. • Homework: Finish Problems 2D. Work on project#2.
Mar 24	Section 2E (part 1)	• Critical Value Z-scores StatKey Activity#1-3 • One-population Proportion Confidence Interval Calculations and Conditions Lecture. • Problems 2E#1,4-9. • William Gossett's Student T Distribution Lecture • Critical Value T-scores StatKey Activity#1-4 • Affective Domain#1 Activity (Growth Mindset): Ted Talk and problems#1-6 • Homework: Finish Activities & 2E Problems. Work on Project#2.

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Mar 26	Sections 2E (part 2)	• Population Mean Average Confidence Interval Calculations and Conditions Lecture. • Textbook Problems 2E#2,12-19. • Lecture: One-Population Mean and Proportion Bootstrap Confidence Interval Lecture. • Lecture: Bootstrap vs Sampling Distributions • Textbook Problems 2E#3,20-27. • Homework: **Finish project#2** and problems 2E.
Mar 31	Section 2F (part 1)	• **Project#2 Due Today! Turn in printed StatKey graphs and summary stats, and answers to all questions.** • Stat Support Activity: Differences #1-6 • Lecture: Negatives and Positives on the number line. • Lecture: Two-Population Confidence Interval Interpretations and Textbook Problems 2F#4-12. • Calculations for two-population proportion confidence intervals Lecture and Stat Support Activity: Two-population proportion confidence interval calculations #1-2 • Stat Support Activity: Two-population degrees of freedom and T-scores #1-3 • Homework: Finish Activities & 2F Problems.
Apr 2	Section 2F (part 2)	• Lecture & Stat Support Activity: Two-population Mean Confidence Interval Calculations#1-2 • Lecture & Stat Support Activity: Matched Pair Two-population Mean Confidence Interval Calculations#1-3 • Lecture: Two-population confidence intervals conditions and Problems 2F#13,15,16,18 • Two-population Bootstrapping Lecture and Problems 2F#14,17,19,20 • Finish Activity and 2F problems. Work on Project#3
Apr 7 **Apr 9**	**Spring Break**	• Catch up on missing work, projects, and assignments. Work on Project#3.
Apr 14	Section 3A & 3B (part 1)	• Lecture & Stat Support Activity: Inequality Symbols & Population Parameters #1-12 all. • Lecture 3A: Ho, Ha, Claim, Type of Test • Problems 3A#1-20 all. • Lecture 3B: Tail Rule • Problems 3B#1-20 all. • Finish Activity, 3A, & 3B problems. Work on Project#3
Apr 16	Section 3B (part 2)	• 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. • Textbook problems 3B#21-29 all. • Section 3B Lecture: One-Population Test Stat Sentences and Calculations. • Textbook problems 3B#30-35 all. • Affective Domain Activity#2: Grit
Apr 21	Section 3C	• Work on project#3. • Lecture: 3C Introduction to P-value. • Finish problems 3C#1-20 all. • Lecture: P-value in Hypothesis Test Example 3C#33 • Finish problems 3C#33-36 all. • Lecture: StatKey Theoretical Distribution P-value Calculations. Finish problems 3C#39,41,44.

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		• Stat Support Activity: Drawing P-value, Significance Level, Test Statistic and Critical Value on same distribution (#1-10)
Apr 23	Sections 3D & 3E	• **Finish project#3!** • Lecture: Section 3D Hypothesis Test Conclusions. • Stat Support Conclusion Activity#1-16. • Conclusion with Scientific Study Example 3D#17. • Finish textbook problems 3D#17-21. • 3E Lecture: Type 1 and Type 2 Errors. • Finish textbook problems 3E#1-15. • Affective Domain Activity: Stress
Apr 28	Section 3F	• **Project#3 Due Today!** • Lecture: Hypothesis Test Steps • Lecture Section 3F One-Population Proportion Hypothesis Test. • Stat Support Activity: One-Population Test Statistics #1-3 • Problems 3F#1,4-7,14,16. • Lecture Section 3F One-Population Mean Hypothesis Test. • Stat Support Activity: One-Population Test Statistics #4-6 • Problems 3F#2,8-11,18,20 • Lecture: Randomized Simulation (Randomization) • Go to the "Pre-Stat" page on www.matt-teachout.org and open the Stat Support Activity: Randomized Simulation. Do problems #1 & #2.
Apr 30	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 Australia Salary example. Finish problems 4B#26,28 • Lecture and Problems Section 4B: Randomization ANOVA test Football Concussion example. Finish problems 4B#30,32 • HW: Finish Activity Problems, Finish 4B problems, and start on project#4.
May 5	Section 4C	• Lecture Section 4C: Intro to two-pop. proportion Z-test. (Ho, Ha, Conditions, Z-test stat) • Stat Support Activity: Two-pop. Z-test statistic Calculations#1-3 • Problems 4C#1-10 • Lecture Section 4C: Example 2-pop % Hypothesis Test • Problems 4C#26,27,28 • Lecture Section 4C: Two-pop. proportion experiments and randomization. • Problems 4C#32,33,34,35ab • HW: Finish Activity Problems, Finish 4C problems, and work on project#4.
May 7	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#1-6 • Lecture 4A: Two-Population Mean Hypothesis Test for Independent Groups and Matched Pair. • Problems 4A#28,29,30,34,35,36 • HW: Finish Stat Support Activity Problems, Finish 4A problems, and work on project#4. • **NOTE: Last day to drop is this Saturday November 9th!**

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May 12	Section 4D	• Lecture Section 4D: Intro to Goodness of Fit Test and the Chi-Square Test Statistic (Example #1) • Problems 4D#1-6,#21-25 • Lecture Section 4D: Goodness of Fit Test (Example #30) • Problems 4D#30-32 • StatKey Lecture: Find df and Chi-Square test statistic. Use the Chi-Square distribution to look up critical value and P-value. (Examples #11 & #26) • Problems 4D#11-16 • Problems 4D#26-29. (Find df and chi-square test stat. Look up critical value and P-value. Then finish the hypothesis test.) • Homework: Work on project#4. Finish problems 4D. Finish and turn in make-up work.
May 14	Sections 4E	• **Finish Project#4!** • 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 19	Section 4F & 4G (part1)	• **Project#4 Due Today!** • Lecture 4F: Categorical Association Test, Ex 4F#35 • 4F#23,24,25,26,27,28,30,32 • Lecture 4G: Explanatory & Response variables, Scatterplots, Correlation Coefficient (r), coefficient of determination (r^2). • Stat Support Correlation Coefficient Activity#1-11 • Finish problems 4F, 4G, and Stat Support Activities. Finish and turn in make-up work.
May 21	Section 4G (part 2) & 4H	• Lecture: Regression lines, slope, y-intercept, definitions • Stat Support Regression Line Activity#1-8 • Problems 4G#1,2,3,5,6Lecture4G: Predictions, Extrapolation, Residuals, Standard Deviation of the Residual Errors (s_e) • Problems 4G#4,7,8,10,11 • Finish problems 4G, and Stat Support Activities. Finish and turn in make-up work. • Lecture 4H: Correlation Test Ho, Ha, r, T-test stat, Critical Values, P-value Correlation Test Activity#1,2,3,6,7,14 • Lecture: Residual Plots, Correlation Test Conditions • Problems 4H#21-27 • Finish 4G and 4H problems and turn in make-up work.
May 26	**COC Holiday**	• **Happy Memorial Day**
May 28	Final Review Ch. 1&2	• Section 1A-1D Review Lecture. • Ch1 Review Sheet #1,2bdgh,4,5 • Section 1E-1G Review Lecture. • Ch1 Review Sheet #7abc,8,9,12abc,14-18 • Ch2 Review Lecture. Ch2 Review Sheet#1(n,p,$\hat{p}$,μ,$\bar{x}$,r,s), 9(sampling distribution, standard error), 10abefgh, 11,12,15. • Homework: Finish Ch1 & Ch2 Review Sheet problems. **Study for Final Exam! Finish and turn in make-up work.**
June 2	Final Review Ch. 3&4	• Review Lecture Ch3&4 • Ch 3 Review Sheet#3-6,7ab,11,14 • Ch4 Review Sheet#1-17 all

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		• **Study for Final Exam! Finish and turn in make-up work.**
June 4	**Cumulative Final Exam**	• **Last day to turn in make-up work!!** **Math 140 is over! Have a great winter break!**