

Harrisburg University of Science and Technology

GRAD 695: Research Methodology and Writing

Instructor: **Eduardo Rodriguez, Ph.D.**

rodriguez@harrisburgu.edu

613-800-0674

Time to meet by Appointment

Prerequisites: Completion of at least 12 graduate semester hours

Course Description:

This course establishes a basis for the experiential capstone in graduate studies. It provides an overview of strategies for effective problem investigation and solution proposal. Research methodology will be studied and applied as part of suggesting a solution to a problem. Writing and formatting techniques will also be explored and applied as a communication tool for cataloging the investigation and recommending the solution.

Teaching Objectives:

- Explain strategies for problem investigation and developing a solution approach
- Describe a general research methodology with associated tools to support the research
- Explore and exercise writing techniques as an essential tool for communicating the key results

Learning Objectives:

After taking this course, the students must be able to:

- Develop a solid proposal for research thesis or applied project
- Conduct research or applied projects successfully with minimal supervision
- Report results of the research and applied project in a format that is externally publishable

Course Text:

Trochim, William M. The Research Methods Knowledge Base, 2nd Edition. Internet WWW page, at URL: <<http://www.socialresearchmethods.net/kb/>> (version current as of October 20, 2006).

Recommended Textbook: Kumar, R., “Research Methodology: a Step-by-Step Guide for Beginners”, SAGE Publications, 2010, ISBN: 1849203016

Reference Textbook: Leady, P. and Ormrod, J., “Practical Research: Planning and Design”, 9th Edition, Prentice Hall; 2009, ISBN: 0137152426

Additional Reading Materials:

In addition to the textbook, the course will rely on several papers and articles that cover the following topics:

- Critical thinking
- Systems thinking
- Theory building
- Prototyping practices
- Design science research
- Business research and theory building from case studies

Course Philosophy and Approach:

- The primary objective of this course is to prepare the students for the Experiential Capstone (MS Thesis or Applied Project).
- The main deliverable of this course is a well written and solid proposal for continuing with an MS Thesis or Applied Project
- There will be a series of assignments that will help in building the Proposal
- The midterm and final exam will be written proposals and presentations/defense of the proposal. Peer evaluations will be used throughout

Course Grade:

First Submission(250 Points)
Second Submission (250 Points)
Final Proposal and Presentations (500 points)
Total: 1000 points

Straight Percentile Grade

Capstone Information

Capstone studies (6 semester hours of research thesis or practical projects) are a unique characteristic of the Graduate programs at Harrisburg University. The 6 semester hours of work concludes the Master's degree and helps the students to synthesize their knowledge and gain further insights through research investigation or practical exploration. This document provides information about the structure, guidelines, supervising faculty and topics of research and practical investigations.

The Capstone studies consist of the following:

GRAD 695	Research Methodology and Writing	(3)
	and	

ISEM 699	Applied Project in ISEM	(3)
	or	

GRAD 699	Graduate Thesis	(3)
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GRAD 695 Research Methodology and Writing (3 semester hours)

Prerequisites: Completion of at least 12 graduate semester hours

Description: This course establishes a basis for the experiential capstone in graduate studies. It provides an overview of strategies for effective problem investigation and solution proposal. Research methodology will be studied and applied as part of suggesting a solution to a problem. Writing and formatting techniques will also be explored and applied as a communication tool for cataloging the investigation and recommending the solution.

GRAD 699 Graduate Thesis (3 semester hours)

Prerequisites: GRAD 695 and the permission of instructor

Description: In consultation with the advisor, the student will conduct research to address a problem as identified in GRAD 695.

ISEM 699 Applied Project in ISEM (3 semester hours)

Prerequisites: ISEM 500, ISEM 510, ISEM 520, ISEM 530 and ISEM 540

Description: This course allows the student to pursue a practical area of interest that is within the broad scope of ISEM. A faculty member will supervise this study.

Course Outline

The research world - July 13

Questions, variables, hypotheses etc.

- Language Of Research
- Five Big Words
- Types of Questions
- Time in Research
- Types of Relationships
- Variables
- Hypotheses
- Types of Data
- Unit of Analysis
- Two Research Fallacies

The thinking behind research - July 20

Different approaches to research

- Structure of Research
- Deduction & Induction
- Positivism & Post-Positivism
- Introduction to Validity

Ethics in Research - July 27

Our responsibility

Problem formulation - August 3

How to define a problem to work on?

- Problem Formulation
- Concept Mapping

Evaluating research - August 10

How to obtain the best from our work?

- Introduction to Evaluation
- The Planning-Evaluation Cycle
- An Evaluation Culture

Selecting samples - August 17

Using sample points-empirical data

- External Validity
- Sampling Terminology
- Statistical Terms in Sampling
- Probability Sampling
- Nonprobability Sampling

Are we measuring well? - August 24

Developing concepts/constructs - Validity

- Measurement Validity Types
- Idea of Construct Validity

Convergent & Discriminant Validity
Threats to Construct Validity
The Nomological Network
The Multitrait-Multimethod Matrix
Pattern Matching for Construct Validity

Are we measuring well? -August 31

Reliability

True Score Theory
Measurement Error
Theory of Reliability
Types of Reliability
Reliability & Validity

Quantitative research -September 7

Questions-Variables-Instruments

Survey Research
Types of Surveys
Selecting the Survey Method
Constructing the Survey
Types Of Questions
Question Content
Response Format
Question Wording
Question Placement
Interviews
Plus & Minus of Survey Methods
Scaling
General Issues in Scaling
Thurstone Scaling
Likert Scaling
Guttman Scaling

Qualitative Research - September 14

How to obtain the value of qualitative data?

The Qualitative Debate
Qualitative Data
Qualitative Approaches
Qualitative Methods
Qualitative Validity
Unobtrusive Measures

Design of Research - September 21

The process

Internal Validity
Establishing Cause & Effect
Single Group Threats

Classifying Experimental Designs
Factorial Designs
Factorial Design Variations

Regression to the Mean	Randomized Block Designs
Multiple Group Threats	Covariance Designs
Social Interaction Threats	Hybrid Experimental Designs
Introduction to Design	The Nonequivalent Groups Design
Types of Designs	The Regression-Discontinuity Design
Experimental Design	Other Quasi-Experimental Designs
Two-Group Experimental Designs	Relationships Among Pre-Post Designs
Probabilistic Equivalence	Designing Designs for Research
Random Selection & Assignment	Advances in Quasi-Experimentation
Analysis of Data - September 28	
Results and analysis	
Conclusion Validity	Dummy Variables
Threats to Conclusion Validity	General Linear Model
Improving Conclusion Validity	Posttest-Only Analysis
Statistical Power	Factorial Design Analysis
Data Preparation	Randomized Block Analysis
Descriptive Statistics	Analysis of Covariance
Correlation	Nonequivalent Groups Analysis
Inferential Statistics	Regression-Discontinuity Analysis
The T-Test	Regression Point Displacement Analysis
Writing - Discussion - October 5	
Final writing and presentations	
Final Writing - October 12	
Final Writing and presentations	

ADDITIONAL DETAILS

Submissions

As stated previously, the primary objective of this course is to prepare the students for the Experiential Capstone (MS Thesis or Applied Project). The main deliverable of this course is a well written and solid proposal for continuing with an MS Thesis or Applied Project. Preparation of the Proposal through a series of submissions constitute the course. Final proposal is about 25 pages.

Student Responsibilities

This is a highly interactive course. Students learn by doing. Therefore, all students are expected to actively participate in class by asking questions and sharing personal

experiences as well as participating in classroom discussions, and an online Discussion Forum. In addition students are expected to complete reading assignments, group assignments and any homework assignments given out during the class.

Attendance

All Students are expected to attend each class. If you are unable to attend a class, you should inform the instructor **in advance of your absence**. Your grade will be adjusted for any unexcused absences. The student will be responsible for coordinating with the instructor to get any missed handouts, work assignments, etc.

Makeup Assignments

Requests for makeup exams and assignment changes must be made in advance with the instructor. Leave a phone message or send an e-mail message in case of a last-minute emergency.

Honesty

- Plagiarism and cheating are serious offenses and may be punished by failure on an exam or assignment and / or failure in the course.
- As a Community of Learners we will honor and uphold the Harrisburg University honor code.

Presentations

- Developing presentation skills is important for everyone, and it's a good way to share information. Each student will prepare and deliver individual presentations and help with the group project presentation. If appropriate, the individual presentations must include outside references that are documented in footnotes and a reference page. Students should hand in a hard copy of their presentation, including a bibliography, or
- Include the information in their handouts/visuals. Potential topics will be assigned or brainstormed in class. Presentations will be evaluated on content, delivery, and audience response.

Inclement Weather

Should Harrisburg University open late, close early, or cancel classes for the day due to inclement weather, a message will be left on the University's voicemail. Dial 717.901.5199 for an update on the University's operating schedule before you begin your commute.

The University also disseminates official information on closings or delays to the broadcast media, which are listed and linked on this page <http://www.harrisburgu.net/policies/closings.php> They are also at the bottom of this email.

The University does not follow the lead of any other organization with regard to snow cancellations and/or delays. We will make every effort to remain open and available to our students.

The University follows all City of Harrisburg and/or Commonwealth mandated snow emergency procedures in the event of a major storm.

If the University remains open during or following a snow storm, it is up to each student and employee to make a reasonable decision about whether to travel. Safety and common sense should guide decisions. Students are expected to notify their faculty, and employees are expected to report to their supervisors. HU will not make personal calls to students or employees.

Media Outlets

- [TV 15 CW News](#)
- [TV 8 WGAL News](#)
- [TV 21 CBS News](#)
- [TV 27 ABC News](#)
- [TV 33 WITF](#)
- [FM 94.9 BOB](#)
- [FM 96.9 WLAN](#)
- [FM 97.3 River](#)
- [FM 99.3 KISS](#)
- [AM 580 WHP](#)

HU Snow Line

- 717.901.5199