Chapter Comments for the Math 148 text: Stats: Data & Models

0.0.1   Finals Preparation for Math 148, Fall 2018

General Remarks:

> Except for the chapters that have been skipped (#9: Re-expressing Data, #27: Multifactor ANOVA, #29: Multiple Regression Wisdom) you are advised to read their "What Have We Learned" summaries, in particular the "Review of Terms" subsection.
>
> Unless specified otherwise, skip the starred (optional) material. Major exception: ch.26 (Analysis of Variance.
>
> You may have to do a test on simple/multiple regression and/or an ANOVA but you will in that case get the data from a computer program like StatCrunch and your task will be to interpret it correctly and answer questions such as "What are your hypotheses?", "What is the confidence interval?", "What do you decide at an α–level of 0.01?", and the like.

0.0.1.1   Chapter by Chapter Comments

All Ch.:   Skip everything that relates to re–expression.

Ch.01:   Understand the terminology: See Review of Terms. Skip everything else.

Ch.02:   Skip segmented bar charts.

Ch.03:   Skip stem-and-leaf displays and dotplots.

Ch.04:   No comments.

Ch.05:   An alternate name for "normal probability plot" is "qq–plot"

Ch.06:   Skip Kendall's tau, Spearman's rho, re–expression, ladder of powers.

Ch.07:   No comments.

Ch.08:   No comments.

Ch.09:   Skip everything!

Ch.10:   You will not be asked to use the table of random digits in the book to generate (pseudo) random numbers.

Ch.11:   Not quantitative, but lots of concepts to remember!

Ch.12:   No comments.

Ch.13:   Not in the book but taught in class: You may use "iid" as a short for "independent and identically distributed" (random variables) in your answers if it comes in handy. If you do not feel comfortable with that concept, you can use alternate terminology from the book.

Ch.14:   Skip the Bayes rule.

Ch.15:   Skip covariance.

Ch.16:   Skip the Poisson and exponential probability models.

Ch.17:   Note that "sampling variability" is also defined as "sampling error".

Ch.18:   No comments.

Ch.19:   No comments.

Ch.20:   No comments.

Ch.21:   We write α for Alpha and β for Beta, so "Alpha level" becomes "α–level". Understand how a given α–level is used a decision criterion for rejecting the Null.
No Agresti-Coull "Plus–4" method.

Ch.22: Skip Tukey's quick test, the Wilcoxon Rank–Sum test, and pooling **for means**. BUT you may need to know how to use pooling **for proportions**.
No need to know that formula about degrees of freedom for a confidence interval or a test concerning the difference of two means in the footnote on p.598.

Ch.23: Skip ch.23.4 (Blocking).

Ch.24: Understand how to compute expected counts and the subtle difference between testing for proportions and testing for independence.

Ch.25: Learning objectives: **a.** TYPO: $s_x = \sqrt{\frac{(x-\bar{x})^2}{n-1}}$ should read $s_x = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$.
b. Ignore the formula $t = r\sqrt{\frac{n-2}{1-r^2}}$.
c. Skip ch.25.7 on logistic regression.

Ch.26: This is a starred chapter but you **cannot skip** it, with the exception of ch.26.4 (Comparing Means) and the associated terms in the summary: Skip "Methods for multiple comparisons", "LSD", "Bonferroni method", "MSD". You will not be asked to do a F–table lookup, but be sure to understand that the F–distributions come with TWO degrees of freedom $F_{\mathrm{df}_T,\mathrm{df}_E}$ where $\mathrm{df}_T = k - 1$ and $\mathrm{df}_E = N - k$.

Ch.27: Skip this chapter!

Ch.28: Skip partial regression plots. No need to know the formulas

$$R^2 = 1 - \frac{SS_{\text{Regr}}}{SS_{\text{Regr}} + SS_{\text{Residual}}} \quad \text{and} \quad R^2_{\text{Adj}} = 1 - \frac{MS_{\text{Regr}}}{MS_{\text{Regr}} + MS_{\text{Residual}}}$$

but understand the purpose of R^2_{Adj}.

Ch.29: Skip this chapter!