**Clinical Psychology PSY7036-F1**

**Advanced Multivariate Statistics**

Fall 2016

Tuesday 11:00-12:55am

Instructor: Merle L. Canfield, PhD

**Teaching Assistant**: TBD (most likely Canfield)

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**Office Hr**: M,T,W,R,F at 8am & by appointment

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1. **Rationale**

**This course reflects the university Scholarship mission, specifically the attainment interactive …:**

Scholarship in the Alliant context includes the discovery of new knowledge; the discovery of new applications of knowledge to solve practical problems; the integration of knowledge in new ways; and innovation in teaching knowledge and professional competencies.

**The course meets Research and Scientific Foundations competencies/objectives/goals across CSPP programs:**

Students will be able to critically evaluate the research literature. Students will be able to conduct independent research and disseminate results (Fresno PhD).

1. **Course Description, Goals, Student Learning Outcomes and Instructional Strategy**
2. ***Course Description:*** This 2 unit graduate course in the sequence of research methods courses in the PhD program. The course presents multivariate research methods as represented in the field and highlighted throughout their PhD curriculum. The multivariate methods will be presented in the context of psychological science.
3. ***Instructor Assumptions:*** Students will have a basic knowledge of statistics and experimental psychology/research methods. Students will be seeking to expand their capability into more complex research analyses and designs.
4. ***Goals:***
5. Understand multivariate research statistics and corresponding research designs.
6. Decide on appropriate methods
7. Interpret multivariate statistical output
8. Write professional research reports
9. ***Specific Learning Outcomes:*** Upon completion of the course, students will be able to:
	1. Run each statistical procedure listed below
	2. Interpret data from SPSS statistical output
	3. Write a report from statistical results.
	4. Present report to class.
10. ***Instructional Strategy****:* The course the major multivariate statistics and resulting designs used in psychological research. The first gives students an orientation to the overall scope of the course.
11. ***Class Component on Multicultural and International Issues:*** Culture impacts all aspects of research including philosophical paradigm, research questions, design, methodology, interpretation of results, and implications.
12. ***Alliant International University Credit Hour Policy:*** This two‐unit course meets in the classroom for two hours per week face‐to‐face for fifteen weeks, and it is expected that homework and assignments require ~six hours of outside work per week for a total of at least 120 hours of student work per semester.
13. **Course Schedule & Outline**

Syllabus is Subject to Change: The following is the general structure and content of the course. The exact content and schedule of the syllabus is subject to change without prior notice to meet student, faculty, or other needs. We may spend more time on some topics as needed, and conversely, may move more quickly through other topics.

Analysis and Reports:

Each analysis and report assignment should contain an implied “method” and a shortened “results” section.

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| Week/Date | Topic | Readings | Assignment  |
| 11/26 | General linear model as the basis for most (all) statistics studied this semester |  |  |
| 22/2 | Multiple regression | Book 7A, 7B, 8A, 8B | General linear model analysis and report |
| 32/9 | MANOVA | Book 5A and 5B | Regression analysis and report |
| 42/16 | Multilevel Modeling | Book 9A and 9B | MANOVA analysis and report |
| 52/23 | Logistic Regression & ROC analysis | Book 10A and 10B | Multilevel analysis and report |
| 63/1 | Discriminant Function Analysis | Book 11A and 11B | Logistic Regression & ROC analysis and report |
| 73/8 | Principle Components and Factor Analysis | Book 12A and 12B | Discriminant Function analysis and report |
| 83/15 |  Canonical Correlation | 13A and 13B | Factor analysis and report |
| 3/22  | Spring Break! |
| 93/29 | *Multidensional Scaling* | Book 14A and 14B | Canonical correlation analysis and report |
| 104/5 | Cluster Analysis | Book 15A and 15B | Multidimensional Scaling analysis and report |
| 114/12 | Confirmatory Factor Analysis | Book 16A and 16B | Cluster analysis and report |
| 124/19 | Path Analysis | Book 17A, 17B, 18A, and 18B | Confirmatory Factory analysis and report |
| 134/26 | Structural Equation modeling (SEM) | Book 19A and 19B | Path Analysis and report |
| 145/3 | Structural Equation modeling – Mediating variable(s) Groups | Book 20A and 20B | SEM analysis and report |
| 155/10 | Summary |  | Groups Mediating variable analysis and report |
| 5/17 | Finals WeekNo class scheduled  |

**Required Texts**

Meyers, L. S., Gamst, G., and Guarino, A. J. (2013) Applied Multivariate Researach: Design and Interpretation (2nd ed.). . Thousand Oaks, CA: Sage Publications Ltd.

**Optional/Suggested Text**

American Psychological Association (2009). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.

**Website Containing Notes; Articles; Statistical Pocedures and Data**

 <http://www.psy605q.com>

1. **Course Requirements and Evaluation of Students**

 **Address the following in your report:**

* 1. What are your hypotheses?
	2. Were your hypotheses supported?
	3. What alternative hypotheses might explain your results?

Exam:

 A multiple choice exam will be administered. Practice exams will be available on the web site and will be administered periodically (these will not be counted in your final grade).

**Point Breakdown**. Point values and percentages for each grade will be followed. This is a competency-based course; see *grading policy*.

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| **Grade** | **%** |
| A | **94-100** |
| A- | **90-93** |
| B+ | **87-89** |
| B | **84-86** |
| B- | **80-83** |
| F | **<80** |

***Grading Policy***:Grading in this course is competency based. Assignments are graded as either having demonstrated competence in the area targeted or failing to demonstrate competence. Demonstration of competence will result in a student receiving an “A-/B+” in the course. Occasionally, students who demonstrate particular creativity or competence on their first submission of an assignment will receive an “A.”

1. **Policies and Procedures**
2. ***Class Attendance/Lateness/Absences***: The University expects regular class attendance by all students. Each student is responsible for all academic work missed during absences. When an absence is necessary, it is the student’s responsibility to contact the instructor and/or classmates to check for missed material and assignments. See the University Catalog for the complete policy on attendance. Attendance criteria for this class are as follows: If for any reason, a student misses 2 class meetings, he or she must schedule an appointment with the instructor to develop a plan for remediation of the missed material. If the student fails to schedule the appointment and/or misses a third class, the instructor reserves the right to give the student a failing grade for the course, regardless of the student’s work to that point.
3. ***Class Participation & Professional Behavior*:** In order to obtain a grade, students are expected to come prepared to class meetings and respectfully participate in class discussions. Please be aware appropriate professional behavior is important in this class. Communicate with the instructor regarding anticipated absences, performance, and other concerns that might arise.
4. ***Late Assignments & Missed Assignments***: You are expected to turn everything in when it is due, according to the syllabus. All deadlines are final and firm unless you make **prior arrangements** with the instructor and/or have a valid excuse (medical, family, etc.). Although the instructor understands the stresses of grad school, “just forgetting” is not a valid excuse. In other words, if you have things going on in your life that you know beforehand are going to prevent you from turning something in on time DO NOT wait until the day something is due or later to tell the instructor about it.  Be proactive and make arrangements with the instructor. If you do not have a valid reason, then failure to turn in assignments when they are due will result in a loss equivalent to full letter grade (e.g., If you would have gotten a “B,” you would get an “C”).  Assignments turned in more than 3 days after the due date (with no prior arrangement) will not be accepted.
5. ***Student Disclosure of Personal Information*:** Students may be required to participate in learning activities that involve different levels of self-disclosure. Students may be evaluated in areas that include, but are not limited to, demonstration of sufficient: a) interpersonal and professional competence; b) self-awareness, self-reflection and self-evaluation; c) openness to processes of supervision; and d) resolution of problems or issues that interfere with professional development or functioning in a satisfactory manner. (The complete CSPP policy on disclosure of personal information is contained in the Alliant catalogue.)
6. ***Responsibility to Keep Copies***: Remember – it is good practice to keep copies of ALL major assignments/papers you turn in. On rare occasions, work may be lost because of computer failure or other mishaps.
7. ***Respectful Speech and Actions***: Students are always expected: 1) to promote and maintain a safe learning environment and to assist in the learning of all class members; and 2) to demonstrate a professional respect for and sensitivity to differences related to culture, ethnicity, gender, sexual orientation, appearance, and age at all times. Alliant International University, by mission and practice, is committed to fair and respectful consideration of all members of our community, and the greater communities surrounding us. All members of the University must treat one another as they would wish to be treated themselves, with dignity and concern. As an institution of higher education, Alliant International University has the obligation to combat racism, sexism, and other forms of bias and to provide an equal educational opportunity. Professional codes of ethics (e.g., from the APA for psychology students) and the Academic Code shall be the guiding principles in dealing with speech or actions that, when considered objectively, are abusive and insulting.
8. ***Academic Code of Conduct and Ethics***: The University is committed to principles of scholastic honesty. Its members are expected to abide by ethical standards both in their conduct and in their exercise of responsibility towards other members of the community. Each student’s conduct is expected to be in accordance with the standards of the University. ***The complete Academic Code, which covers acts of misconduct including assistance during examination, fabrication of data, plagiarism, unauthorized collaboration, and assisting other students in acts of misconduct, among others, may be found in the University Catalog.***
9. ***Plagiarism and Screening for Plagiarism***:An act of plagiarism (defined in the University catalog as “Any passing off of another’s ideas, words, or work as one’s own”) is considered to be a violation of the University’s Student Code of Conduct and Ethics: Academic and will be addressed using the Policies and Procedures outlined in the University’s catalog. The instructor in this course reserves the right to use computerized detection systems to help prevent plagiarism. Currently, Alliant International University subscribes to Turnitin.com for purposes of plagiarism screening. By enrolling in this course, students agree that all assignments are subject to submission for textual similarity review to Turnitin.com. Please note that any assignments or course documents submitted to this service will be included as source documents for the restricted access database of Turnitin.com which is exclusively used for the purpose of detecting plagiarism. You may indicate in writing to the instructor by the end of the add/drop deadline for this course that you refuse to participate in the Turnitin.com process, in which case the instructor can use other means to verify the originality of your work. Material identified as plagiarized will be dealt with pursuant to University’s Student Code of Conduct and Ethics: Academic. Penalties for plagiarism can be severe, up to and including expulsion from the University.
10. ***Policy on Religious/Cultural/Spiritual Observance by Students, Staff and Faculty***: In keeping with the institution’s commitment to respect and affirm cultural, religious, and spiritual diversity, the University supports the rights of students, staff, and faculty to observe religious/cultural/spiritual obligations that conflict with the University’s schedule. Faculty instructors and staff/administrative supervisory personnel are expected to make reasonable accommodations when a student or an employee is absent from class or work because of religious/cultural/spiritual observance. See the full policy approved June 10, 2008 for the complete policy.

**Accommodations and Resources**

1. ***Disability Accommodations Request***: If you need disability-related accommodations in this class, please see me privately. All accommodations must be requested in a timely manner (at least 2 weeks ahead of time) with a letter of support for Alliant’s Office of Disability Services. If you have questions about accommodations, please contact the Office of Disability Services.
2. ***Resources for Obtaining Tutoring or Other Student Support Services***: Tutors are available to help students with course-based or exam-based needs. Contact the Director of Campus Services for information on obtaining tutoring – or other student support services – on your campus.

***Problem-Solving Resources***: If problems arise with faculty, other students, staff, or student support services, students should use the University Problem Solving Procedures located in the Alliant Graduate and Undergraduate Student Handbooks or contact the Associate Vice President of Student Life.

1. **Supplemental Readings**