INTRODUCTION TO STATISTICS
Math 108
Fall Quarter 2005

Instructor: Kim Litz
Phone: 460-4399 for messages
Email: vklitz@comcast.net (preferred); vlitz@tacomacc.edu (I don’t check this one as much.)
Webpage: http://www.tacomacc.edu/home/vlitz/index.htm

Office Hours: by appointment Mondays and Wednesdays before class in 14-11


Calculator: A TI-83 graphing calculator is required.

Course Description: Topics include descriptive statistics of central tendency, frequency and distribution of events, sample spaces, dispersion, graphing and organization of data, inferential statistics, hypothesis testing, and linear regression.

Learning Objectives: The TCC Math Department has agreed on the following student learning objectives for Math 108. The abbreviation following each objective refers to the College-Wide Learning Outcomes: COM = Communication; CRT = Critical Thinking; IIT = Information and Information Technology; LWC = Living and Working Cooperatively.

Upon successful completion of this course, the student will be able to:
1. Outline the general principles of probability and statistics and list a number of common applications of both. (CRT)
2. Define and use the properties of events, intersections, complements, unions, and conditional probability and determine the probability of events. (CRT)
3. Distinguish between descriptive and inferential statistics. (CRT, IIT)
4. Describe and apply various techniques used to describe data, such as box plots, bar graphs, frequency tables, histograms, and contingency tables including clear and appropriate labels. (CRT)
5. Describe and apply the common measures of central tendency (mean and median), and demonstrate the ability to calculate each from a data set. (CRT)
6. Describe and apply common methods of measuring variability such as range, percentiles, variance, and standard deviation, and demonstrate the ability to calculate each from a data set. (CRT)
7. Explain the Normal probability distribution and the Central Limit Theorem including the significance of sample size, and compute probabilities associate with normally distributed samples and statistics. (CRT)
8. Select and perform common statistical tests including one- and two-tailed tests for population means and proportions in a variety of applications. (CRT, IIT)
9. Select and determine confidence intervals for population means and proportions in a variety of applications. (CRT, IIT)
10. Define and apply linear regression and correlation and discuss their applications. (CRT)
11. Create, formulate and evaluate written reports of probabilistic and statistical information. (COM, IIT)
12. Use technology such as a computer spreadsheet or graphical calculator to perform statistical calculations. (IIT)

Prerequisite: You must have either tested into Math 100 via a TCC math assessment test, OR have passed Math 99 (Intermediate Algebra) or its equivalent with a C-grade or better. Students must also have passed Reading 93 with a C- or better, or have assessed past the Reading 93 level. If it should come to the instructor’s attention that you do not meet the prerequisite requirements, you will be administratively withdrawn from the class. There will be no exceptions.
Required Materials: You should come to class every day prepared with 1) your textbook, 2) pencils and good erasers, 3) 8½ X 11 notebook paper, 4) graph paper (grid no smaller than 5 squares per inch), 5) small ruler or straight edge, 6) 3 x 5 cards, and 7) a TI-83 graphing calculator.

Course Requirements: Grades will be based upon a number of factors, including homework, projects/writing assignments, test/quizzes, and attendance/participation. These areas are detailed as below:

1. Homework
   PLAN TO SPEND AT LEAST 2 HOURS PER DAY, FIVE DAYS A WEEK ON HOMEWORK!
   Each homework assignment will be worth 5 points. Answers to all odd problems are in the back of your book, and you are expected to check your answers before turning homework in. I will scan your work to check that all problems are done; that you are showing all the work done to obtain an answer; and that you are working in a neat and organized manner. I am not as interested in your answer as in your process. You are responsible for attempting every problem, re-working a problem until you get the correct answer, and taking advantage of various resources (see “Helpful Links” on the web) to help on problems of which you are unsure. Assignments are due at the beginning of class (usually the day after they are assigned). If you are absent for any reason, reduced credit will be given for your late work. If you are not absent, no late assignments will be accepted for any reason. Refer to the Homework Guidelines for homework format expectations. Homework not following the guidelines will not receive full credit.
   To account for any emergencies or illness, one homework assignment will be dropped.

2. Projects/Writing Assignments
   One project will be assigned during the quarter. With any assignment calling for writing, the clarity and accuracy of your writing is important: use of proper grammar, punctuation, and spelling is expected. There may also be a number of in-class “mini-projects” that will be worked on collaboratively.

3. Tests and Quizzes
   We will have two or three hour-long tests as well as a comprehensive final exam. We will also have quizzes. No tests or quizzes may be made up. Quizzes will be announced: there will be no “pop quizzes.”

4. Attendance and Participation
   You are expected to attend class every day, arriving on time and remaining until the end of the period. Repeated absences and/or failure to be in class for the entire period will be reflected in your grade. You will be expected to participate in class discussions and group activities, and are encouraged to work with your classmates on homework.

Grading: The grading of each individual assignment or test will be based on your ability to demonstrate your understanding of a given concept or skill. This can’t be done by just writing down the answer: all work and/or steps must be shown. Problems just showing the “right answer” with no back-up work will not receive full credit.

Your final grade will be based on the percentage of possible points obtained. The breakdown of your grade by percentage is shown below.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework/Attendance/Classwork</td>
<td>20%</td>
</tr>
<tr>
<td>Tests</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>15%</td>
</tr>
<tr>
<td>Projects/Writing Assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
</tbody>
</table>

(lowest score dropped)
The percent-to-letter-grade scale is as follows:

- 92.0-100  A
- 89.5-91.9  A-
- 88.0-89.4  B+
- 82.0-87.9  B
- 79.5-81.9  B-
- 78.0-79.4  C+
- 72.0-77.9  C
- 69.5-71.9  C-
- 68.0-69.4  D+
- 62.0-67.9  D
- 59.5-61.9  D-
- Below 59.5  E

This scale may be altered at the instructor’s discretion, but will only be altered to the students’ advantage.

WITHDRAWLS/INCOMPLETES/S, U, V GRADES

TCC policy states that anyone can withdraw from a class by the 10th day of the quarter, IF the student fills out the necessary forms and turns them in to registration. After that, you need the instructor’s permission. THAT MEANS: you need to tell me your reasons for wanting to withdraw (warning: “I’m getting a bad grade,” is not reason enough to get a withdrawal). After the 50th calendar day, the instructor may withdraw you under special circumstances. In general, if you are receiving a C grade or better at the time of your request, a WI grade will be given if you have completed 60% of the coursework for the quarter. If your grade is lower than a C, an E grade will be given (exceptions may be made, depending on the circumstances). Students who simply stop coming to class will receive an E.

Incompletes will be given only in VERY RARE instances, which must be discussed with the instructor before the final. An “I” grade is reserved for students who have generally done well throughout the quarter but miss a small amount of work (say, the final) due to exceptional circumstances.

S/U grade requests must be processed through the registration office and meet their deadlines.

Classroom Structure/Etiquette:

1) The first 5-7 minutes of every class will involve group work on the previous day’s homework. You may ask your classmates for assistance on problems that you were not able to solve on your own. The instructor will be available during this time to answer questions your classmates are not able to answer.

2) Turn off cell phones, pagers, etc. If you are expecting an urgent call or page, please talk with the instructor prior to class.

3) Beverages are allowed in class, but please save food for after class. No tobacco products will be allowed in class.

4) Class will last the full time allotted. Do not start packing away your books until class is dismissed.

Make-up Work:

As stated earlier, no homework or quizzes may be turned in late or made up. Make-up exams may be scheduled with prior approval in highly exceptional cases (not because you want a day off or are going on a vacation early). You must talk with me at the earliest possible time you know there is going to be a problem, not after the fact.

Cheating:

You may collaborate with others on homework, or on projects as specified, but you must give credit for any help received (this includes help from the tutoring center, math lab, etc.). You may NOT collaborate on exams and quizzes. Cheating on an exam, quiz, or project will result in zero points for the work. A second infraction will result in an E grade for the course. Refer to the TCC Academic Dishonesty Policy for more information about cheating.

Disabilities:

If you have a physical, mental, or learning disability that you feel may require some form of accommodation, you must 1) have your disability documented with the TCC disabilities specialist (Counseling Center in Bldg 18), and 2) inform me of any necessary accommodations BEFORE they are needed. Documentation should occur within the first 2 weeks of class. Requests for accommodations without necessary documentation will generally be denied.
Help: A number of resources are available if you need additional help (refer to the “Resources for Help with Math” handout). Please make use of my office hours, listed at the beginning of this syllabus and take advantage of the MARC in building 19. The Writing and Tutoring center in Bldg 7 has tutors available to meet with you once or twice a week. If you know you are starting to get behind or feel lost, GET HELP! Once you truly are behind or lost, any help will generally be too late.

Study Groups: Study groups are one of the most valuable resources in a college class. I strongly encourage your participation. An effective study group has two to five members.

The information in this syllabus is subject to change.

Any changes may be made via class announcements.

Acknowledgement: Thanks to Valerie Morgan-Krick and Scott MacDonald for sharing their syllabi and ideas on class organization.

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**HOMEWORK GUIDELINES**

Please make certain that your homework is done in a professional manner. You will find that neat, concise work performed in homework assignments will lead to a better understanding of physical concepts and greater success in your math courses. These guidelines will be used in evaluating homework assignments for this course.

1. Place your NAME, the SECTION NUMBER, MY NAME, and the ASSIGNMENT NUMBER in the top, right-hand corner of each page.

2. Use only 8.5 x 11 inch, ruled paper. Loose-leaf paper allows you the option of removing and inserting papers into a 3-ring notebook. Papers with jagged edges ripped from a spiral notebook will not be accepted (too messy!).

3. Show all work except where a short answer is necessary. Include sketches where necessary and label answers as appropriate. Homework will, from time to time, include writing, calculator, and/or computer work. When writing is required, it is expected that the work will include complete, meaningful sentences. Correct grammar and spelling will be considered; the correct spelling of mathematical terms is especially required. Problems that require a graph should be done on graph paper and then labeled “see attached” unless you choose to cut the graph out and paste it within your work.