

NOTES FOR THE WEEK OF NOV 13 TO NOV 20 (and outline for the rest of the quarter)

Note: Quizzes from now on (starting on Nov 20) will be open book and notes.

For the remaining 4 weeks of the course we will be studying *statistical inference* – **confidence intervals** and **hypothesis tests**. The idea is to use a *sample statistic* to say something about the corresponding *population parameter*. We will do this for five situations: **one proportion**, the **difference in two proportions**, **one mean**, the **mean of differences in matched pairs**, and the **difference in two means**. Before you can study these topics, you need to understand a tool called a **sampling distribution** for each of these situations. Sampling distributions for all five situations are covered in Chapter 9. However, we will not cover all of them this week. Here is where these situations are covered, and the week we will study them:

Population parameter	Sampling Distribution		Confidence interval		Hypothesis test	
	Section	Week	Section	Week	Section	Week
$p =$ one population proportion	9.4	Nov 13	10.3	Nov 13	12.3	Nov 27
$p_1 - p_2 =$ diff. in two proportions	9.5	Nov 13	10.4	Nov 13	12.4	Nov 27
$\mu =$ one population mean	9.6	Nov 20	11.2	Nov 20	13.2	Nov 27
$\mu_d =$ mean diff. in matched pairs	9.7	Nov 20	11.3	Nov 20	13.3	Nov 27
$\mu_1 - \mu_2 =$ difference in two means	9.8	Dec 4	11.4	Dec 4	13.4	Dec 4

There are additional sections of the book that support these methods, and this is when we will cover them:

Week of Nov. 13: Sections 9.1, 9.2, 9.3; 10.1, 10.2, 10.5

Week of Nov 20: Sections 9.11 (applet); 10.5; 11.1, 11.6 (applet)

Week of Nov 27: Sections 9.9; 12.1, 12.2, 12.5; 13.1

Week of Dec 4: Sections 13.5, 13.6, 13.8; Chapter 17 (Sect. 13.8 and Ch 17 are review for the final exam)

We will skip Sections 9.10, 11.5, and 13.7, and Chapters 14, 15 and 16.

I strongly suggest that you begin your study this week by reading Sections 9.1 and 9.2. They are easy to read, and will help you see the big picture for what we are doing for the rest of the quarter.

This week we focus on confidence intervals for one population proportion (which we encountered briefly in Chapter 3 already) and for the difference in two population proportions. To understand *confidence intervals*, you first need to understand *sampling distributions*. These tell us how a particular *sample statistic* is likely to vary for different possible samples, and how it is likely to deviate from the corresponding *population parameter*. When studying Chapter 10, you should make sure you learn the conceptual meaning of a *confidence level* (see page 406) and the interpretation of an individual *confidence interval* (see p. 78 and top of p. 413).

Reading and Study Assignment for this week:

Book Chapter or CyberStats Unit	Focus on:
Chapter 9: Sections 9.1 to 9.5	Understanding what a sampling distribution is.
Chapter 10, except Section 10.5	“In summary” box on p. 431-432; interpreting confidence level and confidence intervals.
Unit B11: Sampling distributions	Uses 2, Example 2
Unit C1: Confidence intervals – the concepts	Basics 1, 2 and 3; Self-assess quiz
Unit C7: Tests and intervals for proportions <i>Do material on intervals only!</i>	Basics 1, 2 and 4; Examples 1 and 2

Interactivities to play with: The ones in the “Focus on” parts of the above units.

Exercises to hand in: Chapter 9: #3, 9, 13, 25, 36, 45, 51 Chapter 10: #2, 17, 22, 27, 42, 43.