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M 609.50: Research Methods in Mathematics Education

Bharath Sriraman

University of Montana, Missoula, bharath.sriraman@umontana.edu

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MATH 609 (Fall 2021- Online)
Professor:
E-mail:

Research Methods in Mathematics Education
Dr. Bharath Sriraman
sriramanb@mso.umt.edu

Omnium rerum principia parva sunt - Cicero

This course will expose you to both qualitative and quantitative paradigms in mathematics education research, including contemporary approaches to research in the field.

Course Objectives

Based on the required readings and forum discussions, students will be able to:

1. Distinguish and evaluate both qualitative and quantitative paradigms in mathematics education research,
2. Analyze and synthesize results of theoretical and/or applied research studies in mathematics education research,
3. Propose and write up a "mock" research study proposal in mathematics education, and
4. Communicate professionally in writing about research in mathematics education.

Texts (provided as a pdf files)

- All readings are provided on Moodle

Note: This is a 600 level reading intensive graduate course and I expect you to take the initiative to complete all the readings in a timely manner. You will have the following assignments to complete over the course of the semester

ASSIGNMENTS – All assignments should be sent to me via email.

SUMMARIES OF WEEKLY READINGS

50 points [2 x 25]

Each student will complete 2 summaries of the weekly readings. The summary should be approximately 1500 words and provide a gist of the reading, the "research methods and/or philosophical" framework used and implications for conducting research in the field. You are free to choose one reading you would like to summarize, the second reading will be assigned by me.

Summary 1 is due Sept. 29; Summary 2 is due October 20.

DISCUSSION THREAD ON MOODLE

100 points [30 for leading, 50 for reactions, 20 for Synthesis]

Each student will initiate ONE discussion thread (as a Discussion Leader) based on the weekly reading, with questions related to the reading. All other students are expected to react to the questions posed. A schedule will be provided for this with the name of the discussion leader and the synthesizer. The first discussion forum begins on September 6th

The discussion leader will post a "Themes and Issues for discussion" (between 500-800 words). This and the ensuing discussion will be evaluated on the following criteria:

1. Was the article carefully and closely read and analyzed,
2. Were key points identified,
3. Were the themes and issues painstakingly prepared, and
4. Was the discussion kept track of by the leader by mediating/redirecting the reactions of the other students?

The “reactants” to the discussion forum are expected to discuss major issues raised in the themes and issues, answer questions generated, argue towards or against positions presented, and cogently argue towards conclusions and recommendations.

One student each week will complete a discussion synthesis of a discussion thread which will be approximately 1000 words. The synthesis should provide a summary of the discussion thread – namely major questions raised, the questions generated, positions argued towards or against, and conclusions/recommendations. Discussion Forums open on Mondays and close on Fridays at noon. The synthesis is due the following Monday by noon via email. I will share the synthesis with the class.

RESEARCH

50 points

This assignment will introduce in a microscopic way the realities of writing a math-ed research project or Master’s thesis. You will “hypothetically” design a small study in which you will,

1. Identify a (new) or significant mathematics education research problem, which is of interest to you,
2. Conduct a related literature search,
3. Identify your methodology, including for example, sections on student(s), treatment(s), design, specific research questions or null and alternative hypotheses (for a quantitative research study), instruments, interviews or reports of lived experiences (for a qualitative research study), data collection and methods of data analysis, and
4. Interpret the “potential” results of your study in view of other related studies in mathematics education.

In all, you will write approximately 2500 words in your “mock” research paper that provides details of the four components above. Due date: December 1st.

APA style of writing is to be followed for all assignments.

GRADES: 180-200: A; 160-179:B; 140-159:C; 120-139: D; < 120: F