

PSYC6400.001, Research Methodology Applications

Course Syllabus Spring 2009

(Spring 2009 Semester: Tuesday, 20 January 2009 – Friday, 15 May 2009)

Instructor: Charles A. Guarnaccia, Ph.D. Office: Terrill Hall 366

Phone: 940-565-2671 (Psychology Department), 940-565-2657 (office), Fax: 940-565-4682

E-mail: Charles.Guarnacc@unt.edu, Web page: <http://www.psyc.unt.edu/~guarnacc/cgvita.htm>

Office hours: Mondays 2:50 p.m.-4:50 p.m.; Wednesdays 10:00 a.m.-11:00 a.m.

Class meetings: Mondays noon-2:50 p.m., Language (LANG), room 402

Final Exam: Monday, 11 May 2009, noon-2:50 p.m.

Course texts: I hope all the books for this course will contribute to your: success on the research section of your Ph.D. Qualifying Examination (i.e., comps), understanding of research methodology, writing a thesis/dissertation proposal, and general success as scientist-practitioner social scientists. You don't need to own very many of them, most of them will be on two-hour out-of-building reserve in the Science Library along with journal articles that I may add as we go along. Some of the Sage monographs, and other books, are now on netLibrary, i.e., eBooks.)

Required texts (There are/will be required readings in each of these):

American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington: American Psychological Association. - Pay special attention to parts on correctly formatting references, formatting of text, and especially organization of heading levels. **You need to own this one, (and likely already do).**

Cone, J. D., & Foster, S. L. (2006) *Dissertations and theses from start to finish: Psychology and related fields* (2nd ed.). Washington: American Psychological Association. - **You may want to own this one, but it is an easy read so you really don' need to.** It is also on reserve.

DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Newbury Park, CA: Sage. - This is the second edition of a very good text on applied issues in measurement theory. It is on reserve. **You may want this one** for comps and/or if you ever do any measurement development. I think measurement of our unobservable constructs (e.g., intelligence, personality, etc.) is the most important thing we do as psychologists!

Huck, S.W. (2009). *Statistical misconceptions*. New York: Taylor & Francis.

Mertler, C. A., & Vannatta, R. A. (2005). *Advanced and multivariate statistical methods: Practical applications and interpretation* (3rd ed.). Glendale, CA: Pyrczak Publishing.

Patten, M.L. (2009). *Understanding research methods: An Overview of the essentials* (7th ed.). Glendale, CA: Pyrczak Publishing.

Optional texts: (Some of these will also be on two-hour out-of-building reserve in the Science Library with the above books. There are/will be required readings from a few of these.):

Harris, R. A. (2005). *Using sources effectively: Strengthening your writing and avoiding plagiarism* (2nd ed.). Glendale, CA: Pyrczak Publishing.

Kazdin, A. E. (2003). *Research design in clinical psychology* (4th ed.). Boston: Allyn and Bacon. - **Depending upon your research interests, you may want to own this one.** It will be on reserve.

- Leech, N.L., Barrett, K.C., & Morgan, G. A. (2008). *SPSS for intermediate Statistics: Use and interpretation* (3rd ed.). New York: Lawrence Erlbaum Assoc., Taylor & Francis Group. - **Depending upon your comfort with SPSS and your research interests, you may want to own this one.** It will be on reserve.
- Lipsey, M. W. (1990). *Design sensitivity: Statistical power for experimental research*. Thousand Oaks, CA: Sage. - Use this one to understand what effects power, how to increase it, and how to do power calculations in experimental designs. It will be on reserve.
- Pan, M. L. (2008). *Preparing literature reviews* (3rd ed.). Glendale, CA: Pyczak Publishing.
- Pyczak, F. (Ed.). (2008). *Completing your thesis or dissertation: Professors share their techniques and strategies*. Glendale, CA: Pyczak Publishing. - At the Willis Library first-floor reserve desk.
- Shadish, W.R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin. - **You may want to consider owning this one (maybe), but it will also be on reserve.** This had been (sort of) our “central” text in past years. When it first came out I was very excited about this new book in the tradition of Campbell and Stanley (1963), and Cook and Campbell (1979), but upon reading it from a student point-of-view, I see how the writing may not be a well done as it could have been. It will be on reserve.
- Thompson, B. (Ed.). (2003). *Score reliability: Contemporary thinking on reliability issues*. Thousand Oaks, CA: Sage. It will be on reserve.
- Other texts:* (Some of these will also be on two-hour out-of-building reserve in the Science Library with the above books. We might look at a few things in some of these.):
- Andrew, F. M., Klem, L., Davidson, T. N., O'Malley, P. M. & Rodgers, W. L. (1981). *A guide for selecting statistical techniques for analyzing social science data* (2nd ed.). Ann Arbor, MI: Institute for Social Research, University of Michigan. It will be on reserve.
- Berry, W. D. (1993). *Understanding regression assumptions*. (Sage University Paper Series on Quantitative Applications in the Social Sciences No. 07-092). Newbury Park, CA: Sage.
- Berry W. D., & Feldman, S. (1985). *Multiple regression in practice*. (Sage University Paper Series on Quantitative Applications in the Social Sciences No. 07-050). Beverly Hills, CA: Sage.
- Campbell, D. T., & Kenny, D. A. (2002). *A primer on regression artifacts*. New York: Guilford. ISBN: 1-57230-859-1. It is on reserve.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2002). *Applied multiple regression correlation analysis for the behavioral sciences* (3rd Ed.). Mahwah, NJ: Lawrence Erlbaum Assoc.
- Corston, R., & Colman, A. (2003). *A crash course in SPSS for windows* (2nd ed.). Williston, VT: Blackwell.
- Hartwig, F., Dearing, B. E. (1979). *Exploratory data analysis* (Sage University Paper Series on Quantitative Applications in the Social Sciences No. 07-016). Newbury Park, CA: Sage. - This book will be on reserve for your enjoyment.

Kanji, G. K. (1999). *100 statistical tests* (2nd ed.). Thousand Oaks, CA: Sage. - Don't buy this book, but you will want to know where to find it. When you plan any data analysis, look through this book and Andrew et al., (1981). It is on reserve.

Kraemer, H. C., & Thiemann, S. (1987). *How many subjects?: Statistical power analysis in research*. Newbury Park, CA: Sage. - Use this text to calculate power in quasi-experimental correlation/regression designs. (cf. Cohen, 1988; comprehensive/difficult; Lipsey, 1990, for true experimental designs and a discussion of how power really works and what we can do to increase power). It will be on reserve.

Lewis-Beck, M. S. (1980). *Applied Regression: An introduction* (Sage University Paper Series on Quantitative Applications in the Social Sciences No. 07-022). Thousand Oaks, CA: Sage.

Lewis-Beck, M. S. (1995). *Data analysis: An introduction*. (Sage University Paper Series on Quantitative Applications in the Social Sciences No. 07-103). Thousand Oaks, CA: Sage. - Lewis-Beck has a good little Sage book on regression too.

Locke, L. F., Spirduso, W. W., & Silverman, S. J. (2007). *Proposals that work: A guide for planning dissertations and grant proposals* (5th ed.). Newbury Park, CA: Sage. - Another useful how-to text for anyone doing a 6610/thesis/dissertation or a grant proposal.

Sullivan, J. L., & Feldman, S. (1979). *Multiple indicators: An introduction* (Sage University Paper Series on Quantitative Applications in the Social Sciences No. 07-015). Newbury Park, CA: Sage. - Another good book on measurement theory. It will be on reserve.

Vogt, W. P. (1999). *Dictionary of statistics and methodology: A nontechnical guide for the social sciences* (2nd ed.). Newbury Park, CA: Sage. - You may not want to buy this book, but know where to find it to get the precise meaning of a technical term like "confound," or the exact difference between a "mediator" and a "moderator." It is on reserve.

General description of course/Course objectives

This course provides an advanced introduction to research methodology in the social sciences. The course will focus on understanding, developing, and proposing research. This is also a course project (which will be less a focus of the course than it was in past years), but students will by the end of this semester, write a research proposal. You should come into this course with a doable research idea and the support of a project chairperson, who will provide you with feedback on your ideas (I will be doing little/none of that in this offering). I believe graduate students who are writing a thesis/dissertation proposal this semester will find this course useful.

This is not a statistics course but students should have at least one semester of graduate statistics. This course is oriented to the applied research practitioner. We will most of our time doing an overview of the major topics in research methodology and applied statistics (with less on proposal writing, but still there). Weekly readings will come mostly from the course texts. When you read the material for this class, please don't obsess over it too much. I would like you to get the main points (and some of the details) and have an applied familiarity with each topic (i.e., Don't get bogged down, too much, in some of the statistics). In addition, you should spend a minimum of four to six hours a week working on your proposal in consultation with your chairperson over and above the time doing the readings.

Research Comps-like Exams

To provide an even more enriching experience, this course will also help you prepare for the research portion of your comprehensive examination. To meet this objective there will be two research comps-like in-class exams on the weekly readings and research methodology principles discussed in class (exams are now tentatively scheduled for: Mar. 9[Midterm exam], May 11[Final Exam]). I will not give any early exams or make-ups.

Class schedule - A tentative schedule of topics, required readings, and written assignments follows:

Class Week #1:

Monday, January 26, 2009

- Topics: Course overview and books, introductions, crisis of commitment, orientation to research, the world of quantitative methods. Say a few words (briefly) about your project and what you need to make it go. Assignment: Project Feasibility Worksheet; Start your project w/ or w/o a chairperson.

Class Week #2:

Monday, February 2, 2009

- Readings: APA '01 Ch 1,2,3,4; C&F '06 Ch 1-7; K '03 Ch 1; SC&C '02 Ch1 (background on proposal writing and ways of breaking through "the wall." Something on APA format).

Class Week #3:

Monday, February 9, 2009

- Readings: DeVellis, '03 Ch 1-4 (measurement).

Class Week #4:

Monday, February 16, 2009

- Readings: Patten '09 Intro, Parts A, B, C & D p.vii-86 (more background, Sampling, Instrumentation); Huck '09 Preface & Ch 1 (descriptives).

Class Week #5:

Monday, February 23, 2009

- Readings: C&F '06 Ch 8-10 (more on methodology); Patten, '09 Parts E, F & G p.87-146 (background on design, statistics, effect size, meta-analysis); Huck '09 Ch 2 (distributions).

Class Week #6:

Monday, March 2, 2009

- Readings: SC&C '02 Ch 2 & 3 (validity); Kazdin '02 Ch 2 & 3 (reliability & validity); Thompson '03 Ch 1-5 (score reliability); Leech et al. '08 Ch 1-3 (SPSS background and reliability); Huck '09 Ch 4 (reliability & validity).

Class Week #7:

Monday, March 9, 2009

- Midterm (Exam #1) noon-2:50 p.m. (Terrill Hall CAS Computer Lab, please be ready to begin exam at noon)

*** Monday, March 16, 2009 - Spring Break

- Have some fun, but not too much, continue to think about and work on your project . . .

Class Week #8:

Monday, March 23, 2009

- Readings: Sullivan & Feldman '79 Multiple indicators p.9-28 (Multi-Trait Multi-Method, MTMM); DeVellis '03 Ch 5-7 (More measurement, Factor Analysis, IRT);

Class Week #9:

Monday, March 30, 2009

- Readings: Leech et al. '08 Ch 4 (FA & PCA); Mertler & Vannata '05 Ch 9 (FA); Huck '09 Ch 3 (correlations).

Class Week #10:

Monday, April 6, 2009

- Reading: Maybe something leftover from last week; Mertler & Vannata '05 Ch 1-6 (multivariate overview and all ANOVA models); Leech et al. '08 Ch 5, 8-10 (all ANOVA models); Huck '09 Ch 9 & 10 (t-test & ANOVA).

Class Week #11:

Monday, April 13, 2009

- Readings: Mertler & Vannata '05 Ch 7 (regression); Leech et al. '08 Ch 6 (regression); B&F '85 all (regression) Barron & Kenny article; maybe something else on mediation/moderation.

Class Week #12:

Monday, April 20, 2009

- Readings: see above

Class Week #13:

Monday, April 27, 2009

- Readings: Lipsey '90 all (power analysis).
- Readings: SC&C 02 Ch 10 & 11 (attrition and causal inference).

Class Week #14:

Monday, May 4, 2009

- Readings: Leech et al. '08 Ch 7; Mertler & Vannata '05 Ch 10 & 11 (logistic regression, discriminate analysis); Leech et al. '08 Ch 11 (HLM).

Class Week#15:

Monday, May 11, 2009

- Final Exam (Exam #2) (noon-2:50 p.m.) (Terrill Hall CAS Computer Lab, be ready to begin at noon).

Class Project due: Friday May 15, 2008

- By 5:00 p.m., complete, well-written, carefully reasoned proposal delivered to me electronically and a hard copy.

Please note the use of the adjective "tentative" in describing this schedule. I reserve the right to juggle, change, add and/or delete. I will always announce any changes at least one week in advance.

Grading

Final grades will be determined by:

- 50% (#1=25%, #2=25%) research comps.-like exams
- 25% in-class 10-minute quizzes
- 25% Class project research proposal

Grades of "Incomplete" will not be given except under the most exceptional circumstances. A finished proposal (by my assessment) must be turned in by Friday May 15, 2009 at noon), to fulfill the course requirements.

Research proposal (i.e., description of learning outcome)

The major requirement of the course will be to develop and write a complete research proposal. Although this is a course requirement, it is meant to be a product that will serve as the basis for a degree-required research or grant proposal. The final document should be of sufficient length and quality to be used as a thesis, dissertation or grant proposal.

This proposal will include:

- an Abstract;
- a well formulated Introduction Section which reviews the relevant literature of the relationships between the constructs to be studied, builds a logical argument for the study, and clearly develops the rationale for each of the explicitly stated (directional) hypotheses and research questions;
- a Method Section which describes in detail how the study will be done (procedure), participant selection criteria, and background on instruments used to measure the constructs in the Introduction;
- a Proposed Data Analysis Section which calls out in detail how each hypothesis and research question will be tested/analyzed;
- a Reference Section;
- Appendices as needed for supporting material.

The proposal, including references, should be in strict APA style. I hope that everyone will take this opportunity learn to love the publication manual.

General notes

The Department of Psychology cooperates with the Office of Disability Accommodation (ODA) to make reasonable accommodations for qualified students with disabilities (cf. Americans with Disabilities Act and Section 504, Rehabilitation Act). If you have not registered with ODA, we encourage you to do so. Please present your written Accommodation Request to your instructor on or before the 12th class day. If you experience any problems in getting reasonable accommodations, please contact the Psychology Department Liaison or the ODA. Also, the Department complies with the University's policies concerning discrimination and sexual harassment. If you have any complaints please contact the departmental chairperson or UNT's Equal Opportunity Office.

If you take an "I" (Incomplete) in any course, you must complete the work and have the "I" removed within one year or you must enroll in the course again in order to receive a grade.

Integrity is an important component of professional ethics in psychology, and the university has a policy on academic dishonesty that applies to this course. You can find more information in the UNT Code of Student Conduct and Discipline or the Graduate Catalog. It is your responsibility as a graduate student to be aware of the definitions and implications of academic dishonesty. Identification of academic dishonesty in this class can result in penalties including: additional work; a failing grade for the assignment or class; a grade being reduced or changed; referral to the Dean of Students. The APA publication manual and material on the UNT Center for Student Rights and Responsibilities webpage (www.unt.edu/csrr) can help you understand and avoid plagiarism.

This syllabus is subject to revision and thus should not be interpreted to be a contract.

Course evaluations will be done on-line during the last week or two of class at <https://evaluate.unt.edu/>