1. DESCRIPTION

Statistics II is the second of two introductory courses in Statistics. The application of statistical tools learned along this course are very important in the development of both short term strategies and strategic planning in today’s business environment. This course will demand basic Excel knowledge from the students.

2. JUSTIFICATION

The purpose of this course is to present a series of statistical tools and principles which will be found useful to all individuals regardless of their fields of specialization. It has been designed for those presently engaged in applications of statistics to their own special problems of research.

3. OBJECTIVES

a. General
To help to the development of the skills and corresponding understandings necessary to analyze data via bivariate and multivariate methods of statistical analysis.

b. Specific
The student:
1. Analyzes sample means via appropriate statistical procedures
2. Explains the foundational concepts involved with conducting bivariate and multivariate types of statistical analysis.
3. Conducts the following types of statistical analyses:
   a. bivariate correlation analysis.
   b. simple linear regression analysis.
   c. multiple regression analysis.
   d. ANOVA & ANCOVA analyses.
4. Explains the foundational concepts involved with the following types of advanced methods of statistical analyses.
   a. path analysis and / or structural equation modeling.
   b. profile analysis
   c. discriminant function analysis
5. Interprets relevant statistics and parameters presented in either MINITAB and / or EXCEL output tables.
6. Utilizes / Applies appropriate method of statistical analysis per data type & objective of analyses.
7. Discusses statistical findings reported in the field of business and economics.
4. COMPETENCIES
- To compute estimated populations means via appropriate statistical procedures.
- To calculate and test different Hypothesis testings.
- To analyze and estimate an equation to represent data.
- To sketch the behavior of variables.

5. PROGRAM CONTENT

<table>
<thead>
<tr>
<th>DATE</th>
<th>SPECIFIC COMPETENCIES</th>
<th>CONTENTS</th>
<th>Homework/projects/</th>
<th>ASSESSMENT</th>
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</thead>
<tbody>
<tr>
<td>JAN 11</td>
<td></td>
<td>Review of Hypothesis Testing</td>
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<td>Reviews Basic Hypothesis Testing concepts</td>
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<td>JAN 12</td>
<td>Plans and analyzes the steps involved in One and Two Sample Hypothesis testing</td>
<td>One and Two-Sample Tests of Hypothesis</td>
<td>Exercises: 1 - 65</td>
<td>Differentiates between 1 and 2 sample hypotheses testings.</td>
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<td>JAN 13</td>
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<td>JAN 14</td>
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<td>Analysis of the Variance Intro</td>
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<td>JAN 18</td>
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<td>Analysis of the Variance Analyzing the table</td>
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<td>JAN 19</td>
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<td>Analysis of the Variance: Post-Hoc analysis</td>
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<td>JAN 20</td>
<td>Discusses, plans, calculates, and evaluates variance analyses</td>
<td>Multiple analysis of the variance: MANOVA</td>
<td>Exercise: 1 - 47, Supplemental</td>
<td>Differentiates between ONE-way and TWO Ways ANOVA</td>
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<td>JAN 25</td>
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<td>JAN 26</td>
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<td>JAN 27</td>
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<td>Analysis of the covariance</td>
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<td>Uses the Covariance matrix to identify any relationship between variables.</td>
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<td>JAN 28</td>
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<td>Date</td>
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<td>FEB 1</td>
<td>Review for exam</td>
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<td>FEB 2-3</td>
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<td>FEB 4</td>
<td>Midterm</td>
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<td>FEB 8</td>
<td>Discusses, plans, calculates and evaluates differences of proportions. Non parametric statistics, differences of proportions. Uses Chi square as an alternative to ANOVA.</td>
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<tr>
<td>FEB 9</td>
<td>Formulates linear regressions and correlates data, and makes future projections based on results of data analyses. Simple Linear Regression</td>
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<td>FEB 10</td>
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<td>FEB 17</td>
<td>Formulates multiple regression models, interprets and tests coefficients, and uses regression equations to forecast confidence intervals. Multiple Linear regression</td>
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<td>FEB 18</td>
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<td>FEB 22</td>
<td>Supplemental Exercises: TBA</td>
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<td>FEB 23</td>
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<td>FEB 25</td>
<td>Discusses, plans, and evaluates Time Series analyses. Time series</td>
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<td>MAR 1</td>
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<td>MAR 2</td>
<td>QUIZ</td>
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<td>MAR 3</td>
<td>FINAL</td>
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<td>MAR 4</td>
<td>STUDENTS CHECK THEIR FINAL'S GRADE</td>
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6. METHODOLOGY
Class periods will consist of the following activities:
1. Warm-Up / Review Problems
2. Review & Discussion of Assigned Exercises
3. Lecture / Explanation of New Concepts/Questions
4. Student Presentations of Problems of the Day
5. Completion of Class Exercises

Assigned exercises will be checked for completion. Class time will be used to address all questions or uncertainties on assigned problems. Mastery of concepts will be demonstrated via weekly quiz scores.

Note:
1. Violation of rules such as unauthorized use/ringing of cell phones/computer during class time will result in a 20% deduction from the latest assignment or quiz.
2. Consistent attendance is required for this class. Missed classes result in missed assignments.
3. As per UEES policy, no more than 6 absences are permitted. Three tardies count for one absence. Students are marked tardy if they arrive more than 5 minutes after class begins. (NOTE: If there is some type of schedule conflict, such as a work or transportation issue, that consistently prevents you from being in class on time, please inform the professor at the beginning of the bimester, as soon as the course begins, to work out a compromise.)
4. If you are absent or tardy, you are responsible for inquiring about missed assignments and class material.
5. No late assignments will be accepted, except in the case of prolonged, documented absence, prolonged family emergency, etc. In such a case, you are responsible for informing the professor as to the circumstances AND making arrangements for make-up work. In general, to allow for an occasional missed assignment, one assignment score (the lowest score) per half bimester will be dropped.

7.1 ASSESSMENT CRITERIA
- Class discussion.
- Warm-up problems.
- Elaboration of reports.

7.2 PERFORMANCE MARKERS
- Calculates sample descriptive measures.
- Uses Excel templates to calculate critical values.
- Makes use of the p-value criterion to make decisions.
- Differentiates and selects the best between a series of options.
- Uses non-parametric statistics to make decisions.
- Builds regression models to forecast.
7.3 WEIGHTING
Final course grades will be based upon the following:

- Problem Sets: 35%
- Quiz Problems: 60%
- Participation in class: 5%
- Midterm & Final Exam: 100%

8. BIBLIOGRAPHY

8.1 REQUIRED

8.2 COMPLEMENTARY
Using Multivariate Statistics; Tabachnick, B.A., and Fidell, T.
Additional Journal Publications (TBA)

8.3 Supplementary Readings:
Additional Handouts TBA

8.4 WEBLIOGRAPHY:
EBSCO DATABASE

9. FACULTY INFORMATION

NAME: Ec. Juan Carlos Zerna

ACADEMIC CREDENTIALS-
Graduate Degree
Economist (Finance specialization)

CURRENT TITLE
Greenville S.A. Academic Director

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10.- FACULTY SIGNATURE AND OR DEAN/DIRECTOR’S APPROVAL (SIGNATURE)

Prepared by: Ec. Juan Carlos Zerna Date: 12/07/2009

Reviewed by: Dean Monica Reynoso Date: December, 2009