1 General Information

- The final exam for Section 5 of elementary statistics is at 8 am on Monday, May 17 in Cowell 326 (our regular classroom).
- You will have two-and-a-half hours in which to complete the exam. As soon as you’re done with the exam, you can leave.
- The exam is closed-book and closed-notes. You should bring a calculator with a square root (\(\sqrt{x}\)) key.
- Questions on the exam will be similar to questions on the homework assignments, the quizzes and the midterms.
- My office hours during the final exam period will be
  
  Saturday, May 15 from 2 to 4,
  Monday, May 17 from 3 to 5, and
  Tuesday, May 18 from 4 to 5.

  If you need to see me and can’t make one of these times, please send me email (peter@usfca.edu).

2 Topics

\textit{NB}. This is only a guide. It is not intended to be a complete list of every topic we’ve covered.

Note also that there will be a somewhat greater emphasis on the material covered after the second midterm (chapters 13–18) than on the material covered on the first two midterms.

- The exam is comprehensive. It may include questions on any of the material we covered in class, lab, homework, or quizzes.
• The formulas you need to know are in the first two pages of the pullout section “Tables and Formulas for Moore Basic Practice of Statistics.” You’ll be responsible for the first two formulas in the section “Inference About Proportions:” the formulas for a large sample confidence interval and the $z$ test statistic. be discussed in class on Thursday.

• There may be a question or two on basic Excel. If you’ve been doing the labs, you should not need to study for these.

• Chapter 1: pie charts, bar graphs, histograms, stemplots, time plots.

• Chapter 2: mean, median, quartiles, IQR, five-number summary, standard deviation, resistant statistics.

• Chapter 3: density curves, normal distributions, 68–95–99.7 rule, $z$-distribution.

• Chapter 4: scatterplots, association, correlation.

• Chapter 5: regression line, residuals, outliers, influential observations.

• Chapter 6: two-way tables, marginal distribution, conditional distribution, Simpson’s paradox.

• Chapter 7: observation vs. experiment, population, sample, bias, SRS, probability sample, stratified random sample, sampling frame.

• Chapter 8: experiment, subject, factors, treatments, comparative experiment, completely randomized design, double blind, matched pair and block designs.

• Chapter 9: probability, probability models, probability rules, sample space, random variables; skip section on “personal probability”.

• Chapter 10: parameter vs. statistic, law of large numbers, sampling distributions, central limit theorem, unbiased estimator; skip sections on process control and $\bar{x}$-charts.

• Skip chapters 11 and 12.

• Chapter 13: statistical inference, confidence interval, confidence level, margin of error, meaning of confidence statements, choosing the sample size.

• Chapter 14: significance tests, $H_0$, $H_a$, test statistic, $P$-value, statistical significance, significance level.

• Chapter 15: cautions about inference; skip sections on power of a test and type I and type II errors.

• Chapter 16: standard error, one-sample $t$ statistic and $t$ distributions, degrees of freedom, one-sample $t$ confidence intervals, one sample $t$ test, matched pairs $t$ procedures, conditions for use of $t$ procedures.
• Chapter 17: two-sample problems, standard error for distribution of $\bar{x}_1 - \bar{x}_2$, degrees of freedom, two-sample $t$ statistic, confidence interval for $\mu_1 - \mu_2$, test of $H_0: \mu_1 = \mu_2$; skip sections on details of the $t$ approximation, pooled two-sample $t$ procedures, and inference about standard deviations.

• Chapter 18: population proportion and sample proportion, distribution of sample proportion, $z$-statistic, standard error of $\hat{p}$, large-sample confidence intervals for $p$, significance tests for a proportion; skip section on “accurate confidence intervals for a proportion.”

3 Studying

In general, what works well for one person may not work well for another. That said, I recommend working problems rather than memorizing formulas and rules. I would look over old homework assignments, quizzes and midterms, and make sure I knew how to work these problems, especially the problems I had lost points on.