

Quantitative Methods and Analysis in Education 1  
EPRS 8530  
Fall 2019

Instructor: Chris Oshima, Professor, Department of Educational Policy Studies

Office: Room 478 College of Ed. Bldg.

e-mail: [oshima@gsu.edu](mailto:oshima@gsu.edu)

Website for Courses: [http://coshima.davidrjfikis.com/stat\\_1.htm](http://coshima.davidrjfikis.com/stat_1.htm)

Virtual (On-Line) Office Hours: by appointment

Course Requirements

Class Schedule: 8/26/19 - 12/10/19

Texts: Coladarci, T., & Cobb, C. (2014). Fundamentals of statistical reasoning in education. Fourth Edition. John Wiley & Sons. **Required.** (E-Text or Paperback, <http://www.wiley.com/WileyCDA/WileyTitle/productCd-EHEP002973.html#purchase>)

<The following can be also used in lieu of Coladarci and Cobb, 2014. The contents are almost identical. Minium, E. W., Clarke, R. C., & Coladarci, T. (1999). Elements of statistical reasoning (Second Edition). John Wiley & Sons. >

Huck, S. W. (2011). Reading statistics and research. Sixth Edition. HarperCollins Publishers Inc. (**Optional**)

Floyd, Wright, K., Russell, A., Beggs R, May, G. & Oshima, T.C. (2014). SPSS for windows: A survival guide. (**Free. Available at iCollege.**)

Class notes available at [http://coshima.davidrjfikis.com/stat\\_1.htm](http://coshima.davidrjfikis.com/stat_1.htm)

On-Line Resources: Introduction to Educational Research by Suter

<http://www.sagepub.com/eic/>

Readingstats.com <http://readingstats.com/>

HyperStat Online <http://davidmlane.com/hyperstat/index.html>

Rice Virtual Lab <http://onlinestatbook.com/rvls.html>

Prerequisite: Basic Math. See Appendix A (p.382 in Coladarci & Cobb 2014 or p. 427 in Minium et al. 1999).

Exams: Exam 1 - Wed 10/16 6AM to Thurs 10/17 midnight for 2 hours (Online exam taken at home)

Exam 2 - Wed 12/10 4:30 - 6:30 (tentative). (In-Class exam at GSU. Room: TBA. Other days/times can be arranged during the final exam week. For those who cannot come to GSU due to distance, a special arrangement can be made which would allow a student to take the exam online at home in conjunction with an exit interview with the instructor via WebEx.)

Quizzes & Assignments: There will be weekly on-line quizzes ("Quizzes" in Desire 2 Learn, also known as iCollege). Out of all quizzes, the lowest grade will be dropped to calculate the mean score of the quizzes. There will be four assignments ("Dropbox" in iCollege). Out of all assignments, the lowest grade will be dropped to calculate the mean score of the assignments.

Computer/Writing Projects:

There will be two writing projects (computer HW assignments). See the separate instructions. <http://coshima.davidrjfikis.com/EPRS8530/writingProj4.pdf>

Grades: Grades will be based on the student's performance on the two exams (Exam 1 and Exam 2), the mean score of quizzes, the mean score of assignments, and the mean score of the writing projects. They are weighted as follows:  $.30 \times \text{Exam 1} + .30 \times \text{Exam 2} + .10 \times \text{Mean Quiz Score} + .10 \times \text{Assignment} + .20 \times \text{writing projects}$ .

Cutting scores of 90, 80, 70, 60, and 0 will apply for grades A, B, C, D, and F, respectively.

All the assignments have to be completed to obtain credits for the class. Make-up exams may be given with the instructor's permission.

Participation will not be graded. However, active participation on-line (via discussion, e-mail, etc. on WebCT) is required and expected. If the instructor notices a lack of participation, a notice will be given to the student via e-mail. After two such notices, if the student fails to actively participate, then **the course grade will be lowered by 10%**.

Academic Honesty:

Please see the section of the general catalog which describes the university policy on academic honesty. The policy provides descriptions of what violates the policy and the penalties that may be imposed for violations. Departmental policy authorizes professors to assign failing grades for any work that does not meet the standards of academic honesty. Any violation of academic honesty may result in a failing grade in a course.

Please note that all quizzes, exams, and assignments are done INDEPENDENTLY. As this is an online course, all

quizzes, exams, and assignments are open book and students can also use the Internet. However, students cannot seek help from other individuals for quizzes, exams, and assignments. Any questions should be discussed openly in the discussion board (DB) in iCollege. Work not performed independently will result in a failing grade.

Note: The last day to withdraw and possibly receive a "W" is 10/15/19.

### Course Description

This is the introductory course in a sequence of three courses (including the core requirement EPRS8530 and the elective courses EPRS8540 and EPRS8550) designed to provide theoretical and applied understandings of quantitative research. Fundamentals of research and hypothesis testing are taught and then built upon for instruction in experimental, quasi-experimental, and correlational designs along with the requisite statistical tools for analyzing data from these designs. In addition, skills are developed in the use of SPSS, reviewing research articles, and writing research papers.

### Course Goals

Students will be able to:

1. Form a clear and concise research statement/question.
2. Operationalize terms and variables relevant to the research query posed.
3. Explain the differences among experimental, quasi-experimental, and correlational designs.
4. Plan a study that incorporates a basic:
  - Experimental design.
  - Quasi-experimental design.
  - Correlational design.
5. Select and conduct the appropriate analysis for an interpret, in terms of the research query, the results from data from basic experimental, quasi-experimental, and correlational designs.
6. Demonstrate at least basic ability to write a Method section and Results section of a research report.

### Outline

Please see the attached Excel sheet for the dated outline.

**Note: The course syllabus provides a general plan for the course; deviation may be necessary.**

## Overview of the On-Line EPRS8530

Welcome to our on-line EPRS8530. In this course, instructions will be given using the multimedia technology via iCollege. The instructional materials include on-line videos, on-line resources, virtual office hours, and of course, traditional textbooks. Learning outcome will be assessed via on-line quizzes, assignments, writing projects and exams. Please view the overview video:

<http://coshima.davidrfikis.com/EPRS8530/ov/ov.html>

1. **Meeting Times:** We will not meet face to face as this is a 100% online course. Students are expected to keep up with the pace by following the outline (attached below). In the outline, specific videos and reading materials are presented week by week. This is a non-synchronous on-line course to allow a maximum flexibility for students. The instructors will be available during the voluntary virtual office hours, which of course is synchronous in nature.

2. **System Requirements:** Each student needs to have an access to internet. A fast access to internet (DSL, etc.) is strongly recommended. The computer should have speakers, and a microphone is needed if the student would like to participate in virtual office hours. Students will have an access to videos, etc. via iCollege. Other materials (handouts, etc.) are also available on my Web site.

3. **Computer Knowledge:** No special computer knowledge is necessary beyond basic computer skills. If one can use iCollege and knows how to visit Web sites, then he or she is ready for this course.

4. **Communications:** Communications between the instructors and students and among students are maintained in the discussion board and e-mail in iCollege. Students are expected to check iCollege daily. The communication is open all the time. The instructors will do their best to reply within 24 hours on weekdays. Please understand that there is no reply/posting from instructors on Sundays.

For any questions, please contact [oshima@gsu.edu](mailto:oshima@gsu.edu).

5. **Learning Outcome:** Quizzes are administered on-line via iCollege. The assignments will be turned in via iCollege using the Dropbox Tool. The first writing project will be due Monday in Week 8. The second writing project will be turned in one week before Exam 2. The two exams are administered via iCollege in the same format as quizzes. Exam 1 covers the first half of the course and Exam 2 covers the second half of the course. However, Exam 2 is cumulative in a way, as the last half of the course is built upon the knowledge from the first half. Although they are open-book tests, there is a time limit of 2 hours. Students are expected to work **independently** on all the quizzes, exams, and assignments.

6. **Virtual Office Hours (Blackboard WebEx):** The attendance of the virtual office hours will be voluntary just like regular office hours. No grading will be based on the participation. It is possible to have a group discussion as well as one-on-one discussion. A microphone is required to participate.

7. **Discussion Board (DB):** Participation is very important in an online course. You will be expected to participate often and to **contribute substantive discussion messages on each occasion.**

Please note that both quantity and quality are important considerations when it comes to participation. For example, a message which says simply, "I agree," does not constitute participation, because it does not add anything of substance to the discussion.

8. **Tips:**

- Quiz
  - The weekly quizzes will be available from Friday - Monday (midnight).
  - It is possible to go back and change your answers during the session.
  - Be sure to save your answers before you submit.
- Assignments/Projects:
  - Assignments and projects are returned with comments. Be sure to view the comments.
- WebEx
  - The virtual office hours (WebEx) will be arranged by emailing the instructor. During the office hours, the instructor is available to meet one-on-one or as a group via WebEx. Please make an appointment by emailing the instructor in advance (by midnight a day before) in iCollege if you would like to attend. WebEx sessions can be recorded.
  - Please release the microphone button when you finish talking.
  - Please minimize personal text messaging during the session. Although person-to-person messages are not viewed by others, moderators (instructors) see all the messages including person-to-person messages.
- Pace
  - The course moves week by week centered on Thurs. Discussion Board (DB) and Quiz (Fri - Mon) are great pace makers. DB will be used to help students understand the week's materials. WebEx will be another place to clarify any questions. Although it is up to the individual how to study for this course, here is an example how one can study:
    - Sun - Wed - Study the week's materials (Videos, Reading, DB, etc.)
    - Wed -Finish up an assignment if applicable.
    - Weekend - Wrap up the week's study and take the quiz for the week
- iCollege
  - Please use iCollege for all the communications, including e-mail and submissions of assignments and projects.
  - In the past, students experienced occasional problems with attachment in iCollege. If that happens, you may want to exit iCollege and come back in and try again. That sometimes solves the problem.
  - Check iCollege often, EVERYDAY if all possible.

Our goal is to help you learn quantitative methods as effective and enjoyable as possible. If there are any comments/feedback/requests, please feel free to e-mail me at any time [oshima@gsu.edu](mailto:oshima@gsu.edu).

GOOD LUCK!

Chris Oshima