KIN610 Quantitative Analysis of Research

Department of Kinesiology **CSU, NORTHRIDGE**

Fall 2011	**KIN 610-15925**	T 19:00-21:50	Location: **KN276**

Instructor: Konstantinos "**Dino**" Vrongistinos, Ph.D.	**e-mail:** kv61497@csun.edu
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Office Hours: T, Th 10:00-11:30, T 17:00-18:00, & by appointment	*http://www.csun.edu/~kv61497*

 Required Text: Vincent, W. J. Statistics In Kinesiology, 3rd or 4th ed, Human Kinetics Pub., Champaign, IL.

Course Prerequisites: Math140 and a Computer Class or equivalent
                              (Introductory Statistics and be familiar with computers)

Course Description :   A study of advanced statistical methods for quantitative analysis of research data in
                              Kinesiology by personal computer.

Course Objectives: This course is designed to give the student the essential principles of statistics in
                              Kinesiology so that they can work independently on their thesis projects.

Experiences are provided to help the student understand basic concepts relating to classification of data, samples and populations, hypothesis testing, and probability statements. The student will be introduced to various concepts in order to be able to compute from raw data, and interpret the following statistical concepts:

Sampling Theorem & frequency distributions	Measures of central tendency (Mode, Median, Mean)
Measures of variability (Range, IQR, Std. Dev.)	Standard Scores (z, %, T, Stanines)
Correlation coefficients	Regression
Dependent and Independent t tests	Simple ANOVA and post-hoc tests
Repeated Measures ANOVA	Factorial ANOVA
Introduction to Non-parametric tests	Introduction to ANCOVA and MANOVA
Introduction to Discriminant & Factor Analysis	Introduction to Spreadsheets & SPSS

Every student at the end of the semester is expected to write a final project in the format a of a peer review journal of their choice and presented in the class. The data maybe real, fictitious, or borrowed.

Evaluation: Course grades will be based on the following point distribution.

KIN610 (3 units)		
Project	An independent hands-on project	200 pts (20%)
Midterm	Combined Test	200 pts (20%)
Portfolio, Homework & Quizzes	Portfolios Due Day 15th Week	200 pts (20%)
Power Point Presentation	Related with Project	100 pts (10%)
Final Exam	Combined Test	300 pts (30%)
Course Total		1000pts (100%)

A three percent will be subtracted from the final grade for each **unexcused** *absence* **beyond one absence**.
        Combined tests include (but not limited) to, multiple-choice questions, essay questions, and calculations by hand and by computer. Different portions of the test will be home-tests and some will be classroom-tests.
        Portions of classroom tests will be open-book tests and some portions will be closed-book tests.
Assignment of grades will be based on the following ranges:

A = 900-1000 pts;	B = 800-899 pts;	C = 700-799 pts;	D = 600-699 pts;	F = less than 600 pts.

Assignment of plus/minus grade adjustments to the above scale will be determined by the final class point distribution.
A minimum of 83% is required for B.

Examination Policies & Miscellaneous Information

1**.** Students will **not** be allowed to leave the room during exams. Please attend to any personal needs before the exam.

2. Make-up exams will be considered only under exceptional circumstances.

(Note: "I overslept", "I'm tired", "I'm not prepared", etc. are **not** exceptional circumstances!)

Any student who fails to contact the instructor prior to any missed exam may **not** be allowed to makeup the exam.

3. Absence for medical reasons requires written verification by a physician.

4. Exams will **not** be rescheduled based on a student's personal work/school schedule. Please plan ahead.

5. Questions/concerns regarding grading for any exam must be resolved with the instructor within **one week** of the date graded-exams are returned to the student.

6. All exams are non-circulating.

A.   *Time Elements*   Class begins promptly on the scheduled hour

B.   *Behavior*   Treat other students and the instructor with respect and civility. Free discussion, inquiry, and expression is encouraged in this class. Classroom behavior that interferes with either (a) the instructor's ability to conduct the class or (b) the ability of students to benefit from the instruction is not acceptable. Examples may include routinely entering class late or departing early; use of beepers, cellular phones, or other electronic devices; repeatedly talking in class without being recognized; talking while others are speaking; or arguing in a way that is perceived as "crossing the civility line." Eating food or chewing ice during lecture or discussion time is unacceptable. Turn-off cellular phones and other communications electronics

C.   *Cheating & Plagiarism* will not be tolerated. Severe penalties will be imposed including an F on the exam, and potentially and F in the course, and may also be subject to more severe discipline by the University. Please review the Student Conduct on Academic Dishonesty in the current Schedule of Classes and in the University Catalog.

> ***Each student is expected to be familiar with, and abide by, the conditions of student conduct, as presented in the CSUN Catalog (Appendix C), with emphasis on sections: Student Conduct Code, Academic Dishonesty, Faculty Policy on Academic Dishonesty, and Penalties. Any student engaging in academic dishonesty (e.g., cheating, fabrication, facilitating academic dishonesty, plagiarism) is subject to discipline, which may include a failing grade in the course, and may also be subject to more severe discipline by the University.***

D.   *Assignments*   turned in one day late will receive 50% credit. After one day, no credit will be given.

E.   Requests for an Incomplete (I) must confirm to university policies. Among other requirements, "I" is possible only for instances in which a student is demonstrating passing work in the class.

F.   Attendance Policy: Attendance is expected for this class, and each student is responsible for all material covered along with any changes to the syllabus that are discussed in class. Any foreseeable absences should be discussed with the professor beforehand. If an emergency arises, telephone or email before class so that there is a record. If I do not receive any prior notification, I will not allow make-ups for any material missed (i.e., exams, homework). Attendance is checked randomly and during tests and assignments due days.

A three percent will be subtracted from the final grade for each **unexcused** *absence* **beyond one absence**.

<u>Note:</u>   **Students with exceptional needs**: This instructor, in conjunction with California State University Northridge, is committed to upholding and maintaining all aspects of the federal Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973. If you are a student with a disability and wish to request accommodations, please contact the **Center on Disabilities** located in Student Services Building BH 110, or call (818) 677-2684 for an appointment. http://www.csun.edu/cod/ , codss@csun.edu, Phone: (818) 677-2684, Fax: (818) 677-4929, Office Hours: M - F 8:00-16:45 Any information regarding your disability will remain confidential. Because many accommodations require early planning, requests for accommodation should be made as early as possible. Any requests for accommodations will be reviewed in a timely manner to determine their appropriateness for this class.

      Attention: Last day to drop is Friday of the 3rd week of classes

IMPORTANT
KINESIOLOGY GRADUATE STUDENTS MUST EARN A GRADE of B OR ABOVE, TO SATISFY THE DEPARTMENT OF KINESIOLOGY POLICY REQUIREMENTS

<u>Reading Assignments</u>

Please Note:

The reading assignments listed below are intended to *supplement* the lecture materials. Some of the material in the text will not be covered in lecture but may be included on the exams. By the same token, all of the information given in lecture will not be found in the text, but may also be included on the exams. Students are expected to have read the assigned sections in the text *before* the scheduled lectures to which they apply. The reading assignment schedule is subject to change with appropriate notice.

	T				Reading Materials
Aug	Week 1	30	Sampling Theorem, Data Reduction, Percentiles		Ch. 1,2,3,
Sept	Week 2	6	Measures of Central Tendency and of Variability		Ch. 4,5,6
	Week 3	13	The Normal Curve		Ch. 6,7
	Week 4	20	Hypothesis Testing for correlation and regression – Relating two or more variables of one group	Hw1	Ch. 7
	Week 5	27	Hypothesis Testing for t-tests, comparing one variable between two groups		Ch. 8
	Week 6	4	More on t-tests. Power & Sample size. **Project Draft Due (Introduction and Methods)**	Hw2-Qz	Ch. 8, 9
	Week 7	11	**Midterm and Web assignment Home-Test**	**Midterm**	**Midterm**
	Week	18	Simple ANOVA & Post-hoc tests		Ch. 9
	Week	25	Repeated measures ANOVA		Ch. 10
	Week	1	Factorial ANOVA between-between		Ch. 10, 11
	Week	8	Factorial ANOVA within-within	Hw3-Qz	Ch. 11
	Week	15	Factorial ANOVA Mixed design		
	Week	22	Non-parametric techniques **Project Draft Due (Results)**		Ch. 11
	Week	29	Review Advanced Techniques	Hw4	Ch. 13, 12
	Week	6	Review Power Point Presentations **Project Final Manuscript Due,**	Term Paper due	Readings
			Midterm and Web assignment Home-Test		
Dec	13	**Final**	DEC 13, 2011 08:00 PM - 10:00 PM *Exam may start at 7:00 pm -- if it does not conflict with other class	**Final**	**Tuesday Dec 13 <u>19:00-21:00</u>***

Schedule is tentative and subject to changes

Attention: Last day to drop is Friday of the 3rd week of classes

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Research Project

Each student has to complete an individual project. Students need to collect quantitative data based on a research hypothesis. Statistical analysis should based either on a t-test or an ANOVA (or equivalent non-parametric technique). Students can use a more advanced techniques but it is not recommended to avoid projects difficult to execute.

Rubric for grading -- Total Points 200

12/12 Approximate 12 pages with 12 references from refereed journals	1 weak	2 adequate	3 exceeds basic	4 comprehensive
Presentation of Report (Times New Roman size 12, one inch margin, double spaced) (x2)				
Clarity in writing (x4)				
APA style (x3)				
Title (Concise descriptive but not conclusive) (x2)				
Abstract (Concise, self-standing, comprehensible) (x4)				
Significance, Purpose, Hypothesis (SPH) (x3)				
Review of Literature: Overall				
Describe Paradigm				
Converge and justify SPH				
Common themes				
Controversies				
Results across different populations				
Prior methods				
Reliability validity of instrumentation				
How findings may affect theory				
Participants				
Variables				
Protocol				
Instrumentation				
Data Reduction				
Statistical Procedures (x4)				
Table				
Graph				
Statistical Significance explained (x4)				
How statistics support hypothesis (x3)				
Connect Results with Literature (x2)				
How could be improved				
What worked well				
Theoretical ramifications				
Practical applications				

Use of more than one non-referred reference will result in 10% reduction from your total project grade

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Portfolio, Homework & Quizzes

Assigned homework must be completed on time 5%
Quizzes will be administered with one-week notice 5%
All assignments and quizzes should be presented at the end in a form of a portfolio 5%
Individualized notes relevant with the subject matter included in the portfolio (e.g. Chapters, Assignments) 5%