

The University of Scranton
The Panuska College of Professional Studies
Department of Health Administration and Human Resources

HAD 505 – HEALTH CARE STATISTICS and RESEARCH METHODS
Spring 2020 (3 credits)

Instructor: William F. Miller, Ph.D., MHA
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Office Hours: Tuesday 1:30-3:00pm & Thursday 10:00-11:30am
or by appointment as needed

Class Time: Section 41 [30583] – Tuesday 7:20pm to 10:00pm

Room: MGH 406

It is the mark of a truly intelligent person to be moved by statistics.
-George Bernard Shaw

COURSE DESCRIPTION

The course has been designed to examine basic statistical techniques that are utilized in analyzing health care data: use of central tendency, probability, sampling, reliability and validity, graphic data display, frequency distribution, hypothesis development, *t*-tests, ANOVA, chi-square tests, linear regression, choosing an appropriate statistical test, evaluation and interpretation of professional journal articles, and technical report writing. This course will examine qualitative and quantitative research methods appropriate to the study of health administration, including observational, quasi-experimental and experimental research designs. Topics include conceptualization, operationalization and data preparation. The application of a basic knowledge of statistics and research methods to the individual field of health care management is highlighted. There are no pre-requisites for this course.

COURSE OBJECTIVES

Upon successful completion of this course, the student will be able to:

1. Acquire and apply factual knowledge of research methods and statistics applicable to health administration;
2. Critically review research reports;
3. Understand the uses of and distinction between qualitative and quantitative research methods;
4. Formulate and test hypotheses using appropriate research methods;
5. Select and apply the correct statistical test for analysis;
6. Interpret the results of statistical tests;
7. Summarize the results of statistical analyses and use these to support decision making;
8. Utilize skills, competencies, values, and points of view pertaining to research methods and health statistics to develop a research proposal and defend the proposal in writing and with an oral presentation;
9. Develop basic skills using statistics and apply these to analyze quantitative data;
10. Understand the need and methods for protection of health information in research.

COMPETENCY EVALUATION

HLA Competency Model

Domain #1: Communication and Relationship Management*Competency*

- A. Sensitivity to what is correct behavior when communicating with diverse cultures, internal and external
- B. Present results of data analysis to decision makers
- C. Use factual data to produce and deliver credible and understandable results
- D. Facilitate group dynamics, process, meetings, and discussion
- E. Demonstrate effective interpersonal skills
- F. Identify stakeholder needs / expectations
- G. Provide and receive constructive feedback

Domain #2: Leadership*Competency*

- A. Explain potential impacts and consequences of decision making in situations both internal and external
- B. Encourage a high level of commitment to the purpose and values of the organization
- C. Foster an environment of mutual trust
- D. Create an organizational climate that encourages teamwork
- E. Knowledge of own and others' cultural norms

Domain # 3: Professionalism*Competency*

- A. Understand, uphold, and act upon ethical and professional standards
- B. Demonstrate professional norms and behaviors
- C. Professional societies and memberships
- D. Network with colleagues
- E. Participate in community service

Domain # 4: Knowledge of the Healthcare Environment*Competency*

- A. Assess the interrelationships among access, quality, cost, resource allocation, accountability, and community
- B. Make recommendations and take actions compatible to government, regulatory, professional and accreditation agencies
- C. Use business techniques to support program development in alignment with health care trends and health policy
- D. Recognize and address the interdependency, integration, and competition among healthcare sectors

Domain # 5: Business Skills and Knowledge*Competency*

- A. Integrate information from various sources to make decisions and recommendations
- B. Demonstrate critical thinking, analysis, and problem solving
- C. Apply basic financial management and analysis principles
- D. Apply reimbursement principles, ramifications and techniques including rate setting and contracts
- E. Apply principles of operating, project, and capital budgeting
- F. Use project management techniques

COURSE ACTIVITIES, TEACHING METHODS, and EVALUATION

We will use readings, lectures, discussions, group activities, student participation, case studies, guest speakers, videos, handouts, projects, experiential exercises, student presentations, research, and perhaps other methods and activities to enable students to achieve the course objectives.

Evaluation

Self-reflection Questions and Statistical Problem Sets

D1-BC; D2A; D3-A; D4-AC; D5-B; W4-15; L1-9; CD1-6; AD1-4

Research Study Review

D1-BC; D2-A; D4-C; D5-AB; W4-10; L1-2,4-6,8-9; CD1-6; AD1-4

Research Study Proposal

D1-ADEF; D2-CDE; D3-B; D4-ACD; D5-AB; W3-14; L1-10; CD1-6; AD1-4

Class Participation & Attendance

D1-ABEG; D2-E; D3-AB; D5-AB; W1-14; L1-6,8-9; CD1-6; AD1-4

Human subjects training

D1-A; D2-E; D4-B; W1&3; L7&10; CD6

LEGEND

D1-5 = Domain

A-G = Competency

W1-15 = Week

L1-10 = Learning Objective

CD1-6 = Cognitive Domain

AD1-5 = Affective Domain

COURSE GRADING

| | |
|--|-------------------|
| Exams | 240 Points [30%] |
| Final Exam (140 Points) | |
| Mid-term Exam (100 Points) | |
| Research Project Proposal | 200 Points [25%] |
| Proposal Outline (20 Points) | |
| Written Proposal (90 Points) | |
| Presentation (60 Points) | |
| Peer Evaluation (30 Points) | |
| Statistical Problem Sets and Assignments | 160 Points [20%] |
| Problem Sets (120 Points) | |
| Assignments (40 Points) | |
| Research Study Reviews | 120 Points [15%] |
| Quantitative I (40 Points) | |
| Quantitative II (40 Points) | |
| Qualitative (40 Points) | |
| Human Subjects Training & IRB-DRB Report | 40 Points [5%] |
| Human Subjects Training (30 Points) | |
| IRB-DRB Report (10 Points) | |
| Class Participation & Attendance | 40 Points [5%] |
| Total | 800 Points |

Exams [240 Points]

A Final Exam will be due at 10:00pm on Tuesday night of Finals Week and is worth maximum 140 points. A Mid-term exam will be due at the end of class time on week 7 and is worth maximum 100 points.

Research Project Proposal [200 Points]

Students will work in groups of 3-4 and develop a quantitative research project proposal to study an issue prevalent in health administration today. This project requires the following:

1. A proposal outline worth 20 points with at least five project related scholarly resources identified and properly formatted using APA style is to be submitted to the appropriate dropbox by the beginning of class on the designated date noted on the course schedule. The outline should contain the following:
 - a. Issue statement (5 points)
 - b. Project outline (5 points)
 - c. Five properly formatted scholarly resources are worth 2 points each.
2. A written proposal will be worth 90 points, will be graded using the *Proposal Rubric* and is to be placed in the appropriate dropbox by the beginning of class on the designated date noted on the course schedule. The paper is to be done in MS Word.
3. A 15-20 minute presentation will be worth 60 points, will be graded using the *Presentation Rubric* and is to be placed in the appropriate dropbox by the beginning of class on the designated date noted on the course schedule. The presentation is to be done in MS PowerPoint. Please note that **each student must present some portion of the content** during the presentation.
4. Each student will evaluate the other members of his/her group using the *Peer Evaluation Rubric*, which is to be placed in the appropriate dropbox by the designated date and time noted on the course schedule. This peer evaluation will be worth 30 points toward the assignment total.

Statistical Problem Sets and Assignments [160 Points]

An integral component of Jesuit education is the use of individual learning to encourage active learning. Each student will be responsible for individually completing weekly statistical problem sets (120 points) or assignments (40 points). These will cover any number of subjects related to the course.

Research Study Reviews [120 Points]

Each student will review three refereed articles assigned by the instructor and report on select criteria. These article reviews are based on scoring rubrics that will be covered in class. Each review is worth 40 points and is to be placed in the appropriate dropbox by the beginning of class on the designated date noted on the course schedule. The review is to be done in MS Word.

Human Subjects / IRB Training [40 Points]

Human Subjects Training (30 points)

Students need to complete or provide current proof of completion of the following training modules:

- 1) CITI Human Subject Protection - Group 1 - Social and Behavioral Research: Social and Behavioral Researchers and Key Personnel and
- 2) CITI Responsible Conduct of Research - Social and Behavioral Responsible Conduct of Research Course.

Details and instructions are on the CITI training site.

(<http://www.scranton.edu/academics/provost/research/sub%20pages/CITI.shtml>).

If both are not submitted on time, student loses all 20 points.

IRB & DRB Training (10 points)

Students will submit a 100-150 word summary of their understanding of the role of the university Institution Review Board (IRB) and Department Review Board (DRB) and the importance of the IRB / DRB to research.

The IRB site is <http://www.scranton.edu/academics/provost/research/sub%20pages/IRB.shtml>.

Proof of completion of the Human Subjects Training and the IRB & DRB Training summary are to be submitted to the appropriate dropboxes by the designated time and date noted on the course schedule.

Class Participation [40 Points]

Attendance at all class sessions is expected and absence from class is a serious matter. However, should an absence be necessary, the student is required to contact the instructor prior to class, if at all possible, or as soon after class as possible. Each student is expected to be an active participant in class discussions and to offer meaningful analysis and convincing arguments. Simply coming to class and listening to the discussion is not sufficient; attendance is not participation. You should, therefore, make a conscientious effort to be sufficiently prepared to make intelligent, timely comments regarding the materials and issues discussed in class. As noted in the STUDENT RESPONSIBILITIES below, students are expected to attend class (on time), maintain proper decorum, and act in a professional and courteous manner. Take note - the in-class use of electronic devices is limited to note-taking purposes only unless otherwise permitted by the instructor.

GRADING DISTRIBUTION

| | |
|----|------------------|
| A | 760 - 800 points |
| A- | 736 - 759 points |
| B+ | 712 - 735 points |
| B | 688 - 711 points |
| B- | 664 - 687 points |
| C+ | 640 - 663 points |
| C | 616 - 639 points |
| F | below 616 points |

COURSE MATERIALS

Required textbooks

Kros, J. F. & Rosenthal, D. A. (2016). *Statistics for health care management and administration* (3rd ed.). San Francisco, CA: Jossey-Bass.

Other Materials

Current events and news related to the US health care system, US health care system research, and statistical implications for health care (ex. www.nap.edu)

Health Administration related journals

Other reading / materials as assigned

Supplemental materials used but not required

Broyles, R. W. (2006). *Fundamentals of statistics in health administration*. Sudbury, MA: Jones & Bartlett Learning.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications, Inc.

Jacobsen, K. H. (2012). *Introduction to Health Research Methods: A practical guide*. Sudbury, MA: Jones & Bartlett Learning.

Kellar, S. P. & Kelvin, E. A. (2013). *Munro's statistical methods for health care research* (6th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Pan, M. L. (2008). *Preparing literature reviews: Qualitative and quantitative approaches* (3rd ed.). Glendale, CA: Pyrczak Publishing.

Patten, M. L. (2014). *Understanding research methods* (9th ed.). Glendale, CA: Pyrczak Publishing.

Salkind, N. J. (2014). *Statistics for people who (think they) hate statistics* (5th ed.). Thousand Oaks, CA: SAGE Publications, Inc.

STUDENT RESPONSIBILITIES

1. Completing all reading assignments prior to scheduled classes
2. Attending (on time) and actively contributing to all classes
3. Getting all material presented and announcements made during any class
4. Completing all course activities and assignments as scheduled (late submissions will be graded using 25% reduction from overall grade per day late as the starting point unless otherwise noted) [Please note – the final exam will not be accepted late. Failure to submit the final exam by the designated time will result in a ‘0’ grade on the final exam.]
5. Talking with the instructor regarding questions or concerns about any aspect of the course
6. Reading and following university policies on attendance, plagiarism, and other matters
7. Notifying the instructor of any need to accommodate disabilities after consultation with CTLE

MY REPORTING OBLIGATIONS AS A RESPONSIBLE EMPLOYEE

As a faculty member, I am deeply invested in the well-being of each student I teach. I am here to assist you with your work in this course. Additionally, if you come to me with other non-course-related concerns, I will do my best to help.

It is important for you to know that all faculty members are required to report incidents of sexual harassment or sexual misconduct involving students. This means that I cannot keep information about sexual harassment, sexual assault, sexual exploitation, intimate partner violence or stalking confidential if you share that information with me. I will keep the information as private as I can but am required to bring it to the attention of the University’s Title IX Coordinator, Elizabeth Garcia, the Deputy Title IX Coordinator, Christine M. Black, or Deputy Title IX Coordinator/Dean of Students, Lauren Rivera, who, in conversation with you, will explain available support, resources, and options. I will not report anything to anybody without first letting you know and discussing choices as to how to proceed. The University’s Counseling Center (570-941-7620) is available to you as a confidential resource; counselors (*in the counseling center*) do not have an obligation to report to the Title IX Coordinator.

NON-DISCRIMINATION STATEMENT

The University of Scranton is committed to providing a safe and nondiscriminatory employment and educational environment. The University does not discriminate on the basis of race, color, national origin, sex, disability, religion, age, veteran status, gender identity or expression, sexual orientation, or other status protected by law. Sexual harassment, including sexual violence, is a form of sex discrimination prohibited by Title IX of the Education Amendments of 1972. The University does not discriminate on the basis of sex in its educational, extracurricular, athletic, or other programs or in the context of employment.

Students who believe they have been subject to sexual harassment, sexual misconduct or sex or gender discrimination should contact Elizabeth Garcia, Title IX Coordinator, at (570) 941-6645 or elizabeth.garcia2@scranton.edu, Christine M. Black, the Deputy Title IX Coordinator, at (570) 941-6645 or christine.black@scranton.edu or Ms. Lauren Rivera, AVP for Student Formation & Campus Life and Dean of Students, at (570) 941-7680 or lauren.rivera@scranton.edu. The United States Department of Education’s Office for Civil Rights (OCR) enforces Title IX. Information regarding OCR may be found at www.ed.gov/about/offices/list/ocr/index.html

The University of Scranton Sexual Harassment and Sexual Misconduct Policy can be found online at www.scranton.edu/diversity. All reporting options and resources are available at www.scranton.edu/CARE.

STUDENTS WITH DISABILITIES

In order to receive appropriate accommodations, students with disabilities must register with the Center for Teaching and Learning Excellence and provide relevant and current medical documentation. Students should contact Mary Ellen Pichiarello (x4039, LSC 577) for an appointment. For more information, log on to www.scranton.edu/disabilities.

WRITING CENTER SERVICES

The Writing Center focuses on helping students become better writers. Consultants will work one-on-one with students to discuss students' work and provide feedback at any stage of the writing process. Scheduling appointments early in the writing progress is encouraged. To meet with a writing consultant, stop by during the Writing Center's [regular hours of operation](#), call 570-941-6147 to schedule an appointment, or complete the [Writing Assistance Request Form](#) online. You can also schedule an online appointment using [Google Docs and Google Talk](#).

ACADEMIC INTEGRITY

Students must familiarize themselves with the requirements of academic integrity and assure that all coursework meets those requirements. Students should have completed the Academic Integrity Tutorial prior to beginning the course. At a minimum, students should consult Academic Integrity at the University of Scranton at www.scranton.edu/academics/wml/acad-integ and should read related pages. Failure to comply with the principles of academic integrity will result in a lowering of the student's final course grade. **All citations, references, formatting, and writing is to be completed following the APA Style (6th ed.).**

¹Course Outline

| Date/Class Meeting | Topic/Assignments and Discussions | Written and/or Oral Assignments Due | Required Readings |
|----------------------------|---|---|--|
| Week 1 02/04/20 | Syllabus review Proposal project discussion Groups & group name Proposal outline discussion Research methods, statistics, probability, and health admin. Descriptive vs inferential Types of data & levels of measurement | | Kros & Rosenthal Chapter 1 & 3 D2L folder for additional reading(s) |
| Week 2 02/11/20 | Human subjects & IRB Research methods Types of research Writing strategies Anticipating ethical issues Literature review | Assignment 1 | D2L folder for additional reading(s) |
| Week 3 02/18/20 | Research design-Framework; introduction; purpose & significance; and research question(s) & hypothesis Commandments of data collection | Assignment 2 | D2L folder for additional reading(s) |
| Week 4 02/25/20 | Types of quantitative research Elements of quantitative study Quantitative article review rubric Qualitative article review rubric | Human Subject Training / IRB-DRB Report | D2L folder for additional reading(s) |
| Week 5 03/03/20 | Qualitative methods Mixed Methods | Proposal Outline Research Study Review-Quantitative I | D2L folder for additional reading(s) |
| Week 6 03/10/20 | What is a test statistic & why is it important? “Statistics as a Story” Descriptive statistics Displaying descriptive data Normal distribution Inferential statistics Hypothesis / null hypothesis Parametric / non-parametric | Assignment 3 | Kros & Rosenthal Chapter 5, 6, 8-14 D2L folder for additional reading(s) |
| Week 7 03/24/20 | Mid-Term Exam due 10:00pm | | |
| Week 8 03/31/20 | 25 th Annual Healthcare Symposium | Research Study Review-Quantitative II Problem Sets (PS 1, 2, 3, 4) | Kros & Rosenthal Chapter 2 & 4 |

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|---------------------------------------|---|---|--|
| Week 9 04/07/20 | Confidence intervals & hypothesis testing t-test | Research Study Review Qualitative Problem Sets (PS 5, 6, 7) [In-class] | Kros & Rosenthal Chapter 7 & 9 D2L folder for additional reading(s) |
| Week 10 04/14/20 | ANOVA | Problem Sets (PS 8, 9, 10) | Kros & Rosenthal Chapter 10 D2L folder for additional reading(s) |
| Week 11 04/21/20 | Correlation Regression | Problem Sets (PS 11, 12) | Kros & Rosenthal Chapter 11, 12, & 13 D2L folder for additional reading(s) |
| Week 12 04/28/20 | Chi-square Logistic regression | Problem Sets (PS 13, 14, 15) | Kros & Rosenthal Chapter 8 & 14 D2L folder for additional reading(s) |
| Week 13 05/05/20 | Course review | Problem Sets (PS 16, 17, 18) Research Proposal due | Kros & Rosenthal D2L folder for additional reading(s) |
| Week 14 05/12/20 | Proposal presentations Course wrap-up | Research Project Proposal Presentations | |
| Finals Week 05/19/20 | Final Exam Peer Evaluation due | | |

¹This course outline has been planned to enable students to meet all course objectives. It may change, based on students' interests and other factors that evolve during the semester. The instructor reserves the right to change the course outline as necessary. Changes will be discussed with the class, as much in advance as possible. Please inform the course instructor if you foresee any schedule problems.