

## SYLLABUS MATH 198

QUARTER **SUMMER**, 2008

COURSE: Math , Introduction to Statistics.

CREDIT HOURS: 05

MEETING TIME: TR 10:15 A.M. – 12:20 P.M; Room

OFFICE HOURS: Room 209.6

M W 3:00 PM – 5:00 PM

T,TR 3:00 PM - 5:00PM

ROOM : B202

PREREQUISITE: Math 190 or Math 191.

TEXT: Elementary Statistics, by Triola, 10th Edition

CALCULATOR : A TI-83 or 84 is required.

INSTRUCTOR : Samuel Kwakye

770 - 528 - 4483 skwakye@chat-tec.com

COURSE CONTENT: The material is divided into five general areas;

A: Descriptive Statistics

Graphical Representation: Stem and Leaf, and Histogram **(2-2, 2.3)**

Measures of Central Tendencies: Mean, Median, and Mode. **(3.1,3.2)**

Measures of Dispersion: Range , Variance, and Standard Deviation. **(3.3)**

Measures of Relative Standing: Z-score, and Quartiles. **(3.4)**

B: Probability.

Fundamentals of Probability. **(4.1,4.2)**

Addition Rule **(4.3)**

Multiplication Rule.

Conditional Probability **(optional)**

Counting. **(4-7)**

C: Probability Distribution-

Mean, Variance, and Standard Deviation of a random variable ( **5.1,5.2**)

Binomial Distribution **(5.3)**

The Standard Normal Distribution **(6.1 – 6.3)**

The Central Limit Theorem **(6.4,6.5)**

Normal as Approximation to the Binomial **(6-6)**

D: Inferential Statistics

Confidence Interval for Population Mean (small and large samples). **(7.3, 7.4)**

Confidence Interval: Difference between two population proportions.( **9.2**)

Confidence Interval: Population proportion. **(7.1,7.2)**

Testing Hypothesis about a population mean **(8-4, 8-5)**

Testing Hypothesis about two population means. **(9.3)**

Testing Hypothesis about a population proportion **(8-3)**

E: Linear Regression **(10.3)**

F: Non-parametric methods. **(11-2, 11-3)**

## EXPECTED EDUCATIONAL RESULTS

As a result of completing this course, the student will be able to do the following:

1. Analyze statistical problems using critical thinking skills such as deciding on appropriate statistics to measure any suitable tests to be performed;
2. Use the course-required calculator whenever possible;
3. Give the basic definitions of descriptive and inferential statistics: population, sample, variable, data, experiment, parameter, statistic, random sample, discrete and continuous numerical data;
4. Construct a frequency or relative frequency table, a histogram, stem and leaf display, or box plot;
5. state the mean, median, mode, and range for a set of data;
6. determine the quartiles and the inter quartile range for a set of data;
7. determine and compute methods of dispersion
8. apply Chebyshev's theorem by using the standard deviation;
9. determine relative standing - z-score
10. compute the regular or conditional probability of an event from a frequency or contingency table;
11. compute the probability of the compound event A and B or the event A or B;
12. compute a binomial probability;
13. find the expectation and the standard deviation for a discrete probability distribution, and for a binomial distribution in particular;
14. use the standard normal distribution to determine probabilities and to estimate binomial probabilities;
15. compute the standard error of the mean,  $\sigma_{\bar{x}}$ , and interpret the Central Limit Theorem ;
16. determine the confidence interval for a population mean and proportion;
17. estimate the confidence interval between two population parameters;
18. conduct a test of hypothesis for a population mean and proportion;
19. make inferences concerning multinomial experiments (goodness-of-fit tests) and concerning contingency tables (tests of independence);
20. write the regression line equation for a set of data with significant linear correlation and make predictions based on the regression line.

## GENERAL EDUCATION OUTCOMES

1. This course will improve the student's ability to understand and communicate, both orally and in writing, techniques for summarizing and representing data, the basic concepts of probability, and the basic concepts of estimation and hypothesis testing in various situations. Students will improve their listening skills by taking part in class discussion and in small group activities.
2. The will improve students' problem solving and critical thinking skills . This is achieved by assessing students in a variety of ways that allow them to demonstrate individual and group problem-solving skills.

## ENTRY LEVEL COMPETENCIES

Upon entering this course the student should be able to do the following:

1. Use algebraic symbols and notation to make meaningful statements;
2. use a calculator to perform arithmetic operations;
3. use the exponential and extraction of roots function keys on a calculator;
4. solve applications for which linear equations are mathematical models;
5. solve linear inequalities and write the solution on the number line;
6. write the equation of a line given the appropriate information.

## COURSE GRADE

There will be three in-class tests and a comprehensive final. Homework will be assigned periodically. A student's final grade will be determined as follows:

Homework: 10%

Tests: 90%

TEST DATES: 07/24/2008  
08/14/2008  
09/04/2008  
09/09/2008 **Final Exams**

**MAKE-UP:** No make-up test will be given unless arrangements are made with the instructor no later than the scheduled exam date. Failure to do so will result in a grade of ZERO on the test. A valid excuse with proof is required for taking a make-up test. Make-up tests must be taken one week from the scheduled date.

**ATTENDANCE:** Class attendance is mandatory.

**WITHDRAWAL:** You are completely responsible for your own withdrawal.

**PLAGIARISM:** Plagiarism is the representation of the ideas or writings of another as your own. The penalty for plagiarism is failure of the course.

**NOTICE:** Offensive statements regarding one's race, sex, creed, national origin, physical disability or mental disability are not appropriate and will not be tolerated. These statements may be considered a violation of the standards of conduct as stated in the current catalog on page 37.

**NOTE:** No food or drinks are allowed in the labs or classrooms (Student Handbook page 21)

**THIS SYLLABUS IS TENTATIVE AND SUBJECT TO CHANGE AT THE DISCRETION OF THE INSTRUCTOR.**