DLSHSI
DE LA SALLE HEALTH SCIENCES INSTITUTE
Nurturing Life

College of Humanities and Sciences
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Local: 5007 (Dean's Secretary) | 1412 (Dean)
1345 (Dept. of Integrated Humanities and Sciences)
1408 (Dept. of Chemistry)
1115 (Chemistry Lab) | 1405 (Biology & Physics Lab)

COURSE SYLLABUS

DEPARTMENT	:	**Integrated Humanities and Sciences**
COURSE CODE AND COURSE TITLE	:	**GE - MATH 103 - Biostatistics**
NUMBER OF UNITS	:	**3.0**
PRE-REQUISITE	:	**GE – MATH 101**
CLASS DAYS AND CLASS TIME	:	_____
ROOM:	:	_____
INSTRUCTOR/PROFESSOR	:	_____
CONSULTATION HOURS	:	_____

COURSE DESCRIPTION:

This course deals with basic statistical concepts, principles and methods in the collection, data organization, presentation, analysis and interpretation of qualitative data with focus on statistics as applied to research.

LEARNING OUTCOMES:

LO 1: Understanding of basic concepts across the domains of knowledge
LO 2: Critical, analytical, and creative thinking
LO 3: Understanding and respect for human rights
LO 4: Ability to contribute personally and meaningfully to the country's development
LO 5: Working effectively in a group
LO 6: Problem solving (including real-world problems)

LEARNING PLAN:

TOPICS	INTENDED LEARNING OBJECTIVES	TEACHING AND LEARNING STRATEGIES	METHOD OF ASSESSMENT
Class Orientation	Display knowledge of what are expected of them, the grading system, and the house rules.	Discussion of the Expectations of both Professor and Students. Forum	
1. Introduction 1.1 Definition, Nature, and Importance of Statistics 1.2 Definition of Some Basic Statistical Terms 1.3 Levels of Measurement	Know the importance of statistics in our everyday life. Define statistics terms. Appreciate the role of statistics in medicine and biological science.	Lecture Interactive Discussion Collaborative Learning	Board Work Practice Exercise Short Quiz
2. Data Collection 2.1 Methods of Data Collection 2.2 Sampling 3. Methods of Data Presentation	Describe various types of sampling methods to data collection and apply these methods. Know when and how to apply basic biostatistics methods.	Lecture Interactive Discussion Collaborative Learning	Practice Exercise Seatwork
4. Frequency Distribution 4.1 Components of a Frequency Distribution 4. 2 Steps in Constructing A Frequency	Create and interpret frequency distribution tables. Display data graphically and interpret the following types of graph.	Lecture Interactive Discussion	Practice Exercise

Distribution 4. 3 Graphical Representation of Frequency Distribution		Use of Microsoft Excel	Long Quiz
5. Measures of Central Tendency 5.1 Summation Notation 5.2 Mean, Median and Mode 5.3 Quartiles, Deciles and Percentiles	Select an appropriate measure of central tendency. Perform mean, median and mode calculations as well as quantifying the range numerically.	Collaborative Learning Lecture	Problem set Long Quiz
6. Measures of Dispersion 6.1 Measures of Absolute Dispersion 6.2 Measures of Relative Dispersion	Compute the range, interquartile range, variance and standard deviation and know what these values mean.	Discussion	Long Quiz
FIRST COMPREHENSIVE ASSESSMENT			

TOPICS	**INTENDED LEARNING OBJECTIVES**	**TEACHING AND LEARNING STRATEGIES**	**METHOD OF ASSESSMENT**
7. Probability 7.1 Random Experiment, Sample Space and Events 7.2 Methods of Counting 7.3 Some Rules on Probability	Understand the basic concept of probability theory. Find the total number of outcomes in a sequence of events using tree diagram and multiplication rule. Compute probabilities by modeling sample spaces and applying rules of permutation and combination.	Lecture Interactive Discussion Collaborative Learning	Board Work Practice Exercise Long Quiz

8. Probability Distribution 8.1 Concept of Random Variable 8.2 The Binomial Distribution 8.3 The Normal Distribution	Construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance. Compute probabilities based on practical situations using binomial and normal distribution.	Lecture Interactive Discussion Collaborative Learning	Practice Exercise Problem Set Long Quiz
SECOND COMPREHENSIVE ASSESSMENT			

TOPICS	**INTENDED LEARNING OBJECTIVES**	**TEACHING AND LEARNING STRATEGIES**	**METHOD OF ASSESSMENT**
9. Hypothesis Testing 9.1 Basic Concepts 9.2 Test on the Mean of a Single Population 9.3 Test on the Difference of Means of Two Populations	Interpret and draw conclusions from the results of hypothesis testing. Formulate null and alternative hypotheses for different statistical tests.	Lecture Interactive Discussion Collaborative Learning	Board Work Problem Set Long Quiz
10. Non-Parametric Test – Chi-square Test 11. Regression and Correlation 11.1 Correlation Analysis	Set-up a contingency analysis table and perform a chi-square test of independence. Determine whether the correlation is significant. Calculate and interpret the correlation between	Lecture Interactive Discussion	Practice Exercises

11.1.1 The Linear Correlation Coefficient 12. Interpreting the Pearson Product Moment Correlation Coefficient	two variables.	Small Group Discussion	Long Quiz
THIRD COMPREHENSIVE ASSESSMENT			

FINAL COURSE OUTPUT:

As evidence of attaining the above learning outcomes, the students are required to do and submit the output as indicated.

LEARNING OUTCOME	REQUIRED OUTPUT	DUE DATE
LO1 – LO6	Research Paper At the end of the course, the students should be able to work with at most five of their classmates to write a research paper that contains the application of Statistics in the world of health sciences. The output will utilize the statistical techniques and procedures discussed in class.	March 11, 2016

RUBRIC FOR ASSESSMENT:

Criteria	Outstanding 4	Very Satisfactory 3	Satisfactory 2	Needs Improvement 1	Score
God Loving Attitude towards completing the task	Highly positive, attributing to God their success in finishing the task	Positive, trusting that God guide them in finishing the task	Moderately positive, trusting that God guide them in finishing the task	Negative, failing to acknowledge that God guide them in finishing the task	
Person-Oriented Collaboration	Student takes full responsibility for and completes the assigned tasks on time.	Student takes full responsibility for and completes the assigned tasks.	Student takes responsibility for and submits incomplete assigned tasks.	Student does not show responsibility for and never submits assigned tasks.	
Persosn-Oriented Innovation/Authentic work	Excellently new and novel ideas all presented based on the given problem.	New ideas are given based on the given problem.	Not so new ideas are given but still based on the given theme and yet some parts are taken from a previous work	Just a replication of previous work and has no relation to the given problem.	
Patriotic Health Professionals Honesty/Integrity	Paper has complete and proper acknowledgments	Paper has proper acknowledgments	Paper with improper acknowledgments	Paper with no acknowledgments	

OTHER REQUIREMENTS AND FORMS OF ASSESSMENTS:

Aside from the final output, the students are assessed at other times during the term by the following:

1. Quizzes/Long Test
2. Seatwork
3. Problem Set
4. Oral Participation
5. Major Exam
6. One Research Day / Alternative Class per Term

LEVELS OF ASSESSMENT:

FORM OF ASSESSMENT	PERCENTAGE WEIGHT
• Major Exam	50%
• Long and Short Quizzes • Seat Works	30%
• Problem Sets • Oral Participation	20%
OVERALL POINTS	100%

COMPUTATION OF GRADES:

Each form of assessment will be computed as follows:

$$\text{ASSESSMENT SCORE} = \frac{\text{RAW SCORE}}{\text{TOTAL SCORE}} \times 50 + 50$$

At the end of the course, the final course grade will be computed as follows:

$$\text{FINAL COURSE GRADE} = \left(\frac{\text{PRELIM GRADE} + \text{MIDTERM GRADE} + \text{FINAL GRADE}}{3} \times 0.9 \right) + \left(\text{FINAL COURSE OUTPUT SCORE} \times 0.1 \right) = 100$$

REFERENCES:

Berenson, M., et al., (2002). *Statistics for managers*. 3rd Edition. New Jersey: Prentice Hall Co.
Mendehall, W. et al., (1999). *Introduction to probability and statistics*. 10th Edition. USA: An International Thomson, Publishing Co.
Reyes, C., et al., (2003). *Elementary statistics*. 2nd Edition. Manila: National Bookstore Inc.
Thomas, G. et al., (2008). *An introduction to biostatistics*. Illinois: Waveland Press, Inc.

INTERNET SOURCES:

Easton, V. *Statistics glossary v1.1*. Retrieved from http://www.stats.gla.ac.uk/steps/glossary/
Statsoft electronic statistics textbook. Retrieved from http://www.statsoft.com/textbook
The source for statistics education. Retrieved from http://www.statistics.com

CLASS POLICIES:

1. Students are allowed 20% of the total number of school days or 14 hours of absences inclusive of tardiness. All absences after that shall mean excessive absences, which will merit a grade of 0.00. Attendance policies found in the Student Handbook apply.
2. Should the students fail to submit a requirement the following will be considered such that:
    a. they will be given a score of zero (0) with a corresponding grade of zero percent (0%) in a requirement which is not submitted under the following conditions:
        a.1. they are given a chance to make-up for the said requirement and
        a.2. they are given enough time to work on the make-up requirement.
    b. they will be given a score of zero (0) with a corresponding grade of zero percent (0%) in a quiz which is given during their absence, under the following conditions:
        b.1. the absence is unexcused;
        b.2. they are offered a make-up quiz and still fail to show-up during the given time and
        b.3. they are given enough time to prepare for the make-up quiz.
    c. In case the students submitted a requirement given by the instructor/professor to make-up for their lost grade, a certain percent will be deducted on their actual grade.
        c.1. The deduction will be determined by the subject teacher.
    d. Home works will be due at the beginning of the class. No homework shall be accepted thereafter.

e. Special major examinations are scheduled a week after the administration of the major examinations. No special examination will be given thereafter EXCEPT IN SPECIAL SITUATIONS. Moreover, there are no special practical examinations that will be given to those who failed to take it on the scheduled date.

4. Students are expected to participate in small-group exercises and/or other class learning activities.
5. Cellular/Mobile phones and the likes should always be in silent mode during class hours; the use of cellular phones is prohibited in class unless a special permission is sought. Tablets and laptops may be used to take down notes and may not be used to browse online resources at the time of discussion otherwise such devises will be confiscated throughout the duration of the class except with the permission of the professor.
6. Cheating and plagiarism in any form will merit a final grade of 0.00. To avoid cheating during examinations, handkerchief, jackets and gadgets like cellphones, tablets and calculators (teacher's prerogative) should be placed inside the school bags. Furthermore, these school bags should be placed in front of the teacher's table.
    a. Plagiarism is a form of cheating which will be strictly dealt with, in accordance to the provisions stipulated in the Student's Manual.
7. Any concerns (teaching, grades, interrelationship inside and relative to the class, etc.) should be properly addressed to the subject-teacher for appropriate action. Students may seek the help and guidance of their academic/registration adviser in resolving the issue with the subject–teacher.

All policies (attendance, tardiness, decorum, grievances, etc.) will be subject to the provisions of the latest version of the Student Handbook.

ENDORSED:	**RECOMMENDING APPROVAL:**	**APPROVED:**
MAY VELUZ G. SALANSANG, MSME	**ILUMINADA A. RONIO, MSc**	**MARGEL C. BONIFACIO, RCh, PhD**
Cluster Coordinator, Mathematics and Computer	*Department Chair*	*Dean*