GEORGE MASON UNIVERSITY
Graduate School of Education
Spring 2004
EDCI572: Methods of Teaching Mathematics in the Secondary School

NOTE: This syllabus is online as “Version 1.1, 2/17/04”. It is subject to change as class experiences and other events inform and indicate the need for such changes. Any changes, of course, will be announced in class prior to their taking effect. However, it behooves you, the student, to check for new versions regularly and note such changes.

Instructor: Richard Johnston
Office: A103 / Office Hours: Mondays 3-4:00pm & 7-8:00pm; Tuesdays 6-7pm; and by appointment
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Class Meetings: Tuesday 7:20-10:00pm; January 20 – April 27, 2004

Textbooks/Materials: (required)


3. Transparency film, both “write on” and “inkjet print on”, and a set of transparency marker pens.

Course Description: 15-hour field experience is required.
Covers curricula, current issues, and research literature in secondary school mathematics. Emphasis is on developing different styles of teaching

Course Content:
This course is an introduction to methods of teaching developmentally for all
students, with an emphasis on the curriculum and teaching methods appropriate to grades 6-12. Using the expectations and suggestions of the VA-Standards of Learning (SOL), the NCTM Standards and the INTASC Standards as guides, this methods course has an emphasis on unit planning, lesson planning, writing objectives, developing questions and questioning techniques, planning and implementing learning activities, developing supplemental problem-sets consistent with the NCTM standards, direct and indirect instruction techniques.

**Course Format:**
The course will be conducted much like a series of professional development workshops. The workshop-oriented experiences include individual & group hands-on activities, small and large group discussions (both in-class and online), demonstrations, and case study analyses. With an emphasis on teaching for understanding, students will develop Unit Plans and will plan, develop, mini-teach and critique lessons. Students may also work with physical & virtual manipulatives and technologies (when available) to explore mathematics, and problem-solving techniques.

**Course Requirements:**
This mathematics methods course is fashioned after, and similar in tone and purpose to, in-service professional development. As such, the course requirements are met by regular, on-time class attendance, active participation in discussions and activities, and timely completion of assignments. Further details may be found below and on the course website at [http://BlackBoard.gmu.edu](http://BlackBoard.gmu.edu).

The field experience requires the student to keep chronicles of observations.
Participation - This class requires active and thoughtful preparation and involvement in activities and discussions in class and online. For this course to have professional meaning, everyone must participate. For each of us to gain global and ethical perspectives we must listen to each other and generate ideas collectively. Good attendance and being an active participant will lead to increased learning and is worth 30% of the course grade. You are responsible for getting assignments in on-time and catching up if you are absent.

Since this is a professional development course, high quality work (i.e., “A” work) is expected on all assignments and in class participation. **All work is required to be completed to successfully complete the course.** Attendance at all classes, for the entire class period, is a course expectation. Attendance at each class meeting is required, and absence will affect your grade. Being on time is essential and lateness will affect your grade. Late assignments will affect your grade. (Note that your absence for 1 class is equivalent to one of your secondary school students missing 13 days in a school year; 2 classes => 26 days; 3classes=>39 days; 4classes=>52 days).

Missing the equivalent of two class sessions will have a significant impact on your overall course grade (e.g., A down to A-, A- down to B+, etc.) Anyone missing the equivalent of three class sessions must see the instructor to discuss dropping the course.

Lesson Plans & Mini-Lessons - At least 5 Lesson Plans and 1 Unit Plan, will be submitted for evaluation. Some of the lesson plans will be presented in class, with class members role playing students and critiquing each other’s lesson presentations and plans. This curricular work is worth 40% of your grade. Each plan must follow the outline and requirements posted online which is derived from the GSE Student Teacher/Intern Manual. Critiquing guidelines will also be found online.

Case Study Analyses** - The case study analyses serve as a means for you to demonstrate your understanding of the intersection of learning theory with pedagogical issues. Case analyses, which include a problem statement, written before group discussion, and an action plan, written after group discussion, are due prior to the next class meeting** and count for 10% of the course grade. Further information and details for Case Study Analyses may be found on BlackBoard.

**Case analyses cannot be accepted late.
**Field Experience Journals:** You are required to complete a 15 hour field experience and to practice reflection by keeping a journal.

**OTHER READINGS REQUIRED**
In addition to the Required Textbooks listed above:

Standards of Learning: Instruction, Training, and Assessment Resources, Standards of Learning: Mathematics. VA Dept. of Education
[http://www.pen.k12.va.us/VDOE/Instruction/sol.html](http://www.pen.k12.va.us/VDOE/Instruction/sol.html)

National Council of Teachers of Mathematics (NCTM) Standards

INTASC Standards site:
[Intestate New Teacher Assessment And Support Consortium](http://www.ccsso.org/content/pdfs/corestrd.pdf)

& INTASC “Core Standards”

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**OTHER READINGS RECOMMENDED**

National Assessment of Educational Progress
[http://nces.ed.gov/nationsreportcard](http://nces.ed.gov/nationsreportcard)

Sample NAEP Questions

Third International Mathematics and Science Study (TIMSS)

TIMSS Achievement Items
[http://www.timss.org/TIMSS1/items.html](http://www.timss.org/TIMSS1/items.html)
Plus other appropriate, informative, and timely information and other resources that may be handed out in class or posted on BlackBoard.

POSTNOTE: It is recommended that you retain copies of all course products to document your progress through the Secondary Education Program. Products from this class (lesson plans, case analyses, or field experience chronicles) should be included in your exit portfolio for the M.Ed. program and can also become part of your professional portfolio used for job placement.