

## **Preparing for Math 204 (Inferential Statistics)**

### **Helpful advice from the statistics faculty at Clark College**

So you've taken Math 203 and survived! Congratulations!  
What should you do now?

#### **TAKING MATH 204**

If your schedule allows, it is important to take Math 204 – preferably as soon as you have finished Math 203. Regardless of if you take Math 204 next term, or some following term, you should review before you take the class. See below for a list of selected review topics from Math 203 that will help you succeed in Math 204.

#### **Why should I take Math 204?**

- Math 204 (Inferential Statistics) is a requirement for many programs that require statistics. Check with your major advisor to make sure.
- If you are getting an AA degree at Clark College, you need five credits of mathematics. Because Math 203 is only three credits, you will need two more credits. Since Math 204 is also three credits, you can meet the 5-credit requirement by taking Math 204.
- Math 204 is the natural conclusion of the material at the end of Math 203 (Chapter 7). You really won't understand the point of chapter 7 without learning the two chapters that follow it. It's comparable to reading a great book and stopping at the cliffhanger. You'd never know what happens next!

#### **Why should I take Math 204 next term?**

You must have mastered certain chapters in Math 203 to understand the material in Math 204, otherwise you'll be lost. However, regardless of how much you loved the class, or how great the teacher was, or even your grade, you will forget some of the information that you learned in Math 203. Therefore, it is important to take Math 204 as soon as you have finished Math 203.

#### **I can't take Math 204 next term, but I can take it later. What should I do?**

Some people can't take Math 204 immediately after completing Math 203 because of scheduling issues, or simply because life gets in the way. We want you to be prepared for, and be successful in, Math 204 whenever you take it, so we have put together a list of key prerequisite skills and concepts that you should know in order to be successful in Math 204. (See below.) Carefully review this list and work all of the suggested problems a week or so before you take Math 204.

#### **REVIEWING FOR MATH 204**

#### **Where should I begin my review for Math 204?**

Even though all of the material in Math 203 is important and much of it relates to Math 204, the following suggestions are intended as a refresher on topics that are vital for success in Math 204. In short:

- Carefully re-read chapters 6 and 7 and do the suggested exercises. (See below.)
- Review graphing linear equations from Elementary Algebra (Math 089 or 090). Specifically, review graphing a line in slope-intercept form.

### **What are the prerequisite skills I need to be able to perform for Math 204?**

- Finding the area under the standard normal curve using Table II.
  - Find the area to the left of a specified z-score. (See example 6.3, pp. 291-292.)
  - Find the area to the right of a specified z-score. (See example 6.4, p. 292.)
  - Find the area between two z-scores.
- $Z_\alpha$  Notation (p. 295). Carefully study examples 6.7 and 6.8.
- Determine a percentage or probability for a normally distributed variable (Procedure 6.1 and example 6.9 on pp. 298-299)
- Determine the observations that correspond to a specified percentage or probability for a normally distributed variable. (Procedure 6.2 and example 6.11 on p.302).
- Find the sampling distribution of the sample mean given  $\mu$ ,  $\sigma$ , and a sample size  $n$  (section 7.3).

### **What are the prerequisite concepts I need to understand for Math 204?**

- The properties of the standard normal distribution (p. 291)
- How the “68.26 -95.44 - 99.7” Rule can be a convenient way of getting a snapshot of a normally distributed population. (Study example 6.10 on p. 300 carefully.)
- Independent events and the special multiplication rule (Section 4.6)
- Know the definition of sampling error (p. 332) and understand Key Fact 7.1 on p. 334. (Sample Size and Sampling Error)
- The Central Limit Theorem (Section 7.3) There are three important key facts in this section and you need to carefully read and understand them all. (Key Facts 7.2, 7.3, and 7.4). *The Central Limit Theorem is probably the most important theorem to inferential statistics* and represents the backbone for almost all techniques that are used in the first three chapters of Math 204.

### **Do these exercises.**

Chapter 6: #9, 17, 37, 39, 41, 45, 55, 57, 67, 69, 73

Chapter 7: #31, 33, 47, 49, 51, 53, 55

### **Where can I get help?**

If you need any help, drop by or call the Mathematics Department (BHL 115, 992-2200) and someone there can guide you. In particular, you can get help from the full-time members of the mathematics department who most often teach statistics: Aaron Bingham, Bill Monroe, Kanchan Mathur, and Garrett Gregor.

All sections and exercises in this handout refer to the text

*Introductory Statistics*, 8<sup>th</sup> edition

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