Any students with disabilities or other special needs, who need special accommodations in this course are invited to share these concerns or requests with the instructor and contact the Disability Services Office as soon as possible. Veterans and student soldiers with special circumstances or who are activated are encouraged to notify the instructor in advance.

Instructor

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Texts

National Council of Teachers of Mathematics, (2000). *Principles and Standards for School Mathematics*. Reston, VA: Author. ISBN 0-87353-480-8. (Optional)

National Research Council, (2000). *Inquiry and the National Science Education Standards: A Guide for Teaching and Learning.* Washington DC: National Academy Press. ISBN 0-309-06476-7. (Optional)

National Research Council, (2000). *How People Learn: Brain, Mind, Experience, and School*. Washington DC: National Academy Press. ISBN0-309-07036-8. (Required)

National Governors' Association and Council of Chief State Schools Officers. (2011). *Common Core Standards for Mathematics*, http://www.corestandards.org/the-standards/mathematics and http://www.dpi.state.nd.us/standard/content/math/2011/math.pdf

NCTM publications available directly from the NCTM at a discount for members: www.nctm.org. National Academy Press publications are available at a discount from their website: www.nap.edu.

Objectives

Education 781 is a core course in the NDSU Master of Education program with specializations in science or mathematics education. The course covers instruction, learning, and curriculum in secondary science and mathematics programs. The purpose of the course is to familiarize graduate students with (a) the historical and philosophical basis of science/mathematics instruction in schools; (b) recent research on teaching, learning and curriculum in science and mathematics education; and (c) the use of action research by classroom teachers. The course has four learning objectives:

1. Read articles and book chapters and discuss their implications for classroom practice.
2. Develop a proposal for an action research project (a classroom study to be conducted by the graduate student in a class they teach during the 2013-14 academic year).
3. Demonstrate understanding of research on mathematics teaching and curriculum by writing short essay quizzes and actively participating in classroom discussions.
4. Develop inquiry lesson plans using research-based models.

Course Topics

1. Historical Perspectives
2. Need for Change
3. Inquiry
4. Standards
5. Action Research

Evaluation

Grades in the course will reflect each student's demonstrated development as a professional science/mathematics educator. Grades will be based on (a) short essay quizzes (20%), (b) inquiry lesson plans (20%), (c) an action research proposal and report (20%), and (d) active participation and leadership in class activities and discussions (40%).

Reasoned Action Model

The School of Education has adopted the reasoned action model for use in all courses. The model includes six phases or components, which will be used in Education 781 this semester: (a) comprehension, (b) transformation, (c) instruction, (d) evaluation, (e) reflection, and (f) new comprehensions. This model will be the basis of instruction in the course this semester and will be developed by students as a framework for their own roles as secondary science or mathematics teachers.

Academic Integrity

The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct has occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academichonesty.