NOTES FOR THE 11 DAYS BETWEEN DEC 4 AND THE FINAL EXAM

Final Exam: **Fri Dec 15, 10:30am-12:30pm**. Open book and notes.
Location: **If your last name starts with A to G, go to 212 Wellman.** Otherwise, the usual, 234 Wellman.
Details: The final exam will be comprehensive but will focus more heavily on *concepts* covered throughout the course, and on the more recent methods (Chapters 9-13). It is *open book and notes*. The "Key Topics" below cover the important concepts, and at least one example is provided with each of the topics to guide your studying for that topic. *Studying your old quizzes and figuring out where you went wrong on questions you got wrong will also be helpful*. (You may bring them with you to the final exam.)

Review Session: Thursday Dec 14, 10:30am to 12:30pm, 234 Wellman. Bring questions!

Office hours: We will hold our regular office hours the week of Dec 4, but not during finals week. Here are office hours by day; CS = Clayton Schupp (1214 Math Sci), JU = Jessica Utts (4214 Math Sci).
Wed, Dec 6: 9:30-11 (JU), 12:10-1 (CS); **Thurs, Dec 7**: 11-12 (JU), 1-2 (CS); **Fri, Dec 8**: 1-3:30 (JU)
Mon, Dec 11: 12-2 (CS); **Thurs, Dec 14**: 2-5pm (JU)

TOPICS IN NEW BOOK SECTIONS TO STUDY FOR THE FINAL EXAM

- Inference for $\mu_1 - \mu_2$: Sections 9.8, 11.4, 13.4. Skip "pooled" case – Lesson 2 in Sections 11.4, 13.4. No homework, but practice with problems 9.71*, 11.45*, 13.40**.
  *Answers in back of book for 9.71, 11.45. **For 13.40, s.e.($\bar{x}_1 - \bar{x}_2$)=0.192, t=−0.94, do not reject H_0.
- Choosing which inference procedure to use: Section 13.6. (This is review.)
- Cautions in interpreting hypothesis testing results: Section 13.8. (This is review)
- Overview and guiding principles on the use of Statistics in life: Chapter 17. (Mostly review.)

OTHER KEY POINTS TO STUDY FOR FINAL EXAM (*with Examples)*

1. Conclusions that can be made from randomized experiments versus observational studies. The role of confounding variables in observational studies. (*Case Studies 1.5, 1.6; pg 707 in Chapter 17*)
2. Major features when describing a set of data. (*Case Study 1.1, All examples in Ch. 2*)
3. How to use and interpret a regression equation. (*Examples 5.2 and 5.6*)
4. Recognizing and interpreting relative risk. *(Examples 6.1 and 6.4)*
5. Conditional and unconditional probabilities; using tree diagrams to compute probabilities. (*Examples 7.12 and 7.27*)
6. The concept of a statistic as a random variable. Sampling distributions for a sample mean and a sample proportion; finding probabilities associated with them. (*Case Study 9.1*)
7. The goal of statistical inference, including the relationship between a parameter and a statistic. (*Sections 9.1 and 9.2, 10.1, 12,1; Example 9.1*)
8. The general form of a confidence interval; how to interpret a confidence interval. (*Example 10.3*)
9. Concepts of how hypothesis testing works *(Example 13.1 on pg. 553 and 13.1-continued on pg 556)*
   - How to determine the null and alternative hypotheses
   - The concept of a p-value
   - Possible decisions and what they mean (don't reject H_0; reject H_0 equivalent to accept Ha)
   - The two types of errors and their consequences
10. How the size of the sample relates to statistical significance. (*Example 12.18*)
11. The difference between statistical significance and practical importance. (*Case Study 1.7, Example 12.19*)
12. The 10 guiding principles on pages 720-721 (Chapter 17). If you understand those, you will be prepared to critically evaluate the results of statistical studies you encounter in the news.