

STUDENT COURSE SYLLABUS

SCED 404: Applied Research in Science Education Fall, 2005 4 semester hours



Prerequisites: Consent of the instructor

Instructor: Dr. Murat Kahveci, Office YD 607

Meeting Time: M&F: 1-3 p.m.

Office Hours: Mondays, 3-4:30 p.m. and by appointment anytime

Daytime Phone: 359-7274

e-mail: murat@mkahveci.com

Course Website

<http://mkahveci.com>

Please note that this is a hybrid class, part situated at the university, the schools, and the course website. Students are required to log into the website after each class to gather assignments and submission procedures. It is also helpful in this class to check your email account on a regular basis. You will need to register yourself for this class with an active email address, preferably your boun address. Thus, **this syllabus is subject to change and the section, Course Schedule for Fall 2005, will be updated weekly.**

Course Overview

SCED 404 is an introductory course in social science research methodology. It is designed to provide the participant with an understanding of various kinds of behavioral research and to develop skills for various applied research designs appropriate to science education and the behavioral sciences. Basic statistical techniques and applied research methods appropriate to these designs are experienced by conducting field trips and analyzing the resulting data. Thus, the intent of this class is not to simply provide a list of research methods and activities. Instead, this class should help the participant develop a philosophy and approach to conducting research in science education that is informed through current research and understandings of her/his own practice.

Course Goals

The focus of the course is to provide students with an opportunity for:

- a. familiarity with various empirical research methods
- b. familiarity with research terminology
- c. ability to assess the benefits of research applied to science education
- d. clarity and experience of data collection and analysis
- e. ability to report research findings in a scientific manner

Expectations

In this class we will refine and develop what we know in a social setting by scientific methodology. Your ideas and those of your fellow students are the basis of the meanings we will make from this class. Thus, this is not a lecture class and information cannot be simply obtained by “getting the notes” from a classmate. Therefore, attendance is expected and you are to be professional in your class participation. Professionalism includes, but is not limited to, such things as excellence in class assignments, constructive class participation, being a positive contributor to group work, taking advantage of opportunities to broaden personal knowledge and skills, and going beyond the minimum in all your work and interactions.

Required Texts

- Gay, L.R. (1996). *Educational Research: Competencies for Analysis and Application (5th Edition)*. Upper Saddle River, NJ: Merrill.
- Creswell, J. W. (1994). *Research design, qualitative and quantitative approaches*. California: SAGE Publications, Inc. (Supplementary reading will be provided as needed)
- Denzin, N. K., & Lincoln, Y. S. (2000). *Handbook of qualitative research (2nd ed.)*. Thousand Oaks: Sage Publications, Inc. (Supplementary reading will be provided as needed)

Assessment

All assignments must be submitted on or before the due date. Likewise, all presentations will be conducted on the day they are scheduled. Late work will result in the loss of one grade level per regular school day late. The following is a brief description of the assignments, which will be completed as part of this class. Additional details and evaluation criteria will be provided and discussed during future class meetings.

Participation & Professionalism (20 %)

Class sessions are predominantly interactive with a heavy emphasis upon collaborative efforts. As a consequence, in-class activities for which points are assigned cannot be “made up” outside of class.

Participation- Active participation includes, but is not limited to, attending to seminar/presentation content, communicating and offering suggestions, feedback and/or analysis during discussions. Obviously, if you do not attend class, you cannot participate. For those students who rely upon external incentives to accomplish the participation goals, the following policy is in effect. For the student missing more than 45 minutes of a class, 2% points will be deducted from the total grade for each occurrence. Habitually coming to class more than 10 minutes late will result in a 1% penalty for each occurrence. Missing class will result in a 5 percentage points deducted from the total, but missing more than three class sessions will require that you meet with me to discuss continued enrollment in the class.

Professionalism- A specific, though not inclusive, list of behaviors that addresses professionalism includes: completing assignments in a timely fashion, displaying evolving attitudes toward teaching and learning, developing assignments that are of high quality, demonstrating and openness to suggestions, seeking advice when needed, and sharing ideas with others.

Midterms (50%)

Two midterms will be held during the semester, each of which will weigh 25% of the total score. The details like format of the exam and date will be discussed in class.

Final Project (30%)

There will no final examination. Instead, a report of your research (i.e. Final Project) developed throughout the semester with empirical data will be assessed (see Assessment of Work). This assignment is a collaborative one, considering the required intensive work like literature review, data collection, data analysis, and writing findings. Each group consists of four to five members. Although the topic of each collaborative research is of the group members' interest, the overall borderline of the research area will be drawn in class.

Assessment of Work

When completing written assignments, remember that your audience will be colleagues and the instructor from the course. Written work should demonstrate your interests, experiences from your teaching, and ideas from current educational literature. Although you have considerable freedom in your presentation choices, your writing should always be reflective and professional. Reflective and professional writing should include an objective and a constructive discussion of the topic. Try to avoid simply listing events and experiences. That is, attend to the degree to which you are pushing your thinking. By moving beyond simple description of your experiences, your interpretations and attempts to understand issues will likely reach beyond surface discussions.

Written Assignment Performance Standards

Grade Weights for all written assignments are determined using the following criteria:

- 70%=Content (See rubric below)
- 20%= Grammar-Ability to communicate, and
- 10%=On time.

- 7- Fully achieves the purpose of the task. Insightfully interprets, extends beyond task, raises provocative questions. Demonstrates an in-depth understanding of concepts and content. Communicates effectively and clearly.
- 6- Accomplishes the purposes of the task; shows a clear understanding of concepts. Communicates effectively.
- 5- Substantially completes the purpose of the task. Displays understanding of major concepts, even though some less important ideas may be missing. Generally communicates successfully.
- 4- Purposes of the task are not fully achieved; needs elaboration; some concepts may be ineffectually stated or inappropriate. Assumptions may be flawed. Gaps in conceptual understanding; unclear
- 3- Important purposes of the task are not achieved; work may need to be redirected.
- 2- Purposes of the task are not accomplished; little evidence of appropriate reasoning.

Grading

The grading scale used for the determination of final grades will be based on a standard university grading scale. Plus and minus grades will be used in borderline cases only.

Course Schedule: Fall 2005

Sept 28-Oct 04

- Syllabus Overview.
- Introduction to Educational Research. Read Chapter 1 (Gay, 1996) and be prepared for class discussion.

Oct 05-11

- Research Problems. Read Chapter 2 (Gay, 1996) and be prepared for class discussion.
- Preparation and Evaluation of a Research Plan. Read Chapter 3 (Gay, 1996) and be prepared for class discussion.

Oct 12-18

- Selection of Sample. Read Chapter 4 (Gay, 1996) and be prepared for class discussion.
- Selection of Measuring Instruments. Read Chapter 5 (Gay, 1996) and be prepared for class discussion.

Oct 19-25

- Types of Research. Read Chapter 6,7,8 (Gay, 1996) and be prepared for class discussion.

Oct 26-Nov 01

- Types of Research. Read Chapter 9,10,11 (Gay, 1996) and be prepared for class discussion.

Nov 02-Nov 08

- Official **holiday** from Nov 3rd to 4th.

- Preanalysis Considerations. Read Chapter 12 (Gay, 1996) and be prepared for class discussion.

Nov 09-15

- Descriptive Statistics. Read Chapter 13 (Gay, 1996) and be prepared for class discussion.

Nov 16-22

- Inferential Statistics. Read Chapter 14 (Gay, 1996) and be prepared for class discussion.

Nov 23-29

- Postanalysis Considerations. Read Chapter 15 (Gay, 1996) and be prepared for class discussion.

Nov 30-Dec 06

- Class discussion about field trips and data analyses.

Dec 07-13

- Presentations of the research findings.

- Pay attention to comments and questions about your particular study and enhance your writing.

Dec 14-20

- Final Project Due.

Dec 21-27

- No class.