Clemson University School of Education **Course Syllabus**

I. Course Title: **ED 735 - Content Resource Strategies for Middle School Math and Science**

II. Prerequisite: Graduate standing, selection as a Fellow in the 2003-04 GK12 Project

III. Instructors

Dr. Bob Horton, Assistant Professor of Mathematics Education *bhorton@Clemson.edu*
Dr. Bill Leonard, Professor of Science Education *leonard@clemson.edu*

IV. Rationale: ED 735-CRSMSMS is an intensive summer course to introduce Clemson University graduate students in the sciences who are selected as GK-12 Fellows to the realities of typical middle school classrooms and to acquaint them with strategies to best serve as content experts for middle school teachers and their students.

V. Major Instructional Goals

A. Describe the environment of a typical SC middle school classroom and of typical educational resources available to middle school students.

B. Describe in vivid terms the wide range of academic aptitude, cultural diversity, interests and economic resources of students in a typical middle school classroom.

C. State some of the continuing challenges facing middle school teachers and their students.

D. Develop skills for constructive interaction with middle school teachers and their students.

E. Describe in modern psychological terms the developmental levels for learning and reasoning of typical middle school students.

F. Describe the academic and professional background of a typical middle school teacher.

G. Develop high levels of skills at providing content knowledge in your area of expertise that is most appropriate for the middle school teacher and students with whom you are assigned to work.

H. Demonstrate a working knowledge of the philosophy behind National Science and National Mathematics Standards, constructivist learning, and inquiry science and mathematics instruction.

I. Provide a research-based rationale for constructivist and inquiry learning of science and mathematics, particularly for middle school students.

J. Skillfully assist a middle school science or mathematics teacher in planning and conducting an inquiry lesson.

VI. Evaluation. Evaluation components, weighting, and general assessment criteria.
The course grade is based upon: 90-100 points = A, 80-89 = B, <80 = INC.

A. Attendance and Class Participation, (40 points) will be assessed based upon student quality of class discussion and upon attendance. Each missed class will cost 10 points from the attendance grade up to 3 absences at which time status as a Fellow will be reconsidered.

B. Content Activity (20 points), will be scored via the corresponding rubric by the 4 PIs.

C. Research Paper (25 points) will be scored subjectively by the instructors based upon the scoring rubric for the research paper.

D. Final Exam (15 points) will a take-home reflection of new insights gained during this course. This will be graded subjectively by the instructors based upon the corresponding rubric.

VII. Textbooks:

Elam, K. and M. Duckenfield. 2000. *Creating a Community of Learners*. National Dropout Center.

Brooks, J. and M. Brooks. 1999. *The Case for the Constructivist Classroom*. ASCD.

Krause, L. 2000. *How We Learn and Why and We Don't*. Thomson Learning.

Whittin, P. and Whittin J. 1997. Portsmouth, NH: Heinemann.

Jensen, E. 1998. *Teaching with the Brain in Mind*. Alexandria, VA: ASCD.

VIII. Schedule and Topics for Summer 2003. Meetings Daily from 8-12 in 106 Tilllman.

Meetings	Who Meets	Activities
M 21 Jul	Fellows Only	Intro to GK-12 Project; Roles of PIs/Fellows/Mentors Bios; Pretest; MS orientation; Inquiry; inquiry science lesson
Tu 22 Jul	Fellows Only	Nature of middle school student; Inquiry mathematics lesson
W 23 Jul	Fellows Only	MS inclusion and diversity; instructional technology
Th 24 Jul	Fellows Only	Inquiry science lesson; describe research paper
F 25 Jul	Fellows Only	Inquiry math lesson; interaction strategies with middle school teachers and their students; content sharing examples
M 28 Jul	Fellows/Mentors	Introductions; how a Fellow can be a content resource
Tu 29 Jul	Fellows/Mentors	Technology lesson; describe Content Activity
W 30 Jul	Fellows/Mentors	Role of NSTA and NTCM; J. Penick; Mary Ruzga
Th 31 Jul	Mentors Only	Mentor responsibilities & examples; inquiry; check pairings
F 1 Aug	Fellows/Mentors	Learning Styles: Lois Krause; Pairings announced; planning
M 4 Aug	Fellows Only	Innovative Mathematics curricula (middle schools begin)
Tu 5 Aug	Fellows Only	SC Maps; SE Maps
W 6 Aug	Fellows Only	BioCom; BSCS; EarthComm
Th 7 Aug	Fellows Only	More technology lessons (local schools open)
F 8 Aug	Fellows Only	Research day; no class meeting; Leonard & Horton in offices
M 11 Aug	Fellows Only	Content Activity due; share activities; model lesson
Tu 12 Aug	Fellows Only	Model lessons in math and science
W 13 Aug	Fellows Only	Research paper due; share papers; discuss inquiry of lessons
Th 14 Aug	Fellows Only	Final Exam due; share exam content; course evaluations
F 15 Aug	Fellows Only	No class meeting

Reminders of important future dates

1. M 18 Aug: Fellows begin work in schools; CU Registration
2. W 20 Aug: CU Classes begin
3. Fall BiMonthly Meetings with Mentors, Fellows & PIs: 4:30-6 in 106 Tillman
   Aug 25; Sept 8, 22; Oct 6, 27; Nov 10, 17; Dec 1. Attendance required of Fellows & Mentors