| Regression/Modeling Subtopics | Covered earlier. | Covered in these 2 weeks. | I hope to work it in soon. | Probably not time. | No |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1. Make a reasonable choice for the response variable. | X | $\mathrm{x}-10 \mathrm{~min}$ |  |  |  |
| 2. Find the regression line. |  |  |  |  |  |
| a. Using technology only. |  | $\mathrm{x}-30 \mathrm{~min}$ |  |  |  |
| b. Using the "computational equations" which use the sum of $x$ squared, sum of $y$-squared, sum of $x$, sum of $y$. |  |  |  |  | X |
| c. Using the "intuitive equations" which use the means, standard deviations, and correlation coefficient. |  |  |  | X |  |
| 3. Interpret the slope | X | $\mathrm{x}-10 \mathrm{~min}$ |  |  |  |
| 4. Interpret the intercept | X | $\mathrm{x}-10 \mathrm{~min}$ |  |  |  |
| 5. Use the line / equation to make predictions | X | $x-5$ min |  |  |  |
| 6. For a given $y$, find what $x$ would give that $y$. | X | $x-5 \mathrm{~min}$. |  |  |  |
| 7. Discuss extrapolation. | X | $\mathrm{x}-10 \mathrm{~min}$ |  |  |  |
| 8. Discuss that association does not imply causation. |  |  | X |  |  |
| 9. Graph the regression line. | X | $\mathrm{x}-10 \mathrm{~min}$ |  |  |  |
| 10. Compute the residuals. |  | $x-20 \mathrm{~min}$ |  |  |  |
| 11. Graph the residuals. |  | $x-20 \mathrm{~min}$ |  |  |  |
| 12. Interpret the residual plot to determine whether the model is good enough. |  | $\mathrm{x}-10 \mathrm{~min}$ |  |  |  |
| 13. Transformations of variables (such as square root, log) |  |  |  | X |  |
| 14. Transformation of explanatory variable, such as "years since 1990" | X | $x-5$ min |  |  |  |
| 15. Identification / impact of outliers and influential points |  |  |  | X |  |
| 16. Fitting a nonlinear function to the data. |  | $x-40$ min |  |  |  |
| 17. Plot the residual plot and interpret it. |  | $\mathrm{x}-30 \mathrm{~min}$ |  |  |  |
| 18. Choose a good function to fit the data which includes as much of the "pattern" as reasonable. |  | $\mathrm{x}-30 \mathrm{~min}$ |  |  |  |
| 19. Compare the effects of different models on predictions outside the range of the data. |  |  | X |  |  |
| 20. Discuss how different assumptions about the phenomenon suggest different mathematical models (exponential as proportional growth versus linear as constant growth, for example) |  |  | X |  |  |
| 21. Compute / interpret the correlation coefficient. |  |  |  | X |  |
| 22. Compute / interpret r-squared. |  |  |  |  | X |

