

COURSE SYLLABUS - (SEM/YR: F06)

1. **Course Prefix and Number:** CUI 557

2. **Course Title:** Teaching Practices and Curriculum in Mathematics

3. **Credits:** 3

4. **Course Prerequisites/Corequisites:**

Prerequisites: CUI 450, 545, and admission to Teacher Education

Co-requisite or prerequisite: CUI 470/535 or permission of instructor

5. **For Whom Planned:** Advanced undergraduate and graduate mathematics majors seeking North Carolina teacher licensure in high school mathematics. Required for student teachers in mathematics.

6. **Instructor Information:** Sarah Smitherman Pratt, Ph.D., 335 Curry Building, 336-334-3437, sspratt@uncg.edu, office hours: Tuesday, 2:30-4:30 p.m., and before/after class, or by appointment

7. **Course Purpose/Catalog Description:** Special teaching problems in secondary mathematics. Teaching procedures for important topics discussed in relation to their foundations in mathematics and logic.

8. **Teachers Academy Conceptual Framework Mission Statement:** *The mission of professional education at UNCG is to prepare and support the professional development of caring, collaborative, and competent educators who work in diverse settings. This mission is carried out in an environment that nurtures the active engagement of all participants, values individual as well as cultural diversity and recognizes the importance of reflection and integration of theory and practice. UNCG's professional education programs are guided by shared commitments to: (a) equity and excellence in teaching, research, and service; (b) professional integrity and ethical deliberation in dealing with students and colleagues (university-based, school-based, and community-based); (c) the construction of a professional knowledge base through collaboration and collegiality; and (d) the dissemination of professional knowledge, skills and dispositions through the preparation and continuing professional development of teachers, principals and other school personnel.*

9. **Course Goals and/or Objectives/Student Learning Outcomes:**

This course explores mathematical concepts that are the foundation for students' understandings of mathematics. Specifically we will explore these concepts as to why they are significant (epistemology) and how they can be taught (pedagogy), using a variety of texts and activities as vehicles for exploration. This course will involve discussions of both theoretical and practical applications in mathematics education. The ongoing internship component of this course offers students a real-world public school experience in order to develop as critically thinking and self-reflective educators. Specific course goals include:

1. to develop a continual self-reflexive awareness of teaching that critically analyzes instructional choices and the current location of student understandings, and to seek to constantly improve the why and how of the pedagogical strategies implemented;
2. to learn a variety of modeling and pedagogical strategies (including technology) so as to teach secondary school students mathematical concepts in a way that enriches their learning experience;
3. to integrate mathematical concepts with other curriculum disciplines, such as literature, art, and science;
4. to improve personal understandings and attitudes with regard to mathematics education;
5. to plan assessment strategies that will generate indications of students' mathematical understandings.

The course will also meet the following standards of state and national associations:

INTASC: Available at <http://www.dpi.state.nc.us/pbl/pblintasc.htm>

NCTM: <http://www.nctm.org>

10. **Teaching Strategies:** class discussion, group work, conferences, student presentations, Blackboard, activities, videos, internships/research projects, and individual teaching of lessons.

11. **Evaluation Methods and Guidelines for Assignments:**

The allocation of course assignments is noted below with general descriptions to follow; detailed instructions

and rubrics will be distributed well in advance of the assignment's due date. Please make sure all papers are word-processed, spell-checked, checked for grammatical errors, and double-spaced. Papers must also conform to the APA *Publication Manual* (5th Ed.). Deductions will be taken on late assignments.

UNDERGRADUATE

Journal 30%
Quizzes 10%
Class Participation 5%
Midterm 15%
Final Exam 15%
Problems of the Week 5%
Internship 20%
Total 100%

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Grading Scale:

A 93-100
B 85-92
C 77-84
D 70-76
F 69 or below

Journal (30%):

A reflective journal is required for this course. A schedule for journal entries will be provided. Each journal entry is to be emailed to the instructor and must be received prior to the beginning of class. Any late submissions will have points deducted. The following header is to be used:

Name:

Journal Entry #:

Reading(s):

Prepared on: (*due date*)

The student is to record and will be graded upon the following components (at least one paragraph for **each**):

1. Summary of the classroom discussion;
2. Reflection (this means personal opinions and self-critique) of the classroom discussion;
3. Summary of the reading assignment **for the next class**;
4. Reflection of the reading assignment from a *theoretical* viewpoint, including at least one quote (APA style) from the text;
5. Reflection of the reading assignment from a *pedagogical* viewpoint, including at least one quote (APA style) from the text; and,
6. Any questions that arise from the discussions, readings or self-reflections that may need to be addressed.

Each journal entry is to be free of grammatical errors and spelling mistakes. Points will be deducted from assignments where the quality does not meet these standards. Also, all citations are to be correctly done in APA style. You will submit each journal entry on Blackboard.

Rubric used to assess each journal entry:

1. Class Discussion Summary	1
2. Class Discussion Reflection	2
3. Reading Summary	2
4. Reading Reflection (theoretical)	3
5. Reading Reflection (pedagogical)	3
6. Lagniappe	1
TOTAL:	12

Quizzes (10%):

Quizzes will be administered throughout the semester and will cover topics from the textbook, class discussions, video presentations, and lab projects. They may be given at any time during class.

Class Participation (5%):

Attendance for class is expected. Participation in class discussions is also expected. Anyone who is not actively engaged in the course to the satisfaction of the instructor will be notified of their lack of participation. Class participation points will be awarded each class, and a final total will be calculated at the end of the semester to comprise the 5% grade.

Midterm (15%):

The midterm will be a two part essay which is to be prepared outside of class. Each student will submit a question for the midterm. The midterm will be due Tuesday, October 3, 2006. A rubric for grading the midterm will be developed and distributed prior to its due date.

Final Exam (15%):

The final exam is scheduled for Tuesday, December 12, from 3:30 p.m. – 6:30 p.m. The final exam will be comprehensive and will be an assessment of students' knowledge towards particular mathematical teaching strategies, lesson development, epistemological viewpoints, and pedagogical insights that emerged as a result of this course's texts and class discussions. The form of assessment given will be developed and determined by the class prior to the final exam.

Problem of the Week (5%):

Students will be required to compile the set of problems of the week created by the instructor and fellow classmates. Two students each week will submit a problem electronically to the instructor by the Thursday before the next class. Each student is expected to bring a written solution to the two problems in class on the following Tuesday, which will be checked by the instructor during class time. At the end of the course, each individual will be assessed according to a timely submission of one problem, weekly written attempts of solutions, and correct solutions to all of the problems.

*Internship – Undergraduate Students Only (20%):

This component is comprised of four parts: a unit plan, a journal (this is separate from the personal reflective journal), collaborative feedback, and corrections to initial submissions. You will not be graded upon how successful your lessons may be but as to how well you critically analyze the theoretical and pedagogical issues that arise as a result of your teaching.

INTERNSHIP RUBRIC (100 points)

UNIT PLAN – 60 points

Each lesson: 10 x 6 lessons = 60

COLLABORATIVE FEEDBACK – 12 points

Lessons (3): 4 x 3 = 12

JOURNAL – 10 points

Internship Report = 10 points

CORRECTIONS – 18 points

Each lesson: 3 x 6 = 18

** Research Project – Graduate Students Only (20%):

This component of the course is designed for you to become an "expert" for a particular concept. You will be required to research a concept of your choosing and submit a final project related to your research.

PROJECT RUBRIC (100 points)

Activity: 25 points

Research Justification:

Epistemology (with quotes): 25 points

Pedagogy (with quotes): 25 points

Examples (at least 2) from implementation: 25 points

12. Required Text(s)/Readings/References: Use full citations

Brown, S., & Walter, M. (2005). *The art of problem posing*. 3rd ed. New York: Lawrence Erlbaum. [ISBN: 0805849777]

Student membership to the National Council of Teachers of Mathematics (NCTM) – \$38

<http://www.nctm.org/membership/benefits-student.htm>, which gives you on-line access to the NCTM Standards (2000)

13. Topical Outline:

Due Aug 15 – POW #1; Syllabus

Due Aug 22 – POW #2; Reflection of mathematics courses (quiz #1); activity: CBR's

Due Aug 29 – POW #3; Journal #1 due; activity: *Algeblocks*

Due Sept 5 - POW #4; Journal #2 due; activity: *Graphing on the floor*

Due Sept 12 - POW #5; Journal #3 due; Lesson plan due; activity: *Box & Whiskers Plot*

Due Sept 19 – POW #6; Journal #4 due; activity: Lesson plan analysis

Due Sept 26 – POW #7; Journal #5 due; activity: NCTM (2000) *Standards*

Due Oct 3 – Attend NCCTM Conference; midterm due

Due Oct 17 - POW #8; Review of literature book related to mathematics course internship due

Due Oct 24 - POW #9; Journal #6 due; activity: assessment

Due Oct 31- POW #10; Journal #7 due; activity: fractals

Due Nov 6 - POW #11; Journal #8 due; activity: unit planning

Due Nov 13- POW #12; Journal #9 due; activity: writing project

Due Nov 21- Analysis of epistemologies of OSTE, self, and a teacher character in a movie

Due Nov 28- Collaboration of Writing Project

Due Dec 12 - Final Exam

14. Other Information:

Academic Honor Policy

Students are expected to follow the obligations of academic integrity stated in the Academic Honor Policy, which is described in detail in the *Policies for Students* handbook. Be advised that this policy covers not only classroom situations and work for the course but also issues related to your internship. It will be strictly enforced.

Students with Disabilities

If you have a documented disability and wish to discuss academic accommodations, please contact me within the first two weeks of the semester. I will be happy to discuss any concerns you may have about the coursework.

“Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.” (University’s Reasonable Access Policy)

Attendance and Tardy Policy

All class members will abide by the UNCG Academic Integrity Policy as well as the UNCG Student Code of Conduct. The integrity policy may be viewed and downloaded at the following URL: <http://studentconduct.uncg.edu/policy/academicintegrity>. The Code of Conduct may be viewed and downloaded from: <http://studentconduct.uncg.edu/policy/code>. You are expected to attend and actively participate in all class sessions, as your contributions are invaluable to the learning of all class members. If you must be absent for any reason please notify the instructor by phone or email *prior* to your absence. You are responsible for material covered during absences. It is also your responsibility to submit documentation that substantiates your efforts to deal with any absences. You are expected to submit all assignments on time, to arrive on time to each class, and to come to class prepared. Lack of preparation (i.e., not completing reading assignments or other non-graded assignments) will adversely affect your grade for this course. If you miss over half of a class, you will be counted as absent. If you have concerns about absences, please see me individually.

Inclement Weather

If the university is closed, class will be cancelled. In case you are unsure, check your e-mail and Blackboard – I will e-mail everyone to confirm class cancellations by 8:30 the morning of scheduled class time.

15. Recommended Text(s) and/or Readings:

NCTM (2000) *Standards*

16. Alignment with State and National Standards: See #9 – Course goals/objectives