# MATH 231 Outline based on "Statistics", by Lock, et al, 3rd edition[i]

| Week # | Text Section and Topics |
|---|---|
| | ***Unit A: Data***<br>*Chapter 1: Collecting Data*<br>*Chapter 2: Collecting Data* |
| 1 | Introduction to course<br>1.1 Structure of Data;<br>1.2 Sampling from a Population; |
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| 2 | 1.3 Experiments and Observational Studies<br>2.1 Categorical Variables |
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| 3 | 2.2 One quantitative variable: Shape and Center<br>2.3 One quantitative variable: Measures of Spread |
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| 4 | 2.4 Boxplots and quantitative/categorical relationships<br>2.5 Two Quantitative Variables: Scatterplot and Correlation |
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| 5 | 2.6 Two Quantitative Variables: Linear Regression<br>2.7 Data Visualization and Multiple Variables (optional)<br>Catch up/Review |
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| 6 | **Exam 1 on Unit A**<br>3.1 Sampling Distributions; |
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| | ***Unit B: Understanding Inference [simulation-based]***<br>*Chapter 3: Confidence Intervals (CI)*<br>*Chapter 4: Hypothesis Tests (HT)* |
| 7 | 3.2 Confidence Intervals; Understanding and Interpreting<br>3.3 Constructing Bootstrap Confidence Intervals |
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| 8 | 3.4 Bootstrap CIs using Percentiles;<br>Catch up |
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| 9 | 4.1 Introducing Hypothesis Tests<br>4.2 Measuring Evidence with P-values |
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| 10 | 4.3 Determining Statistical Significance;<br>4.4 A closer look at Testing |
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| 11 | 4.5 Making connections, more randomization methods<br>Catch up |

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| ***Unit C: Inference with Normal and t-Distributions***<br>*Chapter 5: Approximating with a Distribution*<br>*Chapter 6: Inference for Means and Proportions [using theoretical distributions]* | |
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| 12 | **Exam 2 on Unit B** \<br>5.1 Hypothesis Tests using Normal Distributions/5.2 Confidence Intervals using Normal Distributions |
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| 13 | 6.1 Inference for a proportion<br>6.2 Inference for a mean |
| | |
| 14 | 6.4 Inference for Difference in [independent] Means<br>6.5 Inference for difference in paired means |
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| 15 | Catch up/Review |

[i] This outline based on 29 two-hour (1 hr, 50 min) sessions;
Pacing includes time for active learning and technology throughout