RUTGERS
Graduate School of Education

Fall 2015 | 15:291:511:90/91 | Index # 09354 | 3 Credits | Online Course

Introduction to Assessment, Applied Statistics and Research

Course Delivery Online through Rutgers Learning Studio (provided by Pearson eCollege)

Course Website Access here.

Instructor Jinnie Choi, Ph.D.

Email jinnie.choi@rutgers.edu. Instead of emailing, I encourage you to post a private message to me within 'Virtual Office Hours' (by means of Piazza discussion board) on the course website.

Office Hours 'Virtual Office Hours' by means of Piazza discussion board.

Prerequisites None

Course Catalog Description

This course offers professionals knowledge regarding assessment, research, and basic statistical procedures. *(Statistics)* Statistical topics including descriptive statistics, graphing, computer applications, normal distribution theory, correlation analysis; prediction and an introduction to hypothesis testing are addressed. *(Research)* Consideration is given to qualitative versus quantitative research methods. *(Assessment)* Purposes, meaning, and types of assessment, which include norm versus criterion referenced; personality, portfolio, and aptitude assessment are included, as are ethical issues and approaches to accommodating students with disabilities.

Learning Goals

This course is designed to provide an introduction to the concepts and tools used in basic research that supports data-driven decision making in the context of educational services, including school counseling and special education. In particular, the focus is given to developing professional knowledge and skills in preparation for *(1. Assessment)* assessing academic and behavioral performances, *(2. Statistics)* utilizing standard statistical concepts and tools for testing and evaluation, and *(3. Research)* conducting basic research. Upon successfully completing this course, the students will be able to

- demonstrate acquired *knowledge* on the basic concepts and issues in individual and group approaches to assessment, statistical analysis, and research methods; and
- demonstrate acquired *skills* by means of a final project in which they make practical use of the knowledge they obtained from the course.

Class Materials

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The course materials include lecture slides (plus voice), readings, homework assignments, weekly participation topic, and rubrics for previous weeks' homework. All materials will be offered online.

The following is a non-exhaustive list of the readings/video resources that will be referenced in this course. All of the required/ recommended readings are available freely online via Rutgers Libraries.

(1) Assessment

Primary assessment for learning. A whole school approach [Video file]. (2006). Teachers TV/UK Department of Education. Retrieved August 11, 2015, from VAST: Academic Video Online. (Duration 13:54) Access here.

Assessment for Learning [Video file]. (2005). Teachers TV/UK Department of Education. Retrieved August 11, 2015, from VAST: Academic Video Online. (Duration 4:27) Access here.

Formative Assessment [Video file]. (2005). Teachers TV/UK Department of Education. Retrieved August 11, 2015, from VAST: Academic Video Online. (Duration: 14:12) Access here.

How to Assess Authentic Learning, Fifth Edition [Video file]. (2011). Corwin Press. Retrieved August 11, 2015, from VAST: Academic Video Online. (Duration 1:09:39) Access here.

McCoach, D. B., Gable, R. K., & Madura, J. P. (2013). *Instrument Development in the Affective Domain: School and Corporate Applications* (3rd ed.). New York, NY: Springer. Access here.

Odendahl, N. V. (2011). *Testwise Volume 1: Understanding educational assessment*. Lanham, Md.: Rowman & Littlefield Education. Access here.

Sweet, D. A., & United States Office of Educational Research and Improvement. (1992). *Performance assessment*. Washington, D.C.: U.S. Dept. of Education. Access here.

(2) Statistics

Cleophas, T. J. M., & Zwinderman, A. H. (2010). *SPSS for starters*. New York: Springer. Access here.

Ellison, S. L. R., Barwick, V., & Farrant, T. J. (2009). *Practical statistics for the analytical scientist: A bench guide*. Cambridge: Royal Society of Chemistry. Access here.

Lynch, S. M. 1. (2013). *Using statistics in social research: A concise approach*. New York: Springer. Access here.

Morgan, G. A. 1. (2011). *IBM SPSS for introductory statistics: Use and interpretation,* (4th ed.). New York: Routledge. Access here.

Organisation for Economic Co-operation and Development., & Ward, D. (2007). *Data and metadata reporting and presentation handbook*. Paris: Organisation for Economic Co-operation and Development. Access here.

Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS* (4th ed.). Maidenhead: Open University Press/McGraw-Hill. Access here.

Programme for International Student Assessment., & Organisation for Economic Co-operation and Development. (2009). *PISA data analysis manual: SPSS* (2nd ed.). Paris: OECD. Access here.

(3) Research

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Dyce, J. A., & Williams, U. (2014). *Research methodologies: An introduction to quantitative research*. Edmonton, AB: Uzma Williams. (Duration 36:40) Access here.
Machin, D., Fayers, P. M. (2010). *Randomized clinical trials: Design, practice and reporting*. Chichester, West Sussex, UK ; Hoboken, NJ: Wiley-Blackwell. Access here.
Pullin, W., Dyce, J. A., & Williams, U. (2014). *Research methodologies: An introduction to qualitative research*. [Video file]. Edmonton, AB: Uzma Williams. (Duration 1:21:13) Access here.
Thyer, B. A. (2012). *Quasi-experimental research designs*. New York: Oxford University Press. Access here.
Vogt, W. P., Gardner, D. C., & Haeffele, L. M. (2012). *When to use what research design*. New York: Guilford Press. Access here.

Software Requirement

In this course, SPSS is supported as a software tool for statistical analysis. Use of other statistical software is permitted but not supported by instruction. Students are required to gain access to SPSS prior to the second week (9/8/2015) of the course.

On campus, SPSS Version 21 is available for students at all the university computing labs and at the GSE computer lab. For locations, phone numbers, and hours of operation, please check out here and here. Off campus, SPSS is available through the Rutgers Remote Apps Server. Watch and learn how to use it here (a Youtube video) and access the apps here. For buying and renting options, please check out here and here.

Internet and Technology Requirement

You need very reliable access to the internet to successfully complete this course. Please make sure to have a reliable back-up plan in place (local library, friend's house, coffee shop) in case your primary access is not available when you plan to work on the class. Rutgers has a plethora of options for access on terminals (libraries, computing centers) and most buildings have wireless access for a laptop.

Weekly Schedule

The class 'meets' on Tuesdays.
By noon,

- lecture slides and readings are posted (starting from 9/1/2015);
- rubrics are posted (starting from 9/15/2015);
- homework assignments are due (starting from 9/15/2015);
- weekly participations are due (starting from 9/8/2015);
- self-corrected homework assignments are due (starting from 9/22/2015);
- final project is due on 12/11/2015.

Policy on Assignment Submission

All homework assignments and final projects should be submitted ONLY using the eCollege dropbox (located on the top navigation bar), if not noted otherwise by the instructor. Other means of submission will not be guaranteed full credits, due to complications in feedback and grading.

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No late participation, homework, and/or project will be accepted. Should you submit an assignment after the due date, your grade will drop by 25% for each day late. Prior approval for a late assignment to receive full credit needs an acceptable reason: illness (with note from physician), family emergency, or religious holiday. In these cases, arrangements should be made with me as soon as possible for an alternative due date.

Please follow all directions for both completing and submitting assignments. Send only required information.

Grading Rules

The final letter grade will be assigned as follows: 90% and above - A, 80-89% - B+, 75-79% - B, 65-74% - C+, 60-64% - C, Below 60% - F.

1. Final project (40%). See details in the following section.

2. Homework assignments (30%) are designed to prepare students for the final project. They will be a mix of research design, assessment, and statistical data analysis practices. Students are allowed for one week to self correct the previous homework based on the rubric and instructor's feedback. In submitting the self-corrected homework assignments, students are required to add their own comments that demonstrate understanding of where and how the improvements were made. The weekly homework will be graded on a (+, ✓ , −) basis. A sufficiently corrected homework will recover half credit between the grades. The explanation of these grades will be provided in the rubrics.

3. Weekly participation (30%) includes posting comments, questions, or answers for the weekly topics about the assigned reading or the lecture slides; and quality of presentation on the homework. The weekly participation will be graded on a (+, ✓ , −) basis. The explanation of these grades will be provided in the rubrics.

Details on the Final Project

The final project is an exercise in guided research that involves research design, assessment construction, statistical data analysis and interpretation. The goal of this project is to practice and demonstrate knowledge and skills the students acquired in this class by conducting a small-to-medium scale research of any topic of their choice. As the guidance will be provided throughout the course based on the homework assignments and participation topics, students are strongly encouraged to start and engage in the final project early in the semester.

Students are strongly recommended to choose and use a data set from the class-provided data sets. If in a special situation (which is not fully supported in this course) students want to collect their own data from human subjects, they are required to meet all the requirements and criteria listed here. If so, be prepared to let the instructor know by the second week (9/8/2015), then to complete and submit a written oath that will be provided by instructor on demand, and to get reviews and approval very early in the semester.

The final project will be graded based on the coverage of methodological topics and tools, appropriateness of methodological choices, accuracy of interpretations, and overall

professionalism with regard to organization, presentation and clarity. The explanation of these grades will be provided in the rubrics.

Course Context

This course is offered for the following areas of study in GSE: Educational Statistics, Measurement, and Evaluation, School Counseling, and Special Education; specifically as a requirement for the following GSE programs (with program goals described below).

- Ed.M. with Certification in School Counseling The program curriculum provides a wide range of didactic and experiential learning opportunities emphasizing the preparation of school counselors as leaders, advocates, and consultants. Graduates of the program will be proficient and excel in developing and implementing comprehensive school counseling programs and support services based on data-driven and ethical decision making models that promote academic achievement, personal-emotional development, and career development for all students.
- Ed.M. Certification Program in Special Education Sequence for Teacher of Students with Disabilities Through coursework and field experiences, students learn to address the instructional needs of students with mild and moderate disabilities. A 21-credit special education core is required of all students. This core develops competencies in the assessment and remediation of students with learning disabilities, collaborative teaching/consultation skills, and knowledge about New Jersey special education law.
- Endorsement Program for Learning Disabilities Teacher-Consultant Certification The program includes instruction in the assessment of academic achievement of students referred for learning disabilities evaluation. Participants will also be prepared to interpret patterns found in testing, to devise informal measures to pinpoint cognitive difficulties, and to design interventions to help students compensate for academic and behavioral deficiencies.

Academic Integrity Policy

The Office of Student Conduct supervises issues related to violations of academic integrity. Please familiarize yourself with the university policy on academic integrity. As a student of Rutgers University you are responsible for adhering to the policies of this course and of Rutgers University, which includes the Code of Student Conduct. By your continued enrollment in this class, it is understood that you are agreeing to all of the policies and procedures set forth in this syllabus. Failure to obtain or read this syllabus does not exempt the student from its policies and procedures. If you cannot abide by these policies and procedures, you are expected to drop the class. Failure to comply with the policies of this course and of the university can result in disciplinary action.

Office of Disability Services

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation here. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site here.

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Tentative Course Schedule

Check the course website for the most updated schedule.
WP: Weekly participation.
HW: Homework assignment.
(sc): self-correction to the previous assignment.

Day	Topics			Due
	Assessment	Applied Statistics	Research	
Week 1: 9/1/15	Introduction of the course			
Week 2: 9/8/15			Research questions	WP1
Week 3: 9/15/15	Purpose and meaning of assessment	Types of data	Quantitative and qualitative methods	WP2, HW1
Week 4: 9/22/15	Assessment triangle		Research designs	WP3, HW1(sc)
Week 5: 9/29/15	Designing assessments- contents, formats, types (norm-, criterion-referenced, formative/summative, personality, portfolio, aptitude)		Collecting data (on-,off-line)	WP4, HW2
Week 6: 10/6/15	Collecting measurement data- items, scales	Describing data by means of graphs- distributions, scatterplot, boxplot	Describing data	WP5, HW2(sc)
Week 7: 10/13/15		Summary statistics- normal distribution, mean, sd, median, variance	Describing data	WP6, HW3
Week 8: 10/20/15		Locating individual points- z-scores, percentiles		WP7, HW3(sc)
Week 9: 10/27/15	Reliability	Examining relationship between data- correlation	Claims and evidence	WP8, HW4
Week 10: 11/3/15		Making inference- statistical significance, p-value		WP9, HW4(sc)
Week 11: 11/10/15	Validity	Hypothesis testing, type I and II errors	Estimating the effects	WP10, HW5
Week 12: 11/17/15	Ethical issues and fairness	Making predictions- linear regression		WP11, HW5(sc)
Week 13: 11/24/15		Making predictions- effect sizes, causal inference		WP12, HW6
Week 14: 12/1/15	A taste of advanced measurement models	Computer applications (SPSS review)	Interpreting the results based on RQ and evidence	WP13, HW6(sc)

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Week 15: 12/8/15	SPSS review / guidance on final projects	Draft final project
Week 16: 12/15/15		Final project