Kinesiology
KIN 4040
3 Units

Measurement, Statistics, and Evaluation of Human Performance

Meeting Days:	M, W	Instructor:	Jacob R. Goodin, PhD, CSCS
Meeting Times:	8:30 to 9:35	Phone:	(619) 849-2254
Meeting Location(s):	Hughes, Ex. Phys Lab	Email:	jgoodin@pointloma.edu
Final Exam:	Fri 12/20, 7:30a to 10:00a	Office Hours:	By appointment

PLNU Mission
To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION

Study of measurement techniques and instruments, descriptive and inferential statistics and evaluation procedures in human performance. Principles and techniques of construction, organization, administration, and interpretation involved in human performance research. Includes critical evaluation of data using basic statistical techniques and an evaluation of research design in human performance- related studies.

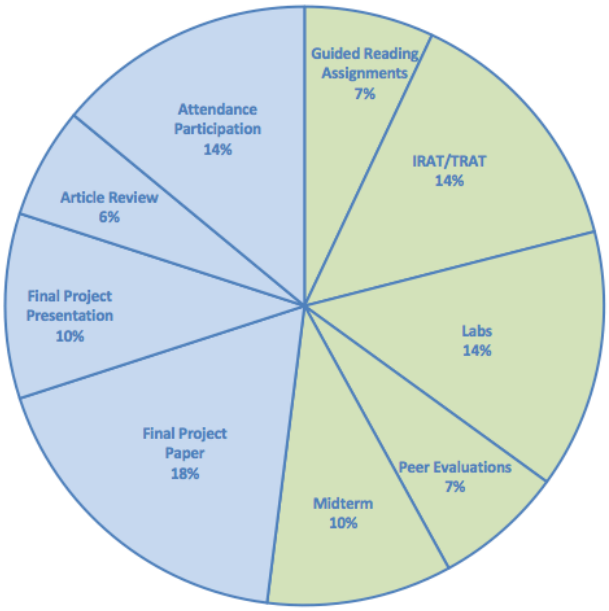
COURSE LEARNING OUTCOMES

- Identify the basic concepts of measurement, testing, and evaluation in exercise science & sport science
- Describe important issues related to the ethical use of human subjects in research and the role of the institutional review board in protecting them.
- Apply basic statistical procedures in data analysis, utilize Excel and SPSS for statistical analyses and be able to accurately interpret the output
- Apply basic quantitative statistical procedures in data analysis including descriptive statistics, chi-square, t-tests, correlation, regression, and 1- and 2-way ANOVA with post-hoc tests.
- Define and differentiate the concepts and types of reliability, objectivity, and validity used to evaluate norm-referenced and criterion-referenced data
- Construct sound methodology to address a research question
- Collect and interpret data based on a sound methodology that addresses a well-constructed research question
- Use descriptive and inferential statistics to make decisions.

COURSE GRADING AND ASSIGNMENTS

Guided Reading Assignments	7x10pts
IRAT/TRAT	7x20pts
Labs	7x20pts
Midterm	100pts
Final Project Paper	180pts
Final Project Presentation	100pts
Peer Evaluations	2x30pts
Article Review	7x10pts
Attendance & Participation	28x5pts

Total: 1000pts



The final grade percentage will be rounded to the nearest percent with grades being recorded as follows:

Grade	Percent	Grade	Percent	Grade	Percent
A	93 - 100	B-	80 - 82.9	D+	67 - 69.9
A-	90 - 92.9	C+	77 - 79.9	D	63 - 66.9
B+	87 - 89.9	C	73 - 76.9	D-	60 - 62.9
B	83 - 86.9	C-	70 - 72.9	F	0 - 59.9

EDUCATIONAL OPPORTUNITIES

Note: All assignments are to be submitted electronically via Canvas

1) **Guided Reading Assignments**: A guided reading assignment will be completed for each chapter we cover in class (chapters 1-7). Templates for these can be downloaded from Canvas and contain the major headings and subheadings for each chapter. Complete these as a team (Google Docs is helpful) and submit them to Canvas. For each chapter I will randomly select one team and grade their notes closely. If their notes are complete and thorough, every team that submitted an assignment will receive full points. If not, I will grade every team's work closely, subtracting points for incomplete or sub-par notes. These assignments are intended to introduce students to content that we will build on in class, to cover topics that we may not have time to directly address during lecture, and to give students points for the reading that they should be doing already. I will compile these notes to serve as an informal study guide at the end of the semester. See Canvas for example.

2) **Individual Readiness Assessment Test** (**IRAT**): Once per module, an IRAT will be administered at the beginning of class. These assessments are designed to provide you, your team, and your professor with feedback on your readiness for the data collection and lab topic of the day.
   - The assessment is timed to be available for the first 10 minutes of class.
   - No provision is made for make-up or late arrival assessments.

- Unlike the TRAT, students do not get immediate feedback on the IRAT
- We will vote on whether the IRAT constitutes 40%, 50%, or 60% of your total IRAT/TRAT score (20 pts total).
- You can drop your lowest IRAT score.

3) **Team Readiness Assessment Test** (**TRAT**): Taken after the IRAT is completed. Enhances mastery through team-based learning and discussion to determine correct answers.
   - Work together with your team to reach a consensus on each answer.
   - Your team's answer to each question is scratched off the answer sheet.
   - The correct answer will reveal a star shape under the scratcher, an incorrect answer will be blank.
   - We will vote on whether the TRAT constitutes 40%, 50%, or 60% of your total IRAT/TRAT score (20 pts total).
   - The score for each item is based upon the number of attempts the team takes to get the correct answer
     - 1^{st} attempt = 4 pts
     - 2^{nd} attempt = 2 pts
     - 3^{rd} attempt = 1 pts
     - 4^{th} attempt = 0 pts
     - Divide total by 4, and multiply by the percent voted on above
   - No TRAT scores can be dropped.

4) **Labs**: All lab sessions will consist of data collection component (day 1) and a data analysis component (day 2). On day 1 (after the IRAT/TRAT) students will be tasked with collecting specific data in the Human Performance Lab (HPL) or Exercise Physiology Lab. Data collection procedures should be reviewed extensively on Canvas *prior to class*, students should be ready to act as both the researcher and participant. All data will be entered into a shared Google Sheet to be used during day 2. On day 2, the class will meet in Hughes Computer Lab and students will complete a series of data analysis tasks with their gathered data. These labs are intended to give students experiences in collecting, analyzing, and interpreting a wide variety of biometric data.

5) **Peer Evaluations**: Students will rate each member of their team both qualitatively and quantitatively, focusing on positive qualities and constructive feedback with the intention fostering of individual responsibility, personal growth, and humble teachability. These evaluations will be completed at the end of every-other module (every 4 weeks). The first evaluation is not associated with any points, and will serve as an early indicator of potential areas to improve in. Links to these evaluations can be found in Canvas and will be completed through Google Forms.

6) **Article Reviews**: Students will find a peer-reviewed article to review that matches criteria listed in Canvas and is within the student's area of interest. The student will critically evaluate the article as well as answer a series of questions about the methodology and

findings. Article Review assignments for each module can be found in Canvas. Both the article PDF and the review should be submitted to Canvas.

7) **Midterm**: The midterm is an extension of Lab 5 requiring a longer, APA-formatted write-up. This write-up will serve as a good practice for your final project.

8) **Final Project Paper & Presentation**: The Final Project Paper (180 pts) and Presentation (100 pts) will incorporate aspects of each module, and are intended to serve as a culminating research experience similar to those encountered at the graduate level. Students will collect and analyze data and present their findings as a team, but will write their papers individually. Presentations will be delivered during the last week of class, and papers will be due the night before at 11:59p.

9) **Attendance and Participation**: Daily participation points will be earned by attending class and participating in class polls, questions, and discussions. These questions are graded only for participation, and will help us both assess your understanding of daily concepts and previous readings. Although it won't excuse you from class, emailing your professor when you know you will be absent is common courtesy. After 2 absences, your overall grade will be docked with each absence. Absences during IRAT/TRAT days will result in a grade of "0" for the IRAT.

REQUIRED TEXTS AND RECOMMENDED RESOURCES

Required:
Morrow, J. R., Jr., Mood, D. P., Disch, J. G., & Kang, M. (2015). *Measurement and Evaluation in Human Performance* (5th ed.). Champaign, IL: Human Kinetics.

Recommended:
Field, A. (2017). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). London, UK: Sage Publications Ltd.

LATE AND INCOMPLETE ASSIGNMENTS

All assignments are to be submitted/turned in according to the specified time in Canvas. Late assignments/quizzes will be docked 20% per day, with assignments/quizzes submitted over 5 days late receiving a 0. Completes will only be assigned in extremely unusual circumstances.

FINAL EXAMINATION POLICY

Successful completion of this class requires delivering a final presentation on the scheduled final exam day, Friday 5/3, 7:30 to 10:00a. No requests for early presentations or alternative days will be approved.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See Academic Policies for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

If you have a diagnosed disability, please contact PLNU's Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619-849- 2486 or by e-mail at drc@pointloma.edu. See Disability Resource Center for additional information.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See Academic Policies in the Undergraduate Academic Catalog.

TUTORING

The PLNU Tutorial Center is available free of charge for all current, undergraduate PLNU students. It offers tutoring for most subjects, as well as for general help with paper editing, study skills, etc. The Tutorial Center is located on the south end of Bond Academic Center, next to the Study Abroad offices. Tutoring is available by appointment only, may be arranged in person at the Tutorial Center, over the phone at (619) 849 2593, or via email at TutorialServices@pointloma.edu.

OFFICE HOURS

It is important to me that I get to know each of you on an individual level, so stop by and say hi! My official office hours (listed above) are tentative—other meetings or appointments may arise—so schedule 24 hours in advance if you have pressing issues, but feel freedom to stop by whenever you'd like. I have an open door for questions, nerdy training theory discussions, or if you just need someone to listen and pray for you. I often won't have all the answers, but I'm positive we can figure it out together!

Tentative Class Schedule

Module	Weeks	Day 1: Module Intro, Lecture	Day 2: Lecture	Day 3: IRAT/TRAT, Data Collection	Day 4: Data Analysis
Module 1 Descriptive Statistics & The Normal Distribution Chapters: 1-3	Weeks 1 & 2	Monday, 9/2 Labor Day	Wednesday, 9/4 Measurement Basics, Descriptive Statistics Chapters: 1-3 Format: Lecture, Discussion Location: Hughes Lab	Monday, 9/9 Module 1 IRAT/TRAT, Lab 1 Data Chapters: 1-3 Format: IRAT/TRAT, Data Collection Location: Exercise Phys Lab Due: Guided Reading 1-3	Wednesday, 9/11 Lab 1: Descriptive Statistics Chapters: 1-3 Format: Data Analysis Location: Hughes Lab Due: Article Review 1
Module 2 Correlation: Pearson, Kendall, and Spearman Chapters: 4	Weeks 3 & 4	Monday, 9/16 Research Components; Correlation Chapters: 4 Format: Lecture, Discussion Location: Hughes Lab Due: Lab 1	Wednesday, 9/18 Correlation Chapters: 4 Format: Lecture, Discussion Location: Hughes Lab	Monday, 9/23 Module 2 IRAT/TRAT, Lab 1 Data Chapters: Format: IRAT/TRAT, Data Collection Location: Exercise Phys Lab Due: Guided Reading 4	Wednesday, 9/25 Lab 2: Correlation Chapters: 4 Format: Data Analysis Location: Hughes Lab Due: Article Review 2
Module 3 Linear Regression & Multiple Linear Regression Chapters: 4	Weeks 5 & 6	Monday, 9/30 Linear Regression Chapters: 4 Format: Lecture, Discussion Location: Hughes Lab Due: Lab 2	Wednesday, 10/2 Multiple Regression Chapters: 4 Format: Lecture, Discussion Location: Hughes Lab	Monday, 10/7 Module 3 IRAT/TRAT, Lab 3 Data Chapters: 4 Format: IRAT/TRAT, Data Collection Location: Exercise Phys Lab	Wednesday, 10/9 Lab 3: Regression Chapters: 4 Format: Data Analysis Location: Hughes Lab Due: Article Review 3, Peer Eval 1
Module 4 Inferential Statistics: Chi-Square, and t-tests Chapters: 5	Weeks 7 & 8	Monday, 10/14 Inferences Chapters: 5 Format: Lecture, Discussion Location: Hughes Lab Due: Lab 3	Wednesday, 10/16 Differences Between 2 Means Chapters: 5 Format: Lecture, Discussion Location: Hughes Lab	Monday, 10/21 Module 4 IRAT/TRAT, Lab 4 Data Chapters: 5 Format: IRAT/TRAT, Data Collection Location: Exercise Phys Lab Due: Guided Reading 5	Wednesday, 10/23 Lab 4: t-tests & Chi-square Chapters: 5 Format: Data Analysis Location: Hughes Lab Due: Article Review 4
Module 5 Review & Midterm Chapters: 1-5	Weeks 9 & 10	Monday, 10/28 Chapters 1-5 Review Chapters: 1-5 Format: Lecture, Discussion Due: Lab 4	Wednesday, 10/30 Chapters 1-5 Review Chapters: 1-5 Format: Lecture, Discussion	Monday, 11/4 Module 5 IRAT/TRAT, Lab 5 Data Chapters: 1-5 Format: IRAT/TRAT, TBL Location: Exercise Phys Lab	Wednesday, 11/6 Lab 5: Midterm Chapters: 1-5 Format: Data Analysis Location: Hughes Lab Due: Article Review 5
Module 6 Inferential Statistics: ANOVA Chapters: 5	Weeks 11 & 12	Monday, 11/11 One-way ANOVA Chapters: 5 Format: Lecture, Discussion Location: Hughes Lab Due: Lab 5 (a.k.a. Midterm)	Wednesday, 11/13 Two-way ANOVA Chapters: 5 Format: Lecture, Discussion Location: Hughes Lab	Monday, 11/18 Module 6 IRAT/TRAT, Lab 6 Data Chapters: 5 Format: IRAT/TRAT, Data Collection Location: Exercise Phys Lab	Wednesday, 11/20 Lab 6: ANOVA Chapters: 5 Format: Data Analysis Location: Hughes Lab Due: Article Review 6, Peer Eval 2
Module 7 Reliability & Validity Chapters: 6 & 7	Weeks 12 & 13	Monday, 11/25 Reliability & Validity Chapters: 6 & 7 Format: Lecture, Discussion Location: Hughes Lab Due: Lab 6	Wednesday, 11/27 Reliability & Validity Chapters: 6 & 7 Format: Online Lecture Location: Online	Monday, 12/2 Module 7 IRAT/TRAT, Lab 7 Data Chapters: 6 & 7 Format: IRAT/TRAT, Data Collection Location: Exercise Phys Lab Due: Guided Reading 6 & 7	Wednesday, 12/4 Lab 7: Reliability & Validity Chapters: 6 & 7 Format: Data Analysis Location: Hughes Lab Due: Article Review 7
Module 8 Final Project	Weeks 14 & 15	Monday, 12/9 Final Project Presentations Due: Lab 7	Wednesday, 12/11 Final Project Presentations		Friday, 12/20 Final Exam (no class) Final Papers Due by 11:59pm