University of Florida
College of Public Health & Health Professions
Department of Clinical and Health Psychology
<u>Course Syllabus</u>

CLP 6529, Applied Multivariate Methods In Clinical Psychology
Fall 2013, Section # 023C (3 credits)
Wednesdays & Thursdays Periods 9-10 (4:05 – 6:00 pm), HPNP G103 (Weds) &
HPNP G301 (Thurs)
Optional review sessions with TA during weeks homework is due
Mondays, 4:05 PM-4:55 PM, HPNP G-111

Instructor Information

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(see below)
Other times may be available by appointment.

Course Overview or Purpose
This course examines the application of multivariate methods to the analyses of psychological data. The course will begin with a brief review of the matrix algebra concepts, the general linear model, and multiple regression. Major emphasis will be given to (1) the multivariate analysis of variance (MANOVA) and its extensions (ANCOVA, Repeated Measures Analysis of Variance), (2) hierarchical mixed effects models, and (3) factor analysis in its various forms (principal components, exploratory factor analysis, confirmatory factor analysis, structural equation modeling). Special topics may be covered throughout the course, if time and interest allow. As an applied course, emphasis will be less on formulae and their derivation, and more on the review of (1) major assumptions, (2) the conditions under which the analysis might be appropriate, (3) implementation of the analysis in major statistical packages (SPSS, AMOS), and (4) interpretation of analyses.

Course Objectives and/or Goals
1. The student will understand the assumptions and conditions governing the appropriateness of the analytic procedures considered in this class.
2. The student will be an informed user of statistical software, able to implement each of the major analytic techniques on a computer, and be able to interpret the results.

3. The student will be able to identify which procedures are best suited for particular research questions.

Course format

The course will be conducted in the form of a graduate seminar. Class will meet Wednesdays and Thursdays from 4:05 pm – 5:20 pm. The majority of each class will consist of lectures or demonstrations given by the course instructor. This is not a lab class (in part due to the unavailability of laboratory classrooms). Thus, homework is the principal vehicle for making in-class exercises concrete; the application assignments are the principal method for seeing methods "in action" and making them personally relevant. Students are expected to use their own problem solving skills to gain access to computers and software, to figure out how to invoke and use statistical software.

The TA will run an optional tutorial session, to discuss upcoming homework, previous homework grading, or unanswered questions from class. These will occur early in the weeks that homework is due.

Prerequisite:

Completion of CLP 6528 with a grade better than C+ is the prerequisite for this course. This prerequisite can be waived with the written consent of the instructor. The prerequisite may be waived if you can show that you have adequate training in (a) basic statistics, probability testing, and distributions, (b) one-way and multi-way analyses of variance, and (c) correlation and multiple regression.

All other students must apply for special admission through the Curriculum Committee of the Department of Clinical and Health Psychology. See Debora Haring, dharing@phhp.ufl.edu for the appropriate forms and procedures. Students applying for admission outside the pre-requisite areas require instructor permission and should arrange to talk to me first.

Students must have access to the SPSS software package and be comfortable with its use (i.e., have an understanding of how to load the program, read data files, enter and access data, run analyses and obtain printout). **See the computer resources section below for special notes on computer and software resources!**

Course materials:

Readings for this include traditional textbook/didactic readings, explaining the assumptions, computation, and practical interpretation of particular procedures. Some readings will be presented via the course textbook, and some will come from supplemental readings (to be provided at the course website).

Required text
(TF) Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th. Ed.). Boston, MA: Pearson. ISBN-10: 0205849571 ISBN-13: 9780205849574. An e-book version can be obtained: http://www.coursesmart.com/IR/2448463/9780205249152?__hdv=6.8.

Recommended backgrounders/procedurals/extra reading

(AC) Afifi, A. A., & Clark, V. (1996). *Computer-aided multivariate analysis* (3rd Ed.). New York: Chapman and Hall.

(AF) Field, A. (2005). *Discovering statistics using SPSS* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

(GOR) Gorsuch, R. L. (1983). *Factor analysis (2nd Ed.).* Hillsdale, NJ: Lawrence Erlbaum Associates.

(GY) Grimm, L. G., & Yarnold, P. R. (Eds.). (1995). *Reading and understanding multivariate statistics*. Washington, DC: American Psychological Association.

(GY_2) Grimm, L. G., & Yarnold, P. R. (Eds.). (2000). *Reading and understanding more multivariate statistics*. Washington, DC: American Psychological Association.

(HAI) Hair, J. E., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis* (5th. Ed.). Upper Saddle River, NJ: Prentice Hall.

(MEY) Meyers, L. W., Gamst, G., & Guarino, A. J. (2006). *Applied Multivariate Research: Design and Interpretation.* Thousand Oaks, CA: Sage Publications.

(HOX) Hox, J. (2002). *Multilevel Analysis* Mahwah, NJ: Lawrence Erlbaum Associates.

(KREF) Kreft, I., & De Leeuw, J. (1998). *Introducing multilevel modeling*. Thousand Oaks, CA: Sage Publications.

(LUKE) Luke, D. A. (2004). *Multilevel Modeling*. Thousand Oaks, CA: Sage Publications.

(SING) Singer, J. D., & Willett, J.B. (2003). Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence. London: Oxford University Press.

Course website:

Most weeks, supplemental course readings will be made available. These will be posted to the course website as pdf documents. In addition, handouts with selected pages from lecture overheads will also be made available on this web page, as will course assignments and data sets. We will use the UF Sakai e-learning portal at http://lss.at.ufl.edu. The handouts will generally be made available on the Monday of the week in which the lectures will occur. An announcement will be sent to the class list when the handouts have been printed; handouts may not be available until the late evening of that Monday. The handouts will not be complete records of lecture notes, but will summarize the main details or provide screen shots of particular procedures.

Course Requirements/Evaluation/Grading

Percentage grades in this class are earned on the basis of points (described below), and then converted to letter grades (as shown in this chart). Letter-grade GPA equivalents are shown in the second table below.

Percentage or points earned in class	93%-100%	90%-92%	87%-89%	83%-86%	80%-82%	77%-79%	73%-76%	70%-72%	67%-69%	63%-66%	60%-62%	Be-low 60%				
Letter Grade equivalent	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0	0.0	0.0	0.0	0.0

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at http://www.registrar.ufl.edu/staff/minusgrades.html

On the course schedule below is listed the date on which each assignment is distributed to the class. Assignments are always due, in e-learning, immediately before class time on their due date; this is usually 4:04 pm.

The grade for the class will be based on about six homework assignments (six are currently planned, but if we decide to drop one or add one, the grade will be refigured over the changed number of assignments), your application assignments, and your final exam. Thus, homework will count for 60% of your grade, regardless of how many homeworks you actually get. Similarly, applications will be worth 12% of grade, regardless of how many are actually assigned, and all applications will be equally weighted. *All homeworks will be weighted to count for the exact same proportion of your final grade, even if the homeworks are scored with a varying number of points.*

1. *Homework assignments.* (60% of grade) – Every other week a homework assignment will be given; it is typically due the following Wednesday. (Exact schedule below). The assignments are designed to be mostly quantitative work (implementing skills from that week's class). *The quantitative work may cover material covered in class, in your readings, or both. Submit via e-learning.*

When you submit your assignments to Sakai, it is essential that (a) you put your name in the "name" field of the homework, and (b) the first word of your assignment document title be your <u>LAST NAME</u>. After 2 reminders about this, a 2-point deduction will be made on each homework for which these naming conventions are forgotten. See below for additional policy on late submissions.

Assignments will consist of multiple items. Each and every item will have equal weight and will be graded according to the rubric below. Assignments will consist of multiple items. Each and every item will have equal weight and will be graded according to the rubric below. (Note: partial points, e.g., 7.5, are permissible; TAs may also score out of range for specific reasons.):

0	not attempted
7	"mercy point" (e.g., you really don't deserve a point, but because you made some attempt, this is acknowledged; example: doing a stepwise regression when the question asks for hierarchical); note: there must be SOME evidence of relevant effort; random text would earn a "0"
8	doing the correct analysis, but coming up with the wrong numbers (e.g., choosing the wrong DV or IV combination)
9	substantially correct, but either (a) missing one or more essential item (e.g., you conduct a regression and include the regression table, but fail to discuss or interpret it), or (b) you include too much information (e.g., you include tables/figures that are not needed for the answer, and you also fail to defend/explain why it is relevant). Teaching assistants will provide you with a list of missing elements upon grading
10	adequate/all required elements are present

In addition to reinforcing content learned in class, homework questions are designed to provide students with experience analyzing, presenting and discussing research methods and results for a scientific audience. Students are therefore encouraged to think carefully about the information needed to adequately address each question. The following guidelines are intended to facilitate this process:

- Each question will have defined length-of-response guidelines.
  - o Do not exceed these guidelines—they are usually more generous than is needed to answer the question (there will be a grade penalty for alterations).
  - o If you paste figures or tables, use the "Paste Special" feature to paste as a "**picture**" or "**bitmap**", so that the output can fit within the space provided.
- Be judicious in your selection of output. Including output that is not relevant to the problem, or that is not discussed in your answer, will lead to a grading penalty being applied. Homeworks will not be scrutinized for compliance with APA format unless this is explicitly requested.

Students who are confused about the meaning/phrasing of a question are welcome to ask for clarification on the class discussion in Sakai.

2. *Application.* (12% of grade, 2% for each of six applications) – Every other week, you will be asked to submit a one-paragraph "application" in e-learning. This will be submitted "in-line", not as an attachment. (Be sure you submit UNFORMATTED TEST using the "notepad" pasting tool, to avoid unreadable responses). In a single brief paragraph, the idea is to briefly describe how the analysis of the week might be applied to data you have, or would like to have. For example, during the MANOVA week, consider how might you use a MANOVA in your data? What research questions would this answer? What would your DVs be, and what would your IV(s) be? Alternatively, if you don't have the data sufficient for a particular technique (e.g., for a structural equation problem), what data would you like to have (what variables, measuring what constructs), and what question(s) would these data answer. Applications will essentially be graded on a pass/fail basis.

3. *Final examination*. (28% of grade) – This two-hour will be scheduled during the UF Exam period (details below). The exam will consist of multiple choice questions. This will **occur** Wed. Dec. 11 at 4:00-6:00 pm *via Sakai*.

Incomplete grades:

An incomplete grade may be assigned at the discretion of the instructor as an interim grade for a course in which the student has 1) completed a major portion of the course with a passing grade, 2) been unable to complete course requirements prior to the end of the term because of extenuating circumstances, and 3) obtained agreement from the instructor and arranged for resolution (contract) of the incomplete grade. Instructors assign incomplete grades following consultation with Department Chairs.

For extra help:
The instructional team will make every effort to support students in understanding course content and reading materials. The following resources are available for this purpose:

Class Discussion. The class question-and-answer discussion board will occur in Sakai ("Discussion" link), and will be monitored by the entire instructional team. Unfortunately, due to the limitations of Sakai, questions can no longer be posted anonymously.

      Note #1: You can receive notifications whenever the discussion board is updated. Simply go to "Discussions" and select "Watch" in the upper Discussion menu. In the "Watch" link, select "Notify me by email whenever a new message is posted".

      Note #2: We ask that you minimize sending questions **directly** to the TA/instructor to ensure that

      (a) your classmates can share in the insights by reading the blog
      (b) the instructional staff does not end up answering the same question multiple times.
      (c) you benefit from the possibility of receiving responses from any of the three instructional members, rather than just the person you e-mailed.

For these reasons, emailed questions will be strongly discouraged, unless they relate to highly personal and idiosyncratic issues. Emailed questions may receive the response of "please post this on the blog so it can be answered". If you are afraid that your question will give away the answer, please think about how to rephrase it so that it does not give away the answer. If this is not possible, then you may e-mail the instructional staff directly.

Weekly Review/Help Session. The teaching assistants have arranged a regular "workshop" Mondays, 4:05 PM-4:55 PM, HPNP G-111, to discuss homework and materials from the previous class. These review sessions **will be held each week in which homework due**; on weeks without homework, a review session will be held only if requested by the students (requests should be submitted on the blog).

Office Hours and Appointments. Dr. Marsiske has designated office hours (see top of syllabus for details). Additional "extra help" appointments can be made with the instructor or TAs, if needed. Note, though, that these are not intended as a venue for, in essence, re-teaching the course.

Instructional staff is more than willing to help, but students *must* first complete these steps before requesting additional assistance:
- Review the blog in case it provides clarification
- Re-examine the notes from class
- Listen to the accompanying audio.
- Read (or re-read) the readings from that week.

In reviewing the above resources, students are asked to write down specific questions about the material that is causing confusion. If you have, in good faith, put in the work to improve your understanding, then the instructional staff can build on all your preparatory work and really help you over the "humps".

Software/computing resources:

The "official" software languages of this course will be SPSS and AMOS.
- SPSS/AMOS versions 18 or higher are required. **All students must have access to the full-featured version of SPSS, regardless of version number.**

  - Students in PHHP will access SPSS via our terminal server (ts.phhp.ufl.edu). You will need a terminal services compatible remote desktop client. This is free in Windows. For iOS clients, the rdp app (not the free one) is the best. For Macs, a free remote desktop client (CoRD) and instructions are available at http://it.phhp.ufl.edu/2012/03/12/terminal-server/
  - Students not in PHHP will access SPSS via the http://info.apps.ufl.edu/ website. (Please see that site for technical instructions, as I do not have access to it, and cannot provide more guidance).
  - **Both** PHHP and non-PHHP students will access AMOS via http://info.apps.ufl.edu/ .

These are both virtual machines, which means you can run SPSS on any Windows, MAC, or even tablet (iOS, anyway) machine. In the event that you want your PERSONAL copy on your PERSONAL machine, you will want to buy the SPSS Graduate Pack PREMIUM Edition (no lower version will suffice) AND AMOS (sold separately). SPSS should be at the bookstore, or you can purchase online at http://onthehub.com; as far as I know, http://onthehub.com is your only source if you choose to purchase AMOS.

All students must also be able to access course materials, which will be distributed electronically as Microsoft PowerPoint, Microsoft Word (Office 2003 and Office 2007; if you have an earlier version of Office, you may need to install the free "Compatibility Pack"), or Adobe Acrobat files. In the first class, all students will complete an e-mail register; students are responsible for updating the instructor on e-mail changes throughout the term. **All** class materials will be distributed by e-mail or Sakai site, so regular and frequent checking is a necessity.

For those wishing not to print course notes, students are welcome to bring their laptops to class, although distracted behavior (e.g., web-surfing during class) is strongly discouraged. For those of you who bring laptops/tablets, note that there are very few electrical outlets in PHHP classrooms, so you'll want to make sure your battery can hold a 90 min charge, and that it is charged up before each class.

University's Honesty Policy (cheating and use of copyrighted materials)

Academic Integrity – Students are expected to act in accordance with the University of Florida policy on academic integrity (see Student Conduct Code, the Graduate Student Handbook or this web site for more details:
www.dso.ufl.edu/judicial/procedures/academicguide.php).

Cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

> *"We, the members of the University of Florida community,*
> *pledge to hold ourselves and our peers to the*
> *highest standards of honesty and integrity."*

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is desirable and expected that take home assignments will stimulate conversation among classmates, and that classmates may actually mentor one another in the work. Students are also likely to discuss elements of the assignment with the instructor. **It is expected that submitted work will _solely_ reflect the student's own efforts. Students are expected not to collaborate** in running analyses, writing answers, or interpreting results. The TA and instructor will regularly check for "unusual congruence" in answers, and will discuss concerning instances with students involved. Where collaboration has been found, a zero grade will be assigned. **For further clarification, please see the "Acceptable Collaboration" appendix to this syllabus! Rules will be strictly enforced.**

Copyright policy - The University of Florida policy on copyright states: "Copyright permission should <u>not</u> be required of instructors in the following circumstances:

> 1) A single copy of an article, chapter, or poem is on reserve for only *one semester*.
> 2) A reasonable number of copies of an article, chapter, or poem are placed on reserve for only *one semester*. "Reasonable" is determined by an assessment of the number of students assigned the reading, the difficulty of the reading, and the time frame allowed for completion of the reading. This should normally not exceed 6 copies, although up to one copy for every 15 students may be accepted if space is available in the reserve area and the above criteria are met."

Article and material distribution for this class will be discussed in the first class meeting.

Class Attendance

It is the expectation of the faculty in Clinical and Health Psychology, and Psychology, that all students attend all classes. Students are expected to be present for all classes, since much material will be covered only once in class. Attendance will not be formally measured or graded, but this expectation should guide student behavior.

As a matter of mutual courtesy, please let the instructor know when you're going to be late, when you're going to miss class, or if you need to leave early. Students who have extraordinary circumstances preventing attendance, or who must leave early, should explain these circumstances to the course instructor prior to the scheduled class, or as soon as possible thereafter. The instructor will then make an effort to accommodate reasonable requests. Attendance will not be checked or graded, but you are responsible for the content of all classes, including issues raised in the spontaneous class discussions. If you must miss a class, please request notes from your classmates.

Make-up Exams or Other Work

Extra credit - No planned opportunities for extra credit exist in this course.

General policy on missed work - It is expected that no students will miss any assignments or in-class tests/exams. **No make-ups will be possible**.

With regard to missing or incomplete assignments, the following policies apply:
- Graders will not contact you about missing or incomplete assignments. **It is your responsibility** to check that the *correct* assignment has been submitted to e-learning on time
- **It may be possible to avoid a late penalty IF YOU CONTACT THE INSTRUCTOR AT LEAST 24 HOURS IN ADVANCE.** You should email both Dr. Marsiske and your teaching assistant, and explain what issue (e.g., bereavement, illness) necessitates lateness. In some cases, documentation may be requested. If a lateness allowance is agreed to, this applies to a single assignment only. It does not allow you to delay future assignments. Note, conference attendance or doctoral qualifying examinations or thesis/dissertation defenses do not constitute valid lateness excuses.
- If your assignment is late, you will lose 10% each day. Thus, if an assignment is worth 30 points, you will lose 3 points for each late day. "Late" begins one minute after the due time (e.g., an assignment due at 4:04 pm is considered late at 4:05 pm). Penalties are as follows:

1 minute to 24 hours late	10% of maximum deducted from achieved grade
1 day + 1 minute late to 48 hours late	20% of maximum deducted from achieved grade
2 days + 1 minute late to 72 hours late	30% of maximum deducted from achieved

	grade
3 days + 1 minute late to 96 hours late	40% of maximum deducted from achieved grade
4 days + 1 minute late to 120 hours late	50% of maximum deducted from achieved grade
5 days + 1 minute late 144 hours late	60% of maximum deducted from achieved grade
6 days + 1 minute late 168 hours late	70% of maximum deducted from achieved grade
7 days + 1 minute late 192 hours late	80% of maximum deducted from achieved grade
8 days + 1 minute late 216 hours	90% of maximum deducted from achieved grade
9 days + 1 minute late or later	100% of maximum deducted from achieved grade

NOTE: UPLOADING THE WRONG DOCUMENT IS SAME-AS-LATE, even if you have documentation that you completed the document on time. **It is your responsibility to verify that you have uploaded the correct document.** (You should open or download your uploaded homeworks and double- or triple-check that you have uploaded the right one).
   o There will be **no** exceptions to this policy.
   o If you have uploaded the wrong document, and e-learning does not allow you to correct this, you should IMMEDIATELY send the correct document to Dr. Marsiske and your teaching assistant via email.
   o If you cannot upload a document due to technical problems (e.g., if e-learning is down), you may e-mail your assignment to Dr. Marsiske and your teaching assistant. The timestamp on your e-mail will serve as the time submitting. In such cases, please upload your assignment to e-learning as well, once the technical issue is resolved.

Accommodations for Students with Disabilities

If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (http://oss.ufl.edu/). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information: http://www.counsel.ufl.edu/ or http://www.health.ufl.edu/shcc/smhs/index.htm#urgent

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: www.health.ufl.edu/shcc

Crisis intervention is always available 24/7 from:
Alachua County Crisis Center: (352) 264-6789.

BUT – *Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.*

Topical Outline

Class 01. Wed. Aug 21/Thurs. Aug 22. Introduction to the Multivariate Normal Distribution, Data Screening, MANOVA
Required Reading: TF01 and TF02, MEY02
Recommended/backgrounder/extra help: TF03, TF04 and TF05 (for those uncertain about prerequisites), MEY03, AC01, GY01
Assignment(s) distributed: None
Assignment(s) due: None

Class 02. Wed. Aug 28/Thurs Aug. 29. Multivariate Analysis of Variance I

Required Reading: TF07
Recommended/backgrounder/extra help: AF14, GY08, MEY09,
Assignment(s) distributed: MANOVA homework (due 9/4)
Assignment(s) due: None

Class 03. Wed. Sep 4/Thurs. Sep 5. Multivariate Analysis of Variance II

Required Reading:
Recommended/backgrounder/extra help: MEY10, MEY11, HAI06
Assignment(s) distributed: Application: MANOVA (due 9/11)
Assignment(s) due: MANOVA homework (from 8/28)

Class 04. Wed. Sep 11/Thurs. Sep 12. Repeated Measures

Required Reading: TF08
Recommended/backgrounder/extra help: MEY10, MEY11, HAI06

Assignment(s) distributed: Repeated measures homework (due 9/18)
Assignment(s) due: Application: MANOVA (from 9/4)

Class 05. Wed. Sep 18/Thurs. Sep 19. Discriminant Function Analysis

Required Reading: TF09
Recommended/backgrounder/extra help: MEY07, AC11
Assignment(s) distributed: Application: Discriminant Functions (due 9/25)
Assignment(s) due: Repeated measures homework (from 9/11)

Class 06. Wed. Sep 25/Thurs. Sep 26. Multilevel modeling I

Required Reading: TF15
Recommended/backgrounder/extra help: HOX01, HOX02, HOX03, HOX04
Assignment(s) distributed: DFA/MLM Homework (due 10/2)
Assignment(s) due: Application: Discriminant functions (from 9/18)

Class 07. Wed. Oct 2/Thurs. Oct. 3. Multilevel modeling II

Required Reading: SING(TBA)
Recommended/backgrounder/extra help: LUKE01_02,KREF01, KREF02, KREF03, KREF04, KREF05,
Assignment(s) distributed: Application: Multi-level modeling (due 10/9)
Assignment(s) due: DFA/MLM homework (from 9/25)

Class 08. Wed. Oct 9/Thurs Oct. 10. Principal Components Analysis

Required Reading: TF13
Recommended/backgrounder/extra help: GY04, GOR01
Assignment(s) distributed: MLM homework (due 10/16)
Assignment(s) due: Application: Multi-level modeling (from 10/2)

Class 09. Wed. Oct 16/Thurs. Oct. 17. Principal Components Analysis/Exploratory Factor Analysis

Required Reading: MEY12
Recommended/backgrounder/extra help: GOR02, GOR08
Assignment(s) distributed: Application: EFA (due 10/23)
Assignment(s) due: MLM homework (from 10/0)

Class 10. Wed. Oct. 23/Thurs. Oct. 24. Exploratory Factor Analysis

Required Reading: HAI03
Recommended/backgrounder/extra help: GOR09
Assignment(s) distributed: PCA/EFA homework (due 10/30)
Assignment(s) due: Application: EFA (from 10/16)

Class 11. Wed. Oct 30/Thurs. Oct. 31. Confirmatory Factor Analysis I

Required Reading: MEY13
Recommended/backgrounder/extra help: GY07, AMOS Users Manual & Tutorial
Assignment(s) distributed: Application: CFA (due 11/6)
Assignment(s) due: PCA/EFA homework (from 10/23)

Class 12. Wed. Nov 6/Thurs. Nov 7. Confirmatory Factor Analysis II

Required Reading: TF14

Recommended/backgrounder/extra help: GY08_2, HAI11
Assignment(s) distributed: EFA/CFA homework (due 11/13)
Assignment(s) due: Application:CFA (from 10/30)

Class 13. Wed. Nov 13/Thurs. Nov. 14. Path Analysis and Structural Equation Modeling

Required Reading: MEY14
Recommended/backgrounder/extra help: GY03
Assignment(s) distributed: Application: SEM (due 12/4)
Assignment(s) due: EFA/CFA homework (from 11/6)

No class Nov 20-21 (Gerontological Society Conference) or Nov 27-28 (Thanksgiving closure)

Class 14. Wed. Dec 4. Structural Equation Modeling II

Required Reading: MEY15
Recommended/backgrounder/extra help: None
Assignment(s) due: Application: SEM (from 11/13)

Caveat:

The above schedule and procedures in this course are subject to change in the event of extenuating circumstances. Any changes will be announced *in class*, and the student is personally responsible for obtaining updated information regarding those changes.

Appendix: Acceptable Collaboration

On Collaboration

What constitutes acceptable levels of collaboration in this class? Please just treat this as "continuing education". It is here for your reference, but if (after reading this) you feel like you may have gone beyond acceptable and want to discuss it, please get in touch with me or one of the teaching assistants at your convenience.

The short answer about how much collaboration is acceptable is "As specified in the syllabus, and in the UF Honor Code". Let's review those items quickly, and then go a little deeper.

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1. UF Honor Code:

A key phrase in this honor code relates to "ambiguity": "It is the responsibility of the student to seek clarification on whether or not use of materials or collaboration or consultation with another person is authorized prior to engaging in any act of such use, collaboration or consultation. If a faculty member has authorized a student to use materials or to collaborate or consult with another person in limited circumstances, the student shall not exceed that authority. If the student wishes to use any materials or collaborate or consult with another person in circumstances to which the authority does not plainly extend, the student shall first ascertain with the faculty member whether the use of materials, collaboration or consultation is authorized. "

http://regulations.ufl.edu/chapter4/4041-2008.pdf

Key phrasing with regard to collaboration:

(a) Plagiarism. A student shall not represent as the student's own work all or any portion of the work of another. Plagiarism includes but is not limited to:

1. Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.

2. Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authored by the student.

(b) Unauthorized Use of Materials or Resources ("Cheating"). A student shall not use unauthorized materials or resources in an academic activity. Unauthorized materials or resources shall include:

1. Any paper or project authored by the student and presented by the student for the satisfaction of any academic requirement if the student previously submitted substantially the same paper or project to satisfy an academic requirement and did not receive express authorization to resubmit the paper or project.

2. Any materials or resources prepared by another student and used without the other student's express consent or without proper attribution to the other student.

3. Any materials or resources which the faculty member has notified the student or the class are prohibited.

4. Use of a cheat sheet when not authorized to do so or use of any other resources or materials during an examination, quiz, or other academic activity without the express permission of the faculty member, whether access to such resource or materials is through a cell phone, PDA, other electronic device, or any other means.

(c) Prohibited Collaboration or Consultation. A student shall not collaborate or consult with another person on any academic activity unless the student has the express authorization from the faculty member.

1. Prohibited collaboration or consultation shall include but is not limited to:

a. Collaborating when not authorized to do so on an examination, take-home test, writing project, assignment, or course work.

b. Collaborating or consulting in any other academic or co-curricular activity after receiving notice that such conduct is prohibited.

c. Looking at another student's examination or quiz during the time an examination or quiz is given. Communication by any means during that time, including but not limited to communication through text messaging, telephone, e-mail, other writing or verbally, is prohibited unless expressly authorized.

2. It is the responsibility of the student to seek clarification on whether or not use of materials or collaboration or consultation with another person is authorized prior to engaging in any act of such use, collaboration or consultation. If a faculty member has authorized a student to use materials or to collaborate or consult with another person in limited circumstances, the student shall not exceed that authority. If the student wishes to use any materials or collaborate or consult with another person in circumstances to which the authority does not plainly extend, the student shall first ascertain with the faculty member whether the use of materials, collaboration or consultation is authorized.

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2. Syllabus:

The syllabus says:

"On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment".

It is desirable and expected that take home assignments will stimulate conversation among classmates, and that classmates may actually mentor one another in the work. Students are also likely to discuss elements of the assignment with the instructor. It is expected that submitted work will solely reflect the student's own efforts. Students are expected not to collaborate in running analyses, writing answers, or interpreting results. The TAs and instructor will regularly check for "unusual congruence" in answers, and will discuss concerning instances with students involved. Where collaboration has been found, a zero grade will be assigned."

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3. So what does this mean:

Because acceptable levels of collaboration can get "gray" in data analysis courses, the examples that follow below try to set some limits on "acceptable" vs. "unacceptable" situations:

ACCEPTABLE: Student 1 says to Student 2: "I'm so confused...do I put the predictor in the "fixed", "random" or "covariates" box?" The collaborating student expresses his or her opinion

UNACCEPTABLE: Sitting down and doing the analysis together.

ACCEPTABLE: Student cannot make a syntax run, no matter what. Second student reviews the syntax, and maybe even goes so far as to say, "why don't we sit in front of a computer, and show me what you're doing?" Based on what the second student see, he/she may make suggestions regarding how to get the syntax to run...BUT NOT suggestions on what variables are selected, etc.

UNACCEPTABLE: Three students sit around a computer together, then save a common output, which each then uses to do the homework. Each person SHOULD have run the analysis independently. If the students need to sit around the computer with someone, it probably should have been with an instructor.

ACCEPTABLE: Running the analysis independently and writing it up independently.

UNACCEPTABLE: "Was the main effect of smoking significant for you? It WAS? It wasn't for me. I better rerun the analysis and figure out where I went wrong." Don't change your results based on what someone else got.

Now, these are just random examples. What the Honor Code says is that "when in doubt, ask first". This is consistent with HIPAA, FERPA, and many clinical activities.

If you find yourself drawn to excessive collaboration because what you REALLY need is more instructional support, please let the instructor/TA know.

Excessive collaboration triggers an official process (http://www.dso.ufl.edu/sccr/faculty/); to avoid it, please draw a clear firewall between YOUR work, and the work of other students in the class.