Course Syllabus: MA 322
Methods of Teaching Secondary School Mathematics
Rivier College

Fall, 2005, 3 credits,
MA 322: Wednesday, 6:30 – 9:00 PM

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Mon. 2 - 2:30 (Mem); 4:00 - 6:00 PM (Regis), 6:00 - 6:30 (Mem)
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Brief Course Description
In this course students study and practice the teaching activities of a secondary mathematics
teacher within the frameworks of the NH Frameworks for Mathematics 5 - 8 and 9 - 12, NH Grade
Level Expectations in Mathematics (GLEs) and the NCTM Principles and Standards of School
Mathematics (PSSM). Topics include the secondary mathematics curriculum, goals and
objectives of instruction, planning and conducting mathematics instruction, history of mathematics
education in the USA, student assessment, teacher evaluation, and the use of mathematical
resources. Students will become familiar with and use as resources state, regional, and national
professional journals. Students will observe and analyze classroom instruction in regional middle
and high schools.

Required Course Textbooks and materials
Email address and access to the campus network. You can get a free email address from
Information Technology (IT) in Sylvia Trottier Hall. As a Rivier student, email and high-
speed internet access are available to you on campus in Regina library and the Sylvia
Trottier computer labs.
Learning Group. ISBN 086641740
Johnson, D. (1986). Making minutes count even more: A sequel to every minute counts.. Palo
Alto, CA; Pearson Learning Group. ISBN 0866513035
Pearson Learning Group. ISBN 0886510818
Membership in the National Council of Teachers of Mathematics (NCTM). You are required to
receive and read the email news briefings, newsletters, and one of the monthly journals.
The Mathematics Teacher is the high school journal or Teaching Mathematics in the
Middle School is the middle school journal. Go to www.nctm.org
NCTM. You are required to purchase a hard copy of PSSM, if you do not already have
one. Order directly from NCTM or from an internet-based second-hand bookseller. This
book is required for all pedagogy courses in the MAT-Math curriculum. You are expected
to bring this text to every class meeting.
NHMathEd listserv. You are expected to join and regularly read notices on this email listservice.
You can be placed on the NHMathEd List sending a message with subject: subscribe to:
NHMathEd-request@listserv.plymouth.edu
618-30820-2. This booklet is a pocket guide. All written work for the MAT-Math program
Course Goal:
The course goal is to help students develop proficiency in instructional theory and practice. Students are expected to develop their ability to apply their knowledge of how children learn mathematics, to use appropriate instructional practices, to create an environment which promotes learning, to use appropriate assessment techniques, and to use appropriate resources.

Course Objectives:
Students will be expected to demonstrate their ability to merge their knowledge of mathematics with their knowledge of teaching in ways that help them:
1. Correlate the middle and high school mathematics curriculum with the perspective of the NCTM Principles and Standards for School Mathematics.
2. Apply ways to better understand how their students understand mathematics.
3. Write lesson plans that document their ability to teach mathematics content using methods consistent with those described in the NCTM Professional Standards for Teaching Mathematics.
4. Promote the processes of problem solving, reasoning, communicating, representing, and connecting mathematical concepts and principles.
5. Assess and evaluate students in realistic and authentic ways.
6. Apply their understanding of student differences and needs in the classroom to promote quality mathematics for all students.
7. Evaluate, adapt, and use published resources to enhance the learning and teaching of mathematics.
8. Demonstrate a working knowledge of important national and state documents.
9. Understand the recent history of mathematics education and how previous documents and developments in the field have contributed to the current national and state educational goals and standards and the NCTM Principles and Standards.
10. Observe secondary mathematics classes with an ability to identify, comprehend, and analyze the observed teaching goals, objectives, methods and practices.

Conduct of course:
The graduate-level course will be conducted in a seminar format. Students will be required to join class discussions, contributing worthwhile comments and questions that reflect their assigned readings and previous class discussions. Students are required to assume a leadership role in facilitating at least one class discussion, facilitate the exchange of ideas, actively encourage all class participants to participate in small- and large-group class discussions, seek out opportunities to work directly in small groups with all other class participants; use e-mail and the world-wide-web to access, learn required course material, and observe and reflect on secondary mathematics classes. All course-related information must be referenced and cited according to guidelines set forth in the APA Manual of Style. This course is conducted in a manner consistent with the document produced by The New Hampshire Pre-service Education Review Project. A Consensus Model for Pre-service Teacher Education in Mathematics and Science (1997).

Assessment
Essays, summaries, outlines, or notes on material read for or discussed in class Evidence through class discussions, presentations, and written papers of your understanding and mastery of course content, goals, and objectives.
There may be quizzes or tests on the pedagogy and mathematics content studied.
Attendance
You are expected to attend all class meetings. Exceptions may be discussed with the instructor with suitable make-up activities agreed upon. All course work is due on the assigned dates whether or not you are present. The instructor assumes no responsibility for making sure you receive any course material for which you were absent. Contact another class participant ahead of time to collect class materials and take notes. Make arrangements to get such materials before the next class meeting date. You are expected to return to the next class fully prepared for the class with assignments ready. See Rivier College Statement on Attendance below.

Course Requirements and Expectations. You are expected to:
- Actively engage in all class discussions and small group work.
- Come to class with notes on and prepared to discuss all assigned readings.
- Complete all written assignments in a timely manner.
- Apply and cite concepts developed in readings to all written work, including analyses of articles, observations, and lesson plans.
- Engage in peer and self-assessment.
- Assume a leadership role in organizing, facilitating, seeking information and resources, and engaging others in class discussions and activities.
- Maintain a loose-leaf notebook that contains course handouts, your notes, and relevant materials you have collected from the internet (check sources and provide evidence of credibility), news-media, and other reliable sources.
- Place in your portfolio in the Regis Conference Room file evidence of your mastery of the course goals and objectives.
- Attend all class meetings. Attendance will be taken. See above notes about attendance.
- Regularly (every few days or so) check your email for messages about the course and access the internet for assignments at specified locations.

Assignments:
You are expected to submit all assigned work on time. If you notify me ahead of time about unexpected professional travel or other unexpected responsibilities, sick children, etc. I will consider exceptions. However, I expect to know what's going on when assignments are not submitted on time.

Tentative list of assignments:
Observation hours (PPST). You are expected to complete 25 observation hours during this semester. Of these 25, approximately 6 - 8 will be considered "structured observations."
Lesson Plans. You will be expected to write approximately 5 - 6 lesson plans and one unit plan.
Reports, summaries, and other written assignments. You will be expected to complete approximately 5 - 6 written assignments.

Methods of Assessment and Computation of grades
Observations 20%
Lesson plans 30%
Reports, summaries, and other written assignments 30%
Class work including preparation, participation, presentation of mini-lessons, and engagement in and occasional leadership of classroom activities 20%

Readings:
For articles use the on-line data base. Go to www.rivier.com. At bottom of page select Regina Library. Follow directions for accessing reviewed educational documents.

References:
The references listed at the end of each chapter of your textbook are excellent. You should familiarize yourself with the literature identified. Many of the references are available on-line through the ERIC database, accessible through the Rivier College website. The Rivier College
library has an extensive collection of mathematics-education materials as does the Mathematics Conference Room on the third floor of Regis. Both collections hold numerous reviewed or published student activities. You are expected to adapt and modify published activities for lessons you develop for classroom presentations.

Outline of Class Sessions
The course calendar attached to this syllabus describes how to prepare for each session

Sept. 7. Becoming an effective teacher
Sept. 21. Writing objectives
Oct. 5. Classroom discourse and effective questioning
Nov. 2. The teaching of measurement, geometry, reasoning, and proof.
Nov. 9. The teaching of measurement, geometry, reasoning, and proof continued.
Nov. 16. The teaching of data analysis and probability and of discrete mathematics.
Nov. 30. Meeting the needs of all students.
Dec. 7. Learning theories and psychology.
Dec. 14. The first day of school and the teacher of mathematics in the school community.

Reading Assignments

Tentative Course Outline  Fall, 2005

| Dates | Topics Addressed in Class. Please prepare by reading the noted material before the class meeting.
|-------|---------------------------------------------------------------------------------------------------------------------|
| Wk 1  | Sept. 7 Becoming an Effective Teacher. An overview and getting started.
|       | PSSM Overview. Ch. 1 - 2 pp. 2 - 27
|       | Brahier Ch. 1: Mathematics as a Process pp. 3 - 29.
| Wk 2  | Sept. 14 Planning lessons
|       | Johnson (1994, Yellow), pp. 1 - 27;
| Wk 3  | Sept. 21 Writing objectives. Increasing student engagement in learning tasks during mathematics class. The "what" of teaching.
|       | Wong Ch 22 How to Get Your Students to Do Their Assignments p. 209 - 228.
|       | Brahier Ch 3. Curriculum models pp. 63 - 87; Writing Objectives;
|       | Navigate through www.ed.state.nh.us/education/ , Programs, Information, and Services, to find under "G", Mathematics Grade Span Expectations, GSEs. Change the "zoom in or out"
| Wk 12 | Nov. 30 | Meeting the Needs of All Students Brahier Ch 10 pp. 307 -333 |
Americans with Disabilities Act (ADA).
Rivier College wants to provide reasonable accommodations to students with disabilities. To accomplish this goal effectively and to ensure the best use of our resources, the College expects student to provide timely notice of a disability to the Office of Special Services for verification and evaluation of available options. Any student whose disabilities fall within ADA should inform the instructor within the first two weeks of the term of any special needs or equipment necessary to accomplish the requirements for the course. To obtain current information on this procedure, contact the Office of Special Services at telephone extension 8497.

Rivier College Statement on Attendance
The classroom is the heart of the educational experience at Rivier College because it provides, uniquely, a formal setting for the important exchanges among faculty and students. Regular and punctual attendance at all classes, essential for maximum academic achievement, is a major responsibility of Rivier College students. Failure to attend and contribute to the classroom environment significantly and demonstrably reduces the quality of the educational experience for everyone in the classroom. As a result, absences almost always impact quality performance.

As part of its commitment to a quality educational experience for all members of the Rivier community, the College formally requires specific attendance policies to be developed by its professors and reviewed by their Chair and Dean. Any form of attendance used by an individual professor as a criterion for evaluation must be specified in the course syllabus and presented to students during the first week of classes. These policies may include reasonable penalties and sanctions for excessive absences.

In the event of prolonged illness, accident, or similar emergency, it is the responsibility of the student to notify both the professor and the Office of the Dean. Students must remember that it is always their responsibility to make up the work they have missed during an absence from class. Students are directed to confer with their professors when their absences jeopardize satisfactory progress. Whenever a professor is absent without notification, students are expected to wait fifteen minutes before leaving and to sign an Attendance List, which a class member delivers to the Office of the Dean.

Instructors are required to record attendance and alert the Registrar when a student fails to attend the equivalent of two consecutive weeks of courses (2 absences for a course meeting once a week, 4 absences for a course meeting twice a week, 6 absences for a course meeting three times a week). The student will then be alerted that he/she is in danger of falling under the “habitual non-attendance” policy (see below).

Habitual Non-Attendance Policy
Habitual non-attendance of a course or courses will be considered academic misconduct subject to withdrawal from the course(s) not attended. Habitual non-attendance is defined as an absence in any course (for any reason whatsoever) equating to three full weeks of missed class sessions (3 absences for a course meeting once a week, 6 absences for a course meeting twice a week, 9 absences for a course meeting three times a week).
It is the responsibility of the student to notify the College of any intention to withdraw from a course or withdraw from the College. The College will attempt to resolve the issue of habitual non-attendance with the student; however, the College reserves the right to withdraw students who are no longer attending courses. Habitual non-attendance in one or more classes may result in administrative withdrawal from the class or classes affected withdrawal from the College or, in cases with extenuating circumstances, an administrative leave of absence. In such cases a grade of W or NF will be assigned to the classes affected according to the appropriate date published in the academic calendar.

Students who have attended no class sessions of a course or courses from which they are registered by the end of the drop/add period will be dropped from each class not attended. If a student never attended any courses during the drop/add period, the student will be withdrawn from his/her full schedule of courses.