



# **MATH 0530/1530**

## **THE COREQUISITE MODEL**

**MILES, DEBORAH**  
ROANE STATE COMMUNITY COLLEGE  
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**MATH 0530**  
STATISTICAL PRINCIPLES



## **Beginning of the Semester Procedures**

What to do the week prior to the start of classes.

- Review the material and layout of your course on D2L/Momentum.
  - This is the time when you can add in any of your own personal study guides and supplements into the “Contents” section.
  - Modify the Instructor Information sheet with your personal information.
- Confirm your course rosters within Banner.
  - Recommend reprinting the roster immediately prior to the start of class and before each class until the last day of LDA’s.
  - Remember that the course roster listed within Banner is the “Official” roster and that the rosters listed within Momentum and **MyLabsPlus**<sup>®</sup> are not.
- Access to some short training videos to help learn to navigate through MyLabsPlus/MyStatLab:  
<http://www.pearsonmylabandmastering.com/northamerica/mymathlab/educators/support/videos/index.html>.

## **Before Each Class During Semester**

- Look over mini-lecture to familiarize yourself with concepts and vocabulary.
- Do 0530 Lab before assigning it.
- Review previous 1530 section notes so that you can help your students with their 1530 homework.

**MATH 0530/1530**  
**COURSE CALENDARS**

D A Y	MATH 0530	Online LAB	MATH 1530	
	Topics		Sections	MyLabsPlus Assignment
0	Orientation, Study Skills, Time Management	0	Orientation	0
1	Whole Numbers: Place Value, Rounding, Estimating, Problem Solving, Variable Expressions	1	1.1 – 1.2	1
2	<b>MUST HAVE TI-83/84 CALCULATOR!</b> Exponents, Square Roots, Fractions, Order of Operations	2	1.3 – 1.4	2
3	Decimals, Ratios, Percent, Conversions	3	2.2 – 2.3	3
4	Applications of Percent	4	2.4	4
5	Operations on Real Numbers, Scientific Notation	5	3.2	5
6	Review of Types of Data, Sampling Methods, Types of Graphs	6	3.3 – 3.4	6
7	Review of Measures of Center and Variation	7	Practice Test 1	
8	Comprehensive Review of Chapters 1 – 3 and Basic Skills	8	<b>TEST 1</b>	
9	Review Basic Skills and Concepts of Probability	9	4.1 – 4.2	7
10	Review Fractions, Complements, Contingency Tables	10	4.3 – 4.5	8
11	Probability Distributions, Discrete vs. Continuous, Inequalities	11	5.2	9
12	Discrete Probability Distributions, Maximum and Minimum Usual Values	12	5.3 – 5.4	10
13	Review of Probability and Discrete Probability Distributions	13	Practice Test 2	
14	Comprehensive Review: Chapters 4 – 5 and Basic Skills	14	<b>TEST 2</b>	
15	Area of a rectangle, lower/upper boundaries of regions, identify specified area under a curve, shade the area representing a percentile	15	6.2 – 6.3	11
16	Uniform distribution, standard normal curve, find z-scores, find critical values, determine the type of problem	16	6.5	12
17	Probability/proportion/percent, calculate critical values, deconstruct intervals, identify parts of proportion problems	17	7.2	13
18	Find the best point estimate, calculate CI estimate for proportion, determine the required sample size	18	7.3	14
19	Review of Normal Probability Distributions and Confidence Intervals	19	Practice Test 3	
20	Comprehensive Review: Chapters 6 – 7 and Basic Skills	20	<b>TEST 3</b>	
21	Coordinate System, Intercepts, Graph Lines, Compare & Round Decimals	21	8.2	15
22	Slope from graph & points, Average Rate of Change, $\hat{p}$ , $x$ and $n$	22	8.3	16
23	Concepts of Slope and Analyzing Linear Relationships	23	8.4	17
24	Scattergrams and Concepts of Linear Equations	24	10.2 – 10.3	18
25	Review Statistical Concepts: Hypothesis Testing, Correlation, Regression	25	Practice Test 4	
26	Comprehensive Review of Chapters 8 & 10 and Basic Skills	26	<b>TEST 4</b>	
27	Review Statistical Concepts: All Chapters	27	Practice Final	
28	Comprehensive Review: All Chapters	28	Final Exam	

## MATH 0530 First Day Agenda

### ➤ Introduction to Course

Have you completed all five Math Learning Support modules at RSCC or another community college or through SAILS at your high school? If so, tell your instructor now!

### ➤ Introduction to Momentum

### ➤ Review Syllabus

### ➤ Introduction to MyLabsPlus

### ➤ Register for MyLabsPlus with Your Purchased or Temporary Access Code:

1. Go to [www.roanestate.edu](http://www.roanestate.edu) and click the link to Momentum in the page header.
2. Log in Momentum with your Roane State username and password (the same ones you use for Raidernet).
3. Click on the link to your MATH 0530 course. *If your course name does not appear, contact your instructor.*
4. Click on the "Access Your MyLabsPlus Assignments" link.
4. Click on an assignment or learning aid link within the course. You will first be prompted with the License Agreement and Privacy Policy page. Click **I Accept** once you have read the terms of use.
5. You will be prompted to enter your access code or purchase online and will have three options:
  - a. Use the Access Code which came with your text
  - b. Purchase an Access Code using a Credit Card or Paypal
  - c. If you are waiting on financial aid to purchase your text book, click on **"Get Temporary Access for 14 Days Without Payment"**

Once you have successfully entered your access code or completed an online purchase, you will receive a confirmation page and you can continue working in your MATH 0530 course.

### ➤ Request a Calculator from the Library (Students not in Harriman or Oak Ridge)

- Go to [www.roanestate.edu](http://www.roanestate.edu)
- Click on *Library* under the *Student Resources* tab
- Click *Request Delivery* under *Services* tab
- Fill in delivery request form for a graphing calculator and click Continue
- Choose TI-84
- Agree to return materials by due date and click Continue
- Choose your delivery option and click Submit
- Pick up calculator in one to three days

### ➤ Print Materials from MATH 0530 Course Information folder in Momentum

### ➤ Do MyStatLab Orientation Assignment





# Roane State Community College

## Division of Mathematics and Science

### MATH 0530 Statistical Principles

Spring 2017

### SYLLABUS

#### INSTRUCTOR INFORMATION

**Name:**

**Office:**

**Office Hours:**

**Phone:**

**Email:**

#### COURSE INFORMATION

**Course Type:** Lecture and Computer Based Interactive Media

**Course Section Number:**

**Day and Time:**

**Credit Hours:** 3

**Course Objectives:** This MATH 0530 Statistical Principles is the co-requisite course for MATH 1530 Probability and Statistics (Non-Calculus Based). This course is designed to provide students with a foundation for the content covered in MATH 1530 and address deficiencies in remedial algebra skills needed for success in the college-level math course MATH 1530. This course does not fulfill the math requirement for graduation.

**Prerequisites and Co-requisites for the course:** A student with an ACT algebra subject score below 19 or Compass subject score below 38 is placed into MATH 0530 Statistical Principles. MATH 0530 is **NOT** a standalone course and **MUST** be taken with one of the Enhanced sections of the compliment co-requisite MATH 1530-**E** Probability and Statistics (Non-Calculus Based) course.

#### Expected Student Learning Outcomes:

**Student will be able to –**

1. Apply concepts of ordering, rounding, equivalent forms, and operations on real numbers.
2. Appropriately use mathematical symbols such as equals, inequalities, and absolute value.
3. Convert numbers between standard and scientific notation.
4. Evaluate algebraic expressions and formulas when given values for the variables.
5. Create a table of values from an expression.
6. Identify and interpret rate of change.
7. Analyze the graph of a linear function, identifying intercepts and slope.
8. Graph a linear equation in two variables using ordered pairs, and intercepts and slope.
9. Write a linear equation in two variables when given its slope and y-intercept.
10. Solve formulas and literal equations for a specified variable.
11. Use symbols, diagrams, graphs, and words to reason logically and form appropriate implications.
12. Develop plans for solving problems, and implement those plans using logical reasoning and mathematical knowledge to form and justify solutions.
13. Use technology (TI-83/4) to perform arithmetic and statistical functions.

## TEXTBOOKS AND SUPPLEMENTARY MATERIALS

**Textbook:** The MyLabsPlus access code with Essentials of Statistics, 5e, Triola (e-text) has been billed to your Roane State account with your enrollment in this course. No other purchase of online or printed materials is necessary.

**Supplementary Materials:** A TI-83 or TI-84 Plus (or equivalent model, Silver, C or CE) is **required**. A limited number of these calculators are available for student checkout during the semester at no cost. No other calculator may be substituted. Cellphone calculators are **strictly prohibited**.

## GRADING AND EVALUATION

**Assignments and Evaluations:** The majority of class work consists of homework assignments and quizzes which will be completed on the MyLabsPlus website. In addition, there will be a few offline assignments which will be graded by your instructor. Online homework not completed in class may be done anywhere a student has internet access including the Learning Resource Center and Learning Support Open Labs where assistance will be available. Each day's class assignment should be finished before the beginning of the next class. Assignments will be accepted until the date and time specified on the 0530 calendar. Assignments and quizzes may be reviewed and resubmitted with improved scores an unlimited number of times before the due date specified on the calendar. Assignments not submitted by the final submission deadline will receive an automatic 0.

**Attendance:** Class attendance is mandatory. In classes which meet twice a week, each absence (excused or unexcused) after the second one will result in a deduction of one point from the student's attendance score. In classes which meet once a week, each absence (excused or unexcused) after the first one will result in a deduction of two points from the student's attendance score.

**Grading procedure:** Course grade will be determined by homework assignments (60%), online quizzes (30%), and attendance (10%). Grades will be assigned using the following scale: A: 90 – 100%; B: 80 – 89%; C: 70 – 79%; F < 70%.

**Course Withdrawal:** If a student wishes to withdraw from MATH 0530 Statistical Principles they **must** withdraw from their co-requisite MATH 1530 – E\*\* Probability and Statistics (Non-Calculus Based) course. The reverse also applies that if a student wishes to withdraw from MATH 1530 – E\*\* Probability and Statistics (Non-Calculus Based) they **must** withdraw from their co-requisite MATH 0530 Statistical Principles course.

## TECHNICAL SUPPORT AND ADDITIONAL STUDENT RESOURCES

### CTAT

If you are having problems logging into your course on Momentum, timing out of your course, or using your course website tools please call CTAT at (865) 882-4556, M-F, 9-5 EST.

### HELP DESK

For all other technical problems, call the Help Desk at (865) 354-3000 ext 4357. On campus, dial 4357 from any campus phone to be connected directly to the Help Desk.

### MYLABSPLUS

If you are having problems involving MyLabsPlus, first contact your course instructor or review the list of common MyLabsPlus errors on the [MLP – Tech Help \(Website\)](http://www.roanestate.edu/?8777-MyLabsPlus-Technical-Help) (<http://www.roanestate.edu/?8777-MyLabsPlus-Technical-Help>).

If you continue to encounter technical difficulties after reviewing the common errors, complete the MLP Troubleshooting Questionnaire linked on the MLP – Tech Help webpage or contact [Pearson 24/7 Technical Support](https://support.pearson.com/getsupport) (<https://support.pearson.com/getsupport>).

#### OPEN STATS LABS

Open Stats Lab hours are available for students to work and receive assistance on the assignments for MATH 0530 and 1530. Locations and hours of availability can be found on the [Open Stats Tutoring \(Website\)](http://www.roanestate.edu/?7686-Open-Tutoring) (<http://www.roanestate.edu/?7686-Open-Tutoring>).

#### LEARNING CENTERS

Roane State’s Learning Centers are a resource for extra help understanding assignments and course content. The Learning Centers offer tutoring in many subjects. For more information, visit the [Learning Center \(Website\)](http://www.roanestate.edu/?6143-Learning-Center) (<http://www.roanestate.edu/?6143-Learning-Center>).

#### DISRUPTIVE CONDUCT

RSCC policy allows faculty members to temporarily remove or exclude from the classroom any student engaged in disruptive conduct (see the Student Conduct and Discipline section in the Student Handbook at <http://www.roanestate.edu>). Disruptive conduct is defined as, but it not limited to, behavior that obstructs or disrupts the learning environment. Examples of disruptive conduct include the use of classroom computers during class other than as instructed, the use of any electronic device other than a calculator (including any usage of a cell phone), use of offensive language, harassment of students and/or professors, repeated outbursts that disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, or any other behavior that distracts any other student from the course work. The first violation of this policy will result in a verbal warning. A second violation of this policy will result in a written warning and removal from the classroom. A third violation will result in referral to the Dean of Students and a request for permanent exclusion from the class (RSCC Policy SA-06-01).

#### CELL PHONE POLICY

The use of a cell phone within the classroom setting is expressly prohibited. All cell phones, tablets, and laptops should be placed on silent mode, put away, and kept out of sight for the duration of the class (RSCC Policy SA-06-01).

#### FOOD AND BEVERAGE POLICY

No food or drink is permitted in carpeted classrooms (RSCC Policy GA-21-04). Bottled water will be permitted as long as it is not placed adjacent to any computer.

#### PLAGIARISM AND ACADEMIC INTEGRITY

Academic Misconduct includes, but is not limited to, **Plagiarism, Cheating, Fabrication and Facilitation**. Academic misconduct is prohibited. Upon identification of misconduct, an instructor has the authority to assign an “F” or a zero for the exercise, the examination, or the entire course. Students guilty of academic misconduct that would typically result in the grade of “F” for the course will not be permitted to drop the class in which the academic misconduct occurred. The instructor will contact the appropriate Division Dean who will then contact Records and request that an administrative hold be placed on the course in question. The instructor will notify the student of the appropriate due process/appeal procedure. The administrative hold will remain in place until the academic misconduct matter is concluded.

## STUDENTS WITH DISABILITIES

Qualified students with disabilities will be provided reasonable and necessary academic accommodations if determined eligible by the appropriate disability services office staff. Prior to granting disability accommodations in the course, the instructor must receive written verification of a student's eligibility for specific accommodations from the disability services office staff. It is the student's responsibility to initiate contact with the disability services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

## PREVENTING SEXUAL DISCRIMINATION AND HARASSMENT

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. Title IX covers discrimination in programs, admissions, activities, faculty-to-student sexual harassment, and student-to-student sexual harassment. RSCC's policy against sexual harassment extends not only to employees of the college, but to students as well. If unlawful sexual harassment or gender-based discrimination is encountered, please bring this to the attention of the class professor, or contact Mr. Odell Fearn, Title IX Coordinator, at 865-354-3000, ext 4212 or 4679 or email at [fearnao@roanestate.edu](mailto:fearnao@roanestate.edu).

## EMERGENCY SITUATION RESPONSE

To assist in preserving your personal safety, the Roane State Police Department recommends that you view the [Run Hide Fight video](http://www.roanestate.edu/?10249-Options-to-Survive-an-Active-Shooter-on-Campus-Run-Hide-Fight) (<http://www.roanestate.edu/?10249-Options-to-Survive-an-Active-Shooter-on-Campus-Run-Hide-Fight>) that is taught to the members of RSCC Faculty and Staff. If after viewing this video you have any questions please contact any member of the [Police Department](http://www.roanestate.edu/?6826-Police-Department) (<http://www.roanestate.edu/?6826-Police-Department>).

## SYLLABUS CHANGES

The instructor reserves the right to make changes to the syllabus as long as the students are notified.



# 0530 STATISTICAL PRINCIPLES NOTEBOOK GUIDELINES

Having an organized notebook is one strategy which has been proven to increase student success in college courses. Saving time and having the materials you need readily at hand when you need them are two very practical reasons for developing this skill. An organized notebook is required for MATH 0530 and you are strongly encouraged to assemble a similar notebook for your MATH 1530 course.

## MATH 0530 Notebook Suggestions:

- ❖ 1 ½" or 2" three-ring binder, any color
- ❖ Cover page including the following information:
  - Name
  - Course Name
  - Course Number and Section Number
  - Course Day and Time
  - Instructor's Name

Sample Cover Page:

***Elmer Fudd***  
***Statistical Principles***  
***MATH 0530 060***  
***MW 10:00 – 11:20***  
***D. Miles***

- ❖ 5 tabbed dividers with following labels:
  - Course Info
    - Syllabus
    - Course Calendar
    - Notebook Guidelines
  - Chapters 1 – 3
    - Days 1 – 8 Handouts
  - Chapters 4 – 5
    - Days 9 – 14 Handouts
  - Chapters 6 – 7
    - Days 15 – 20 Handouts
  - Chapters 8 & 10
    - Days 21 – 28 Handouts

### Guidelines for homework:

- Each assignment should begin on a new page of notebook paper.
- **Clearly Label!** The top of the first page of each assignment should have the appropriate title : "Assignment #" or "Extra Practice – Section #" or "Practice Test #".
- Copy the problem (except word problems) and show all work. "Answers Only" are unacceptable. Check answers on all problems. Answers to all problems are given in MML, the back of the text, or the practice test.
- Use of a pencil is strongly encouraged. Messy work is a sign of a disorganized mind.



- ❖ Loose-leaf paper
- ❖ **Optional:** Zippered pouch containing following items:
  - At least two wooden pencils with small sharpener -OR-  
At least two mechanical pencils with small box of lead refills
  - Large eraser
  - Red ink pen
  - At least one highlighter
  - TI-83/84 calculator

When you have organized your notebook with the cover page, divider tabs, and loose-leaf paper as indicated and you have printed the information for the Course Information and Chapters 1 – 3 tabs, ask your instructor to check your notebook and enter the passcode for 0530 Offline Assignment – Notebook. You can access this assignment by clicking the "Homework" button in the left-hand margin of your in MyLabsPlus course. You will not be allowed to take MATH 1530 Exam 1 until this prerequisite has been met.



**MATH 0530**

**DAY 1**

**Objectives:**

- Find place value of a digit in a whole number
- Round whole numbers to specified place value
- Solve problems by estimating
- Translate English phrases to algebraic expressions
- Evaluate algebraic expressions
- Solve applications of whole numbers

**Mini-Lecture:**

A. Identifying Place Value of Digits in Whole Numbers

Place Value Chart								
Millions			Thousands			Ones		
Hundred Million	Ten Million	Million	Hundred Thousands	Ten Thousands	Thousands	Hundred	Tens	Ones
100,000,000	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1

For the whole number 386, 201, 457 give the digit associated with each of the following place values:

ten thousands \_\_\_\_\_ hundreds \_\_\_\_\_ hundred million \_\_\_\_\_ tens \_\_\_\_\_ millions \_\_\_\_\_

B. Rounding Whole Numbers

In some situations, you don't need an exact answer. In these cases, rounding the number to a specific place value is possible using these steps:

1. Underline the digit with the place value to which you are rounding.
2. Identify digit to right of given place value.
3. If digit to right is 5 or greater, add 1 to underlined digit. This is called rounding up.
4. If digit to right is 4 or less, the underlined digit stays the same. This is called rounding down.
5. All digits to the right of the rounded digit become 0.

Note: Any digit(s) to the left of the rounded digit stays the same.

Examples: 1) Round 5,673 to nearest hundred                      2) Round 2,675,782 to nearest ten thousand

Answer: \_\_\_\_\_                      Answer: \_\_\_\_\_

C. Solving Problems By Estimating

Estimating allows you to check the reasonableness of your answer when you are using a calculator. You may not be able to add two large, precise numbers in your head but you can add their rounded values and tell if the answer given by your calculator makes sense. This allows you to find your typos!

Example: Enrollment figures at a local community college showed an increase from 49,713 credit hours in 2013 to 51,746 credit hours in 2014. Round each number to nearest thousand to estimate the increase.

49,713  $\approx$  \_\_\_\_\_      51,746  $\approx$  \_\_\_\_\_      Estimated Increase \_\_\_\_\_





- Explore MyLabsPlus and Multimedia Textbook →
- Do MLP 0530 Lab 1
- Begin MLP 1530 Assignment 1

I can come up with a "Treasure Hunt" type of activity which requires students to find different tools in MLP and the textbook and explore them so that they become familiar with many of the resources available to them.

**MATH 0530**

**Day 2**

**Objectives:**

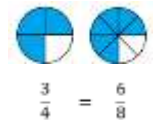
- Use calculator to evaluate expressions with exponents, square roots, fractions, and mixed numbers
- Use order of operations to simplify expressions
- Solve applications of exponents, fractions, and mixed numbers

**Mini-Lecture:**

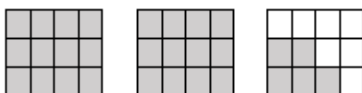
A. Vocabulary

- In the expression  $2^4$ , 2 is called the \_\_\_\_\_ of the expression and 4 is called the \_\_\_\_\_. The exponent tells you how many times to multiply the base by itself so  $2^4$  means \_\_\_\_\_ and equals \_\_\_\_\_.
- Raising a number to the second power is called \_\_\_\_\_ the number.  $6^2$  is read "6 \_\_\_\_\_" and equals \_\_\_\_\_.
- Raising a number to the third power is called \_\_\_\_\_ the number.  $3^3$  is read "3 \_\_\_\_\_" and equals \_\_\_\_\_.
- The symbol  $\sqrt{\quad}$  is called the \_\_\_\_\_ symbol.  $\sqrt{a} = b$  means  $b \cdot b = a$ , so  $\sqrt{25} = 5$  means \_\_\_\_\_.  $\sqrt{49} = \underline{\quad}$  because \_\_\_\_\_.
- In the fraction  $\frac{b}{c}$ , b is called the \_\_\_\_\_ of the fraction and c is called the \_\_\_\_\_ of the fraction. If you cut a whole pie into three slices and ate two of them, the portion of the pie you had eaten could be represented by the fraction \_\_\_\_\_.
- To simplify or reduce a fraction to lowest terms, divide both numerator and denominator by the largest number which will divide into both evenly. For example,  $\frac{6}{8} = \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$ .  $\frac{6}{8}$  and  $\frac{3}{4}$  are equivalent

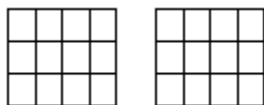
fractions because they both represent the same portion of the total as seen in this illustration:



- A number in the form  $a\frac{b}{c}$  is called a \_\_\_\_\_ number. "a" represents the number of whole units and  $\frac{b}{c}$  represents a portion of a whole unit. Write the mixed number represented by this shaded area: \_\_\_\_\_



- If a is larger than b,  $\frac{a}{b}$  is called an \_\_\_\_\_ and is \_\_\_\_\_ than 1. All Improper



fractions can be changed to mixed numbers. Shade the area indicated by the improper fraction  $\frac{19}{12}$ :

What mixed number would represent this same area? \_\_\_\_\_

How could you obtain this answer without using shaded figures? \_\_\_\_\_

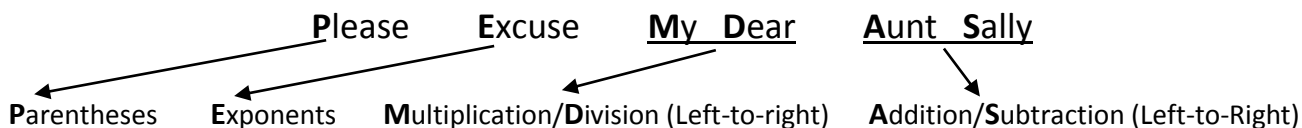
- When we encounter a fraction with 0 in the denominator, we say the expression is \_\_\_\_\_. This makes sense because all division problems can be checked by multiplication. For example, we know that  $\frac{8}{2} = 4$  because \_\_\_\_\_. Also,  $\frac{0}{2} = \underline{\quad}$  because \_\_\_\_\_. So, what number  $n$  would make this statement true:  $\frac{8}{0} = n$  because  $n \cdot 0 = 8$ ? There is no such number! Therefore,  $\frac{8}{0}$  is \_\_\_\_\_.

### B. Using the Order of Operations

In order for all numeric expressions to be equivalent to only one single value, mathematicians had to develop rules for everyone to follow when simplifying numeric expressions. The accepted rules are these:

- Perform all operations within parentheses ( ), brackets [ ], or other grouping symbols such as fraction bars or square roots, starting with the innermost set.
- Evaluate all expressions involving exponents.
- Multiply or divide in order from left to right.
- Add or subtract in order from left to right.

The acronym PEMDAS is sometimes used to remember these steps:



Examples 1.  $(16 - 4)^2 \times 2 \div (4 + 2)$       2.  $\frac{(16-4)^2 \times 2}{4+2}$       3.  $16 - 4^2 \times 2 \div 4 + 2$       4.  $\frac{(16-4)^2 \times 2}{6-6}$

Notice that Examples 1 & 2 mean the same thing and have the same answer but Example 3 does not. Your calculator is programmed to follow the order of operations. If the expression in Example 2 is the expression you are trying to simplify, you must enter it on the calculator using parentheses as shown in Example 1. Entering it without parentheses as shown in Example 3 would yield an incorrect answer.

Also, entering the expression in Example 4 on your calculator would yield an error message. Why?

### C. Solving Applications of Exponents, Fractions, and Mixed Numbers

Write the numeric expression which should be evaluated to solve each of the following problems.

1. On average, a human adult's body is about  $\frac{13}{20}$  parts water. What portion of an adult human's body is not water?
2. A container of ice cream holds  $1\frac{3}{4}$  quarts. How much ice cream would 8 containers hold?
3. How many  $\frac{4}{5}$ -foot planks can be cut from a board which is 12 feet long?
4. Tiffany is walking a path that is  $8\frac{2}{3}$  miles long. She has already walked  $5\frac{1}{4}$  miles. How many miles does she have left to walk?
5. A plot of land which is  $8\frac{2}{5}$  acres is to be divided equally among three heirs. How many acres should each heir receive?
6. If three cows yield  $4\frac{1}{3}$ ,  $5\frac{3}{8}$ , and  $6\frac{1}{4}$  gallons of milk one day, what is the total milk production of the three cows for that day?
7. Keisha has a monthly budget of \$1540 and must allocate  $\frac{2}{7}$  of it for groceries. How much she allocate for groceries each month?
8. Randy's car averages  $28\frac{1}{2}$  miles per gallon. Last week he used 26 gallons of gas. How many miles did he travel?

#### Checklist:

- With a partner, complete TI 83/84 Calculator Activity 1 (Attached)
- Ask instructor to enter passcode for Offline Assignment 1

- Do 0530 Lab 2A
- Do 0530 Lab 2B
- Work on your MATH 1530 homework assignment

Adapted from TI-83/84 Manual for Moore, McCabe, and Craig's Introduction to the Practice of Statistics, by Patricia Humphrey, Georgia Southern University: <http://math.arizona.edu/~stats/math263/IPS6e.TI.St.pdf>

The purpose of this exercise is to familiarize you with the keys and functions of the TI-83/84 graphing calculator. As you read each bulleted description and/or follow each instruction printed in **ALL CAPS BOLD ITALICS**, put a ✓ in the box beside it.

**Important Keys on TI-83/84:**

- The **ON** key is in the bottom left of the keyboard. **TURN YOUR CALCULATOR ON.**
- The **2<sup>nd</sup>** key allows you to access the function listed above another key. For example, the **OFF** function is listed above the **ON** key so to access it, you must press **2<sup>nd</sup> ON**. **TURN YOUR CALCULATOR OFF AND BACK ON.**
- The cursor control keys **◀**, **▶**, **▲** and **▼** are located toward the upper right of your keyboard. These keys allow you to move the cursor on your screen in the direction the arrow indicates.
- To adjust the screen contrast, press and release the **2<sup>nd</sup>** key, then hold down the **▲** key to darken the screen or the **▼** key to lighten the screen. **TRY THIS NOW.**
- The **ENTER** key is in the bottom right of the keyboard. You will usually need to press this key in order to have the calculator do what you have instructed it to do.

- If your answers do not show as many decimal places as the calculator I use in class or if you have difficulty matching any other output, check your MODE settings. Press the **MODE** key. If your calculator has been used previously by someone else the highlighted choices may differ. If your screen has different highlighted choices, use the cursor keys to go to each row and press




**ENTER** when the blinking cursor is on the first choice in each row. Continue until your screen looks like the one above. **CHECK YOUR MODE SETTINGS NOW.**

- Press **2<sup>nd</sup> Mode** (Quit) to return to the home screen. **DO THIS NOW.**
- The **DEL** and **2<sup>nd</sup> DEL** (Ins) keys are used for editing. **PRACTICE:** Type 12356. Use **◀** to move the cursor back to the 5. Press **2<sup>nd</sup> DEL** to insert a 4 before the 5. Move the cursor to the 2 and delete it. You should now see 13456.
- Press **CLEAR** to clear your screen. **DO THIS NOW.**
- The **x<sup>2</sup>** key is used for squaring numbers. **2<sup>nd</sup> x<sup>2</sup>** is used for taking square roots. **^** is used for raising numbers to higher exponents. **PRACTICE AND WRITE ANSWERS HERE:**  $16^2 = \underline{\hspace{2cm}}$      $\sqrt{625} = \underline{\hspace{2cm}}$      $8^3 = \underline{\hspace{2cm}}$ . Check the back of this page for answers.

- The left and right parenthesis keys must be used whenever you want to override the order of operations. For example, to evaluate the expression  $\frac{6}{2+4}$ , entering  $6 / 2 + 4$  would yield the answer 7. Is that the correct value of  $\frac{6}{2+4}$ ? No! To correctly evaluate that expression you would have to enter  $6 / ( 2 + 4 )$ . **PRACTICE:** Evaluate  $\frac{6}{2+4}$  **WRITE ANSWER HERE:** \_\_\_\_  
Check the bottom of the page for the answer.
- The **MATH** key leads to a set of menus of mathematical functions. The function we will use most this semester is 1:FRAC which indicates to the calculator that you would like the answer to a problem given as a fraction. Fractions are entered using the  $\frac{\square}{\square}$  key. **PRACTICE:** Add  $\frac{1}{4} + \frac{1}{2}$  and express the answer as a fraction by entering this sequence: 1  $\frac{\square}{\square}$  4  $\frac{\square}{\square}$  1  $\frac{\square}{\square}$  2 **MATH** **ENTER** **ENTER**. Write your answer here: \_\_\_\_\_. Check the bottom of the page for the answer. Notice that when you pressed the **MATH** key, 1:FRAC was already highlighted so you only had to **ENTER** to select it. If you had wanted a different function from the MATH menu, you would have had to enter its number before pressing **ENTER**.
- Mixed numbers must be entered as the sum of the whole number and the fraction using parentheses as necessary.  
**PRACTICE:** Enter  $2\frac{3}{4}$  as  $( 2 + 3 \div 4 ) \div ( 5 + 1 \div 8 )$  **MATH** **ENTER** **ENTER**. Write your answer here: \_\_\_\_\_ Check your answer at the bottom of the page.
- The **(-)** key on the bottom row is the key used to denote negative numbers. It differs from the subtraction key, **-**.  
**PRACTICE:** Subtract -30 from -20 by entering **(-)** 20 **-** **(-)** 30 **ENTER**. Write your answer here: \_\_\_\_\_. Check the bottom of the page for the answer.
- 2<sup>nd</sup>** **ENTER** (Entry) will recall the last expression entered on the calculator for editing so that the whole expression does not have to be typed again. **PRACTICE:** Press **2<sup>nd</sup>** **ENTER** to recall the previous expression,  $-20 - (-30)$ . Use the left cursor key to highlight the subtraction, then type **+** over it to change it to addition. Press **ENTER**. Write the answer here: \_\_\_\_\_. Check the bottom of the page for the answer.
- The **X,T,θ,n** key is used to type variables. When entering a variable expression we use this key to type the variable x.
- The top row of keys is used for graphing. To define an equation to be graphed, press **Y=** and enter the expression. First, though, you may have to clear equations that the previous user has entered by moving the cursor to the equation and pressing **CLEAR**. Also, make sure that Plot1, Plot2, and Plot3 are not highlighted at the top of the screen. If one of them is highlighted, use **▲** to move cursor to it and press **ENTER** to de-select it. **CLEAR ALL PREVIOUS EQUATIONS AND MAKE SURE THAT ALL PLOTS ARE TURNED OFF NOW.** This is what you should see:
- 
- To set the display window to the default of -10 to 10 on the x-axis and -10 to 10 on the y-axis, press **ZOOM** and enter the number 6 to choose ZStandard. **DO THIS NOW.**
- PRACTICE:** To graph the parabola  $y = x^2 - 16$ , press **Y=**, then **X,T,θ,n**  $x^2$  **-** 16 and **GRAPH**. This is what you should see:
- 
- Notice that the bottom of the parabola is not showing. To change to a more suitable graphing display press **WINDOW**. Xmin and Xmax give the lowest and highest values to be shown on the horizontal axis. Ymin and Ymax give the lowest and highest values to be shown on the vertical axis. Xscl and Yscl give the values by which the tic marks count on each axis. CHANGE
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**MATH 1530  
PROBABILITY &  
STATISTICS**





**ROANE STATE COMMUNITY COLLEGE**  
**DIVISION OF MATH/SCIENCE**  
**MATH 1530 PROBABILITY AND STATISTICS SYLLABUS**

**INSTRUCTOR INFORMATION**

- **Name:** Deborah Miles
- **Office:** (Faculty Area Across from Front Desk) Office 128
- **Office Hours:** MW 8:00 – 8:30, 11:30 – 1:00 & 2:30 – 3:30; TR 8:00 – 10:00, 11:30 – 1:00 & 2:30 – 3:30
- **Phone:** 456-9880 Ext. 5230 or 1-800-343-9104 Ext. 5230
- **Email:** Milesdl@roanestate.edu \*For faster replies, please use this address rather than emailing from Momentum.

**Tip for Your Future:** The number one trait employers say they want to see in a job candidate is good communication skills. To acquire these skills, you can practice in your emails to me this semester. Here are a few suggestions:

- **Mind Your Manners:** Think of the basic rules you learned growing up, like saying please and thank you. Address people you don't know as Mr., Ms., or Dr. Only address someone by first name if they imply it's okay to do so.
- **Watch Your Tone:** Merriam-Webster defines tone as an "accent or inflection expressive of a mood or emotion." You want to come across as a respectful, friendly and approachable. You don't want to sound curt or demanding.
- **Be Concise:** Get to the point of your email as quickly as possible, but don't leave out important details that will help your recipient answer your query. *When emailing me, please tell me in what class you are enrolled. When asking about a homework question, you must tell me what you have tried in order for me to find your mistake.*
- **Be Professional:** This means stay away from text lingo. No CYAL8R! Don't use a cute or suggestive email address for business communication.
- **Use Correct Spelling and Proper Grammar:** Use spell checker and pay attention to basic rules of grammar. Use complete sentences and punctuation.

**COURSE INFORMATION**

- **Course Type:** In Class, Attendance Required
- **Day and Time:** Section 060 MW 1:00 - 2:20; Section 061 TR 10:00 – 11:20
- **Credit Hours:** 3
- **Course Objectives:** An introduction to probability and statistics without calculus. Topics covered include sampling, frequency distribution, elementary probability, hypotheses testing, linear regression and correlation, analysis of variance and non-parametric statistics.
- **Learning Outcomes:** The student who completes the course shall be able to
  1. Understand the concepts of levels of data and sampling.
  2. Organize and graphically display data in various forms.
  3. Utilize a calculator to determine the primary descriptive characteristics of a distribution of interval level measurements.
  4. Solve general probability problems.
  5. Solve binomial and normal distribution problems.
  6. Determine confidence intervals for population means and proportions.
  7. Conduct hypothesis testing relative to:
    - a) the mean for one, two, or multiple samples
    - b) the proportion for one or two samples
    - c) goodness-of-fit or test of independence for nominal level data
  8. Determine the correlation and simple linear regression relationship between two interval level variables.
  9. Utilize a computer to execute a variety of statistical procedures.
  10. Utilize statistical reasoning in a variety of practical applications.
- **Prerequisites for the course:** Two years of high school algebra and one year of geometry or appropriate learning support mathematics courses.
- **Course Topics:** See Course Objectives and Attached Calendar

**TEXTBOOKS AND SUPPLEMENTARY MATERIALS**

- **Optional Textbook:** *Essentials of Statistics*, Fifth Edition, by Mario Triola **Required:** MyStatsLab Access Card
- **Supplementary Materials:**

- Three-Ring Binder with 6 Dividers: Course Information, Test 1, Test 2, Test 3, Test 4, Final Exam
- TI-83or TI-84 Calculator: There are a limited number of these calculators available for checkout from the library. **Cell phones may not be used as calculators during class or tests.**

## GRADING PROCEDURE AND GRADING SCALE

- **Grading procedure:** The extent to which the objectives of each assignment/test have been mastered will be the guideline for all grading. MyStatsLab will provide immediate scoring for homework exercises and these problems may be reworked an unlimited number of times to improve the score on each assignment until its due date. MyStatsLab will also provide immediate scoring of tests. Any question about test scores should be brought to instructor's attention immediately. Course grade will reflect overall mastery of course objectives listed on the first page of this syllabus.
- **Grading scale:** Course grade will be determined by exam scores (80%), homework (15%), study guides and reading quizzes (5%). Grades will be assigned using the following scale: A: 90 – 100%; B: 80 – 89%; C: 70 – 79%; D: 60 – 69%; F < 60%.
- **Assignments and Evaluations:**
  - Exams: There will be five 100-point tests – four chapter exams and a mandatory, comprehensive departmental final exam. Tests will not be delayed due to absences and there will be no make-up exams. A missed test will result in a score of 0 for that test. Each student's single lowest score of the four chapter exams will be dropped. This drop grade should be reserved strictly for an emergency on a test day. Since you don't know when an emergency might occur, you should prepare for every test to the best of your ability. Absolutely no make-up exams will be given before or after the scheduled in-class exam.
  - Homework and Quizzes: Daily homework will be assigned and completed using MyStatsLab. Grade for assignments not completed by the due date will be recorded as 0. The lowest two homework scores will be dropped for each student at the end of the semester.
  - SAILS Two-Column Study Guide Strategy & Reading Quizzes - See Attached Description  
There will be a few reading assignments during the semester. Quizzes over required reading will be given at the beginning of class and you may use your study guide for reference. If you are not present at the beginning of the class, you will receive a 0 on that day's quiz.

## PLAGIARISM AND ACADEMIC INTEGRITY

- Academic Misconduct includes, but is not limited to, **Plagiarism, Cheating, Fabrication and Facilitation.** Academic misconduct is prohibited. Upon identification of misconduct, an instructor has the authority to assign an "F" or a zero for the exercise, the examination, or the entire course. Students guilty of academic misconduct that would typically result in the grade of "F" for the course will not be permitted to drop the class in which the academic misconduct occurred. The instructor will contact the appropriate Division Dean who will then contact Records and request that an administrative hold be placed on the course in question. The instructor will notify the student of the appropriate due process/appeal procedure. The administrative hold will remain in place until the academic misconduct matter is concluded.

## STUDENTS WITH DISABILITIES

- Qualified students with disabilities will be provided reasonable and necessary academic accommodations if determined eligible by the appropriate disability services office staff. Prior to granting disability accommodations in the course, the instructor must receive written verification of a student's eligibility for specific accommodations from the disability services office staff. It is the student's responsibility to initiate contact with the disability services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

## TECHNICAL SUPPORT AND OTHER STUDENT RESOURCES

- **CTAT:** If you are having problems logging into your course on Momentum, timing out of your course, or using your course web site tools please call Center for Teaching Arts and Technology at 865-882-4556, M-F, 9-5 EST.
- **Help Desk:** For all other technical problems call **Help Desk** at 865-354-3000 Ext 4357.
- **iTunesU:** Video recordings of most class lectures are available for you to review and download through RSCC's iTunesU site. To access the podcasts for Math 1530, click on the iTunesU link on your Momentum home page for this course.
- **Learning Resource Center:** The Learning Support Services of Roane State Community College support the classroom experience by providing individual assistance, learning technology and other resources for students.

We promote a positive and confident attitude toward learning. RSCC Cumberland County's Learning Resource Center, Rm. 159, is open MTWR from 8:00 until 4:30 and Fridays 8:00 – 12:00. The LRC's well-qualified tutors will be your best source of assistance outside class if you need help at a time that I am unavailable.

## CLASS CANCELLATIONS

- The best way to be informed of any campus closings or other college emergency information is to sign up for **RaiderAlert**. The system sends important notifications to registered mobile phones & devices. For more information, search "RaiderAlert" on Roane State's website. Information about campus closings due to inclement weather will also be announced on local radio stations and posted on [www.roanestate.edu](http://www.roanestate.edu). If MATH 1530 is cancelled for *any* reason, you are responsible for checking your **Momentum** email account for a message from me. I will clarify questions regarding missed assignment(s) or test(s). Again, it is my responsibility to provide this information, but it is **your** responsibility to read it and prepare accordingly.

## SYLLABUS CHANGES

- The Instructor reserves the right to make changes to the syllabus as long as the students are notified.

## FINAL NOTES

- Please know that I want you to succeed and am willing to help you in any way that I can. If you encounter difficulty with either the course content or class policies, please come see me during my office hours. Instructor conferences are highly encouraged and should be scheduled *as soon as difficulty is encountered*. Most importantly, attendance is a key indicator of success. If you have excessive absences (more than one or two), excused or unexcused, you probably will not pass this course. The last day to withdraw from classes this semester is Wednesday, April 1<sup>st</sup>. If at that point you are not making satisfactory progress in this course, you should seriously consider dropping it in order to avoid receiving an F. If you receive any type of financial aid, always check with that office before dropping a course.

## To-Do-Before-Next-Class List

### Required:

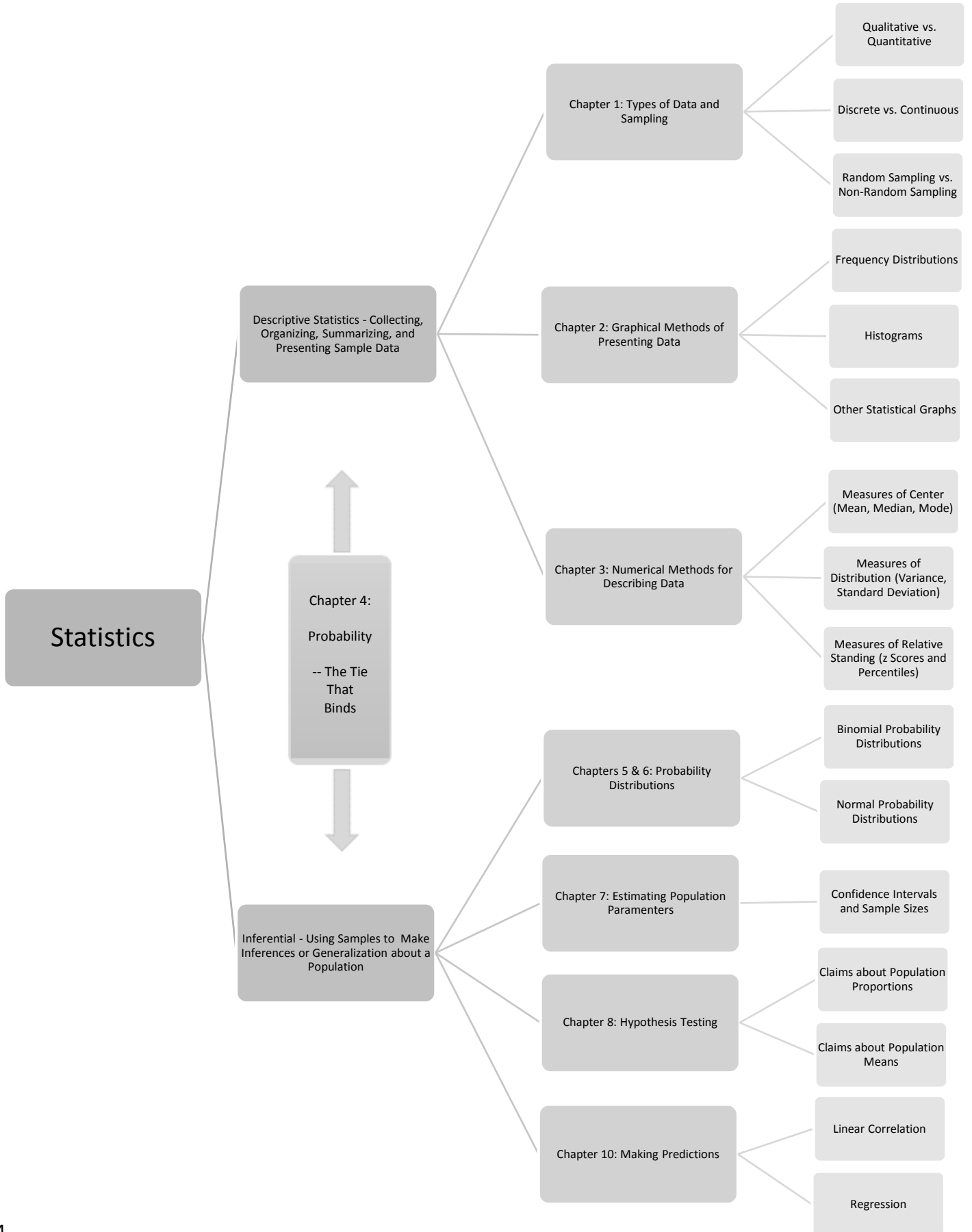
- **Read entire Syllabus and highlight what you feel is most important.** I will not spend time in classes answering questions which are answered in the syllabus, e.g. "What are your office hours?", "When is our next test?", "How much does the homework count in our course grade?", "What happens if I miss a test?"
- **Register for MyStatLab using the access code which came with your text or by requesting free temporary access. See registration instruction sheet attached.**
- **Complete MyStatLab Assignments #0 (Getting Started with MyStatLab)**
- **Print Chapter 1 Notes and Test 1 Study Guide Template from Momentum and bring them with you to our next class.**
- **Request calculator from library!!!! The number of "loaner" calculators is limited and if you do not get one of these before the library runs out, you will have to purchase one. Cost is approximately \$100.**

### Suggested:

- **Organize your notebook and divider tabs as specified on the next page.**
- **Review attached Course Calendar and write important, highlighted dates in your personal calendar.**
- **Explore websites we will be using this semester (MyStatLab, Momentum, iTunesU). There are so many resources available to you! You'll never find them all unless you just click around in these websites. Don't worry . . . you can't break them! 😊**

*Keep Your Eyes on the Prize*







## APPENDICES



**MATH 1530 Probability and Statistics  
Test 1 Study Guide – Chapters 1, 2 & 3**

**Name: Gina Decker**

**Section 1.1 Preview**

<b>Statistics</b>	The science of planning studies and experiments, obtaining data, organizing, summarizing, presenting, analyzing, interpreting, and drawing conclusions based on the data
<b>Data</b>	Collections of observations Examples: measurements, genders, survey responses
<b>Population</b>	The complete collection of all individuals to be studied
<b>Census</b>	Collection of data from every member of a population
<b>Sample</b>	Sub collection of members selected from a population
<b>Voluntary Response Sample</b>	A sample for which the respondents themselves decide whether to be included

**Section 1.2 Statistical and Critical Thinking**

<b>Key Elements in a Statistical Study:</b>	
<b>PREPARE by considering</b>	
<b>Context</b>	Context of the data- What does it mean?
<b>Source</b>	Source of the data- Where did it come from?
<b>Sampling Method</b>	Sampling method- is the sample representative of the population being studied? With a voluntary response (self-selected) study, probably not!
<b>ANALYZE by:</b>	
<b>Graph Data</b>	Graphing data- visual representation of data
<b>Explore Data</b>	Exploring data- what is the “average” for the data and how is the data distributed?
<b>Apply Statistical Methods</b>	Applying statistical methods- use the data, if appropriate to make generalizations or predictions about the population.
<b>CONCLUDE by determining:</b>	
<b>Statistical Significance</b>	Are the results <b>unlikely to have occurred by chance</b> ? If so, they have statistical significance. Example: it would be unlikely that a fair coin would land on “heads” 90 out of 100 flips. If that happened, the results would be statistically significant.
<b>Practical Significance</b>	Are the results worth acting or making decisions upon? (If you observed the results described above, would you make a bet that the next flip would result in “tails”?)
<b>Potential Pitfalls in Analyzing Data</b>	
<b>Misleading Conclusions</b>	Concluding that one variable causes the other variable due to the fact that variables are linked.
<b>Self-Reported Results</b>	Example: weight or income. (everyone lies)
<b>Bad Samples</b>	Voluntary response or self- selected sampling methods are less reliable because respondents themselves decide whether to be included and may be biased about the issue being studied
<b>Loaded Questions</b>	If survey questions are not worded carefully, the results of a study can be misleading. Survey questions can be “loaded” or intentionally worded to elicit a desired response. Example: too little money is being spent on “welfare” versus too little money is being spent on “assistance to the poor.” Results: 19% versus 63%
<b>Order of Questions</b>	Questions are unintentionally loaded by such factors as the order of the items being considered. Example: Which would you say contributes more air pollution: traffic or industry? Results: traffic-45%; industry-27% When order reversed. Results: industry- 57%; traffic-24%
<b>Nonresponse</b>	Some don’t respond. Example: Out of 100 people asked blah blah blah 92% of them said yes. In reality only 10 of the people said yes.
<b>Missing Data</b>	Subjects may drop out for reasons unrelated to the study

	Example: US census suffers from missing people (tend to be homeless or low income.)
<b>Misuse of Percentages</b>	Misleading or unclear percentages are sometimes used. If you take 100% of a quantity, you take it all. A quantity can not be reduced by 200%, for example.
<b>Self-Interest Studies</b>	Be wary of a survey in which the sponsor can enjoy monetary gain from the results. When assessing validity of study, always consider whether the sponsor might influence the results

### Section 1.3 Types of Data

<b>Parameter</b>	A numerical measurement describing some characteristic of population. Population $\leftrightarrow$ parameter 2 Rules: *has to be a number *has to be coming from the population <u>Example</u> : Among the Senators in the current Congress, 44% are Democrats. <u>Example</u> : The average atomic weight of all elements in the periodic table is 134.355 unified atomic mass units.
<b>Statistic</b>	A numerical measurement describing some characteristic of sample. Sample $\leftrightarrow$ statistic <u>Example</u> : The author randomly selected 35 movies and found the amount of money that they grossed from ticket sales. The average is \$123.7 million.
<b>Quantitative Data</b>	(AKA numerical data) consists of <b>numbers</b> representing counts or measurements. <u>Example</u> : The weights of supermodels <u>Example</u> : The ages of respondents 2 Types of quantitative data: Discrete and continuous
<b>Categorical Data</b>	(AKA qualitative or attribute data) consists of names or labels (representing categories) <u>Example</u> : The genders (male/female) of professional athletes. <u>Example</u> : Shirt numbers on professional athletes uniforms – substitutes for names
<b>Discrete Data</b>	Results when the number of possible values is either a finite number or a ‘countable’ number. <u>Example</u> : the number of eggs that a hen lays. (hens can’t produce 2.7841 eggs a day) <u>Example</u> : In the Literary Digest poll, London received 16,679,583 votes
<b>Continuous Data</b>	(AKA numerical data) results from infinitely many possible values that correspond to some continuous scale that covers a range of values without gaps, interruptions, or jumps. Anything that is measured or <b>counted</b> on a scale or ruler. <u>Example</u> : the amount of milk that a cow produces; e.g. 2.343115 gallons per day (a cow doesn’t produce just 1 oz of milk a day) <u>Example</u> : The volume of cola in a can of regular coke is 12.3 oz.
<b>Levels of Measurements:</b>	
<b>Nominal</b>	Nominal level of measurement: Characterized by data that consists of names, labels, or categories only, and the data cannot be arranged in an ordering scheme (such as low to high) <u>Example</u> : survey responses yes, no, undecided
<b>Ordinal</b>	Ordinal level of measurement: Involves data that can be arranged in some <b>order</b> , but differences between data value either cannot be determined or are meaningless. Categories put in order. <u>Example</u> : course grades A,B,C,D, or F <u>Example</u> : Ranks of cars evaluated by Consumer’s Union
<b>Interval</b>	Interval level of measurement: Like the ordinal level, with the additional property that the difference between any two data values is meaningful, however, there is no natural zero starting point (where none of the quantity is present) <u>Example</u> : years 1000, 2000, 1776, and 1492 <u>Example</u> : Actual temperatures (in degrees Fahrenheit)
<b>Ratio</b>	Ratio level of measurement: The interval level with the additional property that there is also a natural zero starting point (where zero indicates that none of the quantity is present); for values at this level, differences and ratios are meaningful. Example: prices of college textbooks (\$0 represents no cost, a \$100 book costs twice as much as a \$50 book) <u>Example</u> : Measures amounts of greenhouse gases in tons per year <u>Example</u> : Voltage usage in your home for one month.



## Section 1.4 Collecting Sample Data

<b>Observational Studies</b>	Observe and measure specific characteristics without attempting to modify the subjects being studied. <u>Example:</u> In a study sponsored by Coke, 12,500 people were asked what contributes most to their happiness and 77% said it was their family or partner.
<b>Experimental Studies</b>	Apply some treatment and then observe its effects on the subjects. <u>Example:</u> A study of the effectiveness of Echinacea involved 707 cases of upper respiratory tract infections. Children with 337 of the infections were given Echinacea, and children with 370 of the infections were given placebos.
<b>Types of Sampling</b>	
<b>Non-Random Sampling</b>	Two types of non-random sampling: convenience and voluntary response (self-selected) mostly based on opinions
<b>Convenience Sample</b>	10 people closest to you, based on opinions. Whatever is convenient?
<b>Voluntary Response Sample</b>	Strong opinion based usually only asked people that are one sided responders. <u>Example:</u> A sample for which the respondents themselves decide whether to be included.
<b>Random Sampling</b>	Selection so that each individual member of the population has an equal chance of being selected. <u>Example:</u> A classroom consists of 36 students seated in six different rows, with six students in each row. The instructor rolls a die to determine a row, then rolls the die again to select a particular student in the row. This process is repeated until a sample of 6 students is obtained.
<b>Simple Random Sample</b>	Of the subjects selected in such a way that every possible sample of the same size has the same chance of being chosen. <u>Example:</u> Pharmacists typically fill prescriptions by scooping a sample of pills from a larger batch that is in stock. A pharmacist thoroughly mixes a large batch of pills, then selects 30 of them.
<b>Systematic Sampling</b>	Select some starting point then selects every kth element in the population. <u>Example:</u> every 3 <sup>rd</sup> guy in line or every 5 <sup>th</sup> piece on an assembly line.
<b>Stratified Sampling</b>	Subdivided the population into at least two different subgroups that share the same characteristics, then draw a sample from each subgroup. <u>Example:</u> In a study of college programs, 820 students are randomly selected from those majoring in communications, 1463 students are randomly selected from those majoring in business, and 760 students are randomly selected from those majoring in history.
<b>Cluster Sampling</b>	Divide the population area into sections or clusters; randomly select some of these clusters; choose all members from selected clusters. <u>Example:</u> The U.S. department of corrections collects data about returning prisoners by randomly selecting five federal prisons and surveying all the prisoners in each of the prisons.
<b>Multi-Stage Sampling</b>	When pollsters collect sample in different stages, and each stage may use a different method of sampling.
<b>Types of Studies</b>	
<b>Cross-Sectional</b>	Data are observed, measured, and collected at one point in time. <u>Example:</u> # of people in class with blue eyes <u>Example:</u> In a recent Gallup poll, pollsters randomly selected adults and asked them whether they smoke. Among the adults who responded, 21% said they did smoke.
<b>Retrospective</b>	Data are collected from the past by going back in time and collecting information.(Retro) <u>Example:</u> University of Toronto researchers studied 699 traffic crashes involving drivers with cell phones. They found that cell phone use quadruples the risk of a collision.
<b>Prospective</b>	Data are collected in the future from groups sharing common factors (group followed into the future to see the impact.) <u>Example:</u> Physicians at the Mount Sinai Medical Center plan to study emergency personal who worked at the site of the terrorist attacks in NYC on September 11, 2001. They plan to study these workers from now until several years into the future.