

ADVANCED BEHAVIORAL RESEARCH METHODS
(RSCH 496B)
STANDARD COURSE OUTLINE

I. General Information

- A. Course number: RSCH 496B
- B. Title: Advanced Behavioral Research Methods
- C. Units: 3
- D. Prerequisites: Upper Division standing, completion of the GE Foundation, one or more Explorations courses and HHS361 or CLA361 or ENGR361 or NSCI361.
- E. Course Classification: C-3 Lecture Activity
- F. Faculty: TBD (possibly Vennila Krishnan, Erlyana Erlyana)
- G. Developed by: Young-Hee Cho (CLA), Vennila Krishnan (CHHS), Erlyana Erlyana (CHHS)
- H. Date of Revision: Fall 2015

II. Catalog Description

Advanced Research Methods (3)

Prerequisites: Upper Division standing, completion of the GE Foundation, one or more Explorations courses and HHS361 or CLA361 or ENGR361 or NSCI361.

This course is designed to provide an in-depth knowledge of scientific research, emphasizing connection between research design and statistical analyses. The course covers literature review, hypothesis generation, types of research designs and conceptual approach to data analyses.

III. Justification

This course is designed to be taken by upper division students. This course will focus on the development of advanced skills associated with critical review of scientific literature, hypothesis generation and providing rationales for hypotheses, a key foundation in the development of scientific research. While typical Introductory Research Methods (or equivalent courses) introduce basic research skills such as measurement, manipulation of variables, and basic types of research designs and analysis, this course will facilitate advanced research skills by introducing creative hypothesis generation skills through the understanding of the connection between different types of advanced research designs and types of advanced statistical analyses. Mastery of these skills is critical for comprehensive understanding of scientific research and is necessary foundation for advanced research career.

Justification for GE designation: The requested GE Category is F: Advanced Skills (Research and Advanced Methods). The Essential Primary Skills of GE that can be developed by this course are 'Written Communication' and 'Inquiry and Analysis'. The primary focuses of the course will be (a) the development of critical thinking skills necessary in hypothesis generation through the understanding of the connection between advanced levels of research designs and analyses, (b) the development of written communication that fosters clear expression of research questions and the results of statistical analyses and their limitations. This focus will be implemented through written assignments with at least 2500 words and early feedback to each of the written assignments, and (c) the development of analytic skills that can answer research questions and guide the generation of new research questions.

This course is part of the proposed CSULB Research Infused Curriculum described below;

The CSULB Research Infused Curriculum:

Among the selling points in pursuing a college education is the idea that graduates will have the skills to discover new solutions to the community's challenges and lay the groundwork for the industries of the future. Much of this promise is directly supported when students are prepared to become research professionals in their respective fields.

CSULB will support the preparation of its graduates to pursue further research training in graduate programs and entry into research careers through its proposed "Research Infused Curriculum." In this integrated and research career focused curriculum, each course's content supports the other courses and provides the skills necessary to identify long-term research projects, design and implement research plans, prepare fundable research proposals, and communicate the findings of research to experts and the general population.

While individual programs may have courses that fit pieces of the curriculum, many programs don't have a large enough pool of research career focused students to offer discipline specific courses of this type. Through the "Research Infused Curriculum" such training will be made available to the larger population of CSULB students. To address degree unit caps, the proposed courses have been designed to meet general education certification.

The existence of these courses will not preclude programs from running or developing their own more discipline specific courses, and will give course options for those programs wishing to serve their majors desiring to pursue research careers. The curriculum will also help underscore the position of scholarly activity within the training CSULB students receive.

The four courses making up the "Research Infused Curriculum" includes:

Introduction to Research Methods – This sophomore level course begins the training of students to become productive researchers. Although the courses share common elements, two courses have been created to address differences in the Biomedical (ENGR296 & NSCI 296) and Behavioral (CLA 296 & HHS 296) discipline needs in an introductory research methods course.

Interdisciplinary Approaches to Health Disparities – This interdisciplinary course (HHS 207) is designed to provide a showcase for the ways differing disciplines address health challenges faced by subsets of the community and/or the community at large.

Scientific Research Communication – This cross-listed (CLA 361, ENGR 361, HHS 361, NSCI 361) junior level course focuses on the dissemination of research findings and the development of fundable research proposals.

Advanced Research Methods – This senior level course emphasizing the development of a program of research, including proposal development and funding. Although the courses share common elements, two courses have been created to address differences in the Biomedical (ENGR 496 & NSCI 496) and Behavioral (CLA 496 & HHS 496) discipline needs in an advanced research methods course.

IV. Measurable Student Learning Outcomes, Evaluation Instruments, and Instructional Strategies for Skill Development.

This course can be categorized as an Advanced Skills general capstone F in the GE categories. The Essential Primary Skills of GE that can be developed by this course are 'Written Communication' and 'Inquiry and Analysis'. The primary focuses of the course will be (a) the

development of critical thinking skills necessary in hypothesis generation through the understanding of the connection between advanced levels of research designs and analyses, (b) the development of written communication that fosters clear expression of research questions and the results of statistical analyses and their limitations. This focus will be implemented through written assignments with at least 2500 words and early feedback to each of the written assignments, and (c) the development of analytic skills that can answer research questions and guide the generation of new research questions. The Student Learning Outcomes (SLOs), instructional strategies, and evaluation instruments are:

A. Written Communication

1. Context of and Purpose for Writing: After taking this course, students will be able to demonstrate adequate understanding of the strength and limitation of literature, and be able to express their research ideas clearly in writing following the *Publication Manual of the American Psychological Association*.

- Developed by: assigned readings, lecture notes, class activities and discussion
- Typically measured by: take-home written assignments
- Instructional strategies: assigned readings, lecture notes, class activities and discussion

2. Sources and Evidence: After taking this course, students will be able to demonstrate consistent use of credible, relevant sources to support ideas that are situated within the behavioral scientific research and to present those ideas persuasively in writing.

- Developed by: assigned readings, lecture notes, class activities and discussion
- Typically measured by: take-home written assignments
- Instructional strategies: assigned readings

B. Inquiry and Analysis

V. Existing Knowledge, Research, and/or Views: After taking this course, students will be able to demonstrate skills to determine strengths and limitations of existing literature, generate research hypotheses and provide rationales.

- Developed by: assigned readings, lecture notes, class discussion
- Evaluation instruments: Specific assignments will vary by instructor, but typically include take-home written assignments and in-class exams.
- Instructional strategies: assigned readings, lecture notes, class discussion

VI. Design Process: After taking this course, students will be able to understand the different types of research design (both quantitative and qualitative) and a typical method employed by each type of research along with the strengths and limitations of each method.

- Developed by: assigned readings, lecture notes, guest lectures, class discussion
- Typically measured by: written in-class assignment, exams
- Instructional strategies: assigned readings, lecture notes, class activities and discussion

VII. Analysis: After taking this course, students will be able to understand the different kinds of analyses that can be applied (both quantitative and qualitative) along with the strengths and limitations of each analysis.

- Developed by: assigned readings, lecture notes, guest lectures, class activities and discussion
- Typically measured by: take-home assignments, exams
- Instructional strategies: assigned readings, lecture notes, class activities and discussion

V. Outline of Subject Matter This course will facilitate advanced research skills by introducing creative hypothesis generation skills through the understanding of the connection between different types of advanced research designs and types of advanced statistical analyses. The course also facilitates how to present arguments clearly in writing and support them with evidence. Students will learn how to make the link between the limitations of past research and the proposed research hypotheses and how to provide persuasive rationales for the proposed hypotheses. Mastery of these skills is critical for comprehensive understanding and expression of scientific research and is a necessary foundation for advanced research career. The instruction and assessment of written assignments will be guided by the *Publication Manual of American Psychological Association*. The written assignments will have at least 2500 words and early feedback will be provided for each written assignment.

This is a broad outline of topics to be covered. Subject matter and sequence of topics may vary by instructor.

- A. The difference between research question and research hypotheses, and rationales for research hypotheses (SLO A)
- B. Heuristics for hypotheses generation (SLO A)
- C. How to conduct literature review (SLO A)
- D. Comparing the strengths and limitations of different research designs/methods (SLO B)
- E. Choosing appropriate statistical analyses for different types of research hypotheses (SLO B, C)
- F. How to conduct various statistical analyses (SLO C)
- G. How to interpret, display, and report research results (SLO C)
- H. Presentation of research (SLO A, B, C)

VIII. Methods of Instruction

Individual instructors will decide on the specific methods used in this course, but it is suggested that class instruction will consist of formal lecture (may include guest lectures from faculty conducting research employing a specific research method) and other formats of learning such as small group in-class activities and discussions. The class activities and discussions are designed to facilitate student learning of hypotheses generation, critical review of literatures, and finding appropriate statistical analyses along with their strengths and limitations.

IX. Information about Textbooks/Readings

The following is a short list of textbooks and readings to be used for this course. Instructors may assign one or more of these and/or include other relevant texts, readings, or research articles. Instructors may be asked to justify the use of old textbooks, if updated texts are not available.

Textbooks:

- Aiken, L. S. & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Thousand Oaks, CA: Sage
- Aneshensel, C. S. (2002). *Theory-based data analysis for the social sciences*. (1st ed.). Thousand Oaks, CA: Sage Publications Inc.
- Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications Inc.
- McBurney, D. H., & White, T. L. (2009). *Research methods*. (8th ed.) Wadsworth.
- Leedy, P.D. & Ormrod, J.E. (2015). *Practical research: Planning and design with enhanced Pearson eText*. (11th ed.). Boston, MA: Pearson.
- Meltzoff, J. (2003). *Critical thinking about research: Psychology and related fields*. (5th ed.). Washington, DC: American Psychological Association.
- Nicol, A. A. M. & Pexman P. M. (2010). *Presenting your findings: A practical guide for creating tables*. (1st ed.) Washington, DC: American Psychological Association.
- Nicol, A. A. M. & Pexman P. M. (2010). *Displaying your findings: A practical guide for creating figures, posters, and presentations*. Washington, DC: American Psychological Association.
- Publication Manual of the American Psychological Association* 6th Ed. (2010). Washington, DC: American Psychological Association.
- Reis HT, Judd CM, eds. *Handbook of research methods in social and personality psychology*. New York:Cambridge University Press, 3–16.
- Silvia, P. J. (2007). *How to write a lot: A practical guide to productive academic writing*. Washington, DC: American Psychological Association.

Readings:

- Bem, D.J. (2003). Writing the empirical journal article. In J. Darley, M. Zanna, & H. McGuire, W.J. (1997). Creative hypothesis generating in psychology: Some useful heuristics. *Annual Review of Psychology*, 48, 1—30.

X. Bibliography

This is a highly selective bibliography. It is intended to show the range of materials available to our students. The following works are all in the CSULB library or available through the library resources. In addition, much material relevant to the course can be found in periodicals, both in print and in electronic form.

- Aiken, L. S. & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Thousand Oaks, CA: Sage
- Becker, H.S. (2007). *Writing for social scientists: How to start and finish your thesis, book, or article*. Chicago: University of Chicago Press.
- Bell, P.B. & Staines, P.J. (2001). *Evaluating, doing and writing research in psychology: A step-by-step guide for students*. Thousand Oaks, CA: Sage Publications.
- Berkman, E. T. & Reise, S. P. (2012). *A Conceptual Guide to Statistics Using SPSS*. (1st ed). Thousand Oaks, CA: Sage
- Bloomfield, Victor A., & El-Fakahany, E.E. (2008). *The Chicago guide to your career in science: A toolkit for students and postdocs*. Chicago: University of Chicago Press.
- DeVellis, R. G. (2012). *Scale development: Theory & applications*. Thousand Oaks, CA: Sage Publications, Inc.
- Galvan, J.L. (2006). *Writing literature reviews: A guide for students of the social and behavioral sciences* (3rd Ed.). Glendale, CA: Pycrczak Publishers.
- Grant, M.C. & Fisher, D. (2010). *Reading and writing in science: Tools to develop disciplinary literacy*. Thousand Oaks, CA: Corwin Press.

- Grimm, L. G., & Yarnold, P.R. (1995). *Reading and understanding multivariate statistics*. Washington, DC: American Psychological Association.
- Leong, F.T.L. & Austin, J.T., (Eds.) (2005). *The psychology research handbook: A guide for graduate students and research assistants* (2nd Ed.). Thousand Oaks: Sage Publications.
- Meltzoff, J.(1998). *Critical thinking about research : psychology and related fields*. Washington, DC: American Psychological Association.
- Meyers, S. S., Gamst, G., & Guarino, A. J. (2012). *Applied Multivariate Research: Design and Interpretation*. (2nd ed.) Thousand Oaks, CA: Sage
- Pyrzczak, F. & Bruce, R.R. (2007). *Writing empirical research reports: A basic guide for students of the social and behavioral sciences*. Glendale, CA: Pyrczak Publishers.
- Sansone, C., Morf, C.C., & Panter, A.T. (2004). *Handbook of methods in social psychology*. Thousand Oaks: Sage Publications.
- Single, P.B. (2010). *Demystifying dissertation writing: A streamlined process from choice of topic to final text*. Sterling, VA: Stylus Publishers.
- Warner, R. M. (2013). *Applied Statistics: From Bivariate Through Multivariate Techniques*. (2nd ed.) Thousand Oaks, CA: Sage.

XI. Instructional Policies and Requirements

Instructors may specify their own policies with regard to plagiarism, withdrawal, absences, etc., as long as the policies are consistent with the University policies as laid out in the CSULB Catalog. This course will follow University policies on Attendance (PS 01-01), Course Syllabi and Standard Course Outlines (PS 11-07), Final Course Grades, Grading Procedures, and Final Assessments (PS 05-07), and Withdrawals (PS 02-02).

XII. Student Level Assessment

Methods of assessment will vary depending on the instructor with no evaluation counting for more than one-third of the final course grade. Below are some possible methods of evaluation, along with the percentage of total grade per requirement) that may be considered by instructors:

- A. Midterm examination for which essay questions comprise at least 30% of the exam (20%)
- B. Final examinations for which essay questions comprise at least 30% of the exam (20%)
- C. Series of written take-home essay assignments designed to strengthen skills for research design (e.g., hypotheses generation, providing rationales for proposed hypotheses) (20%)
- D. Series of written take-home assignments designed to teach data analyses, interpretation of results, and write-up of the results following scientific guidelines (e.g., American Psychological Association Guidelines) (20%)
- E. Oral presentation designed to teach how to effectively present their research findings to an audience (20%)

XIII. Course Level Assessment

- A. Exam grades will be used to assess students' learning of critical, foundational and research information contained in the SLO's.
- B. GE skills will be assessed utilizing rubrics and criteria sheets generated by faculty and based on best-practices for each domain assessed. All instructors will utilize the same rubrics and criteria sheets for all skill-based assessments.
- C. At the close of the each semester, the Faculty Coordinator for the course will convene a meeting of all instructors to conduct an assessment of all rubrics, and any necessary edits will be made at that time.

XIV. Consistency of SCO Standards across Sections

Present and future instructors of this course should follow the instructions given in the SCO to ensure consistency of pedagogical practices. The course coordinator should maintain regular communications among instructors and, if necessary, review course materials submitted for a review to ensure consistency of pedagogical practices among classes. Also, all future syllabi should conform to this SCO.