

**GEORGE MASON UNIVERSITY**  
**Graduate School of Education**  
**Mathematics Education Leadership**

**Course Title: Mathematics Education Leadership for School Change**  
**Program Code: EDCI 646-DL1 or EDCI 646-DL2 (3 credits)**  
Fall 2012

Instructor: Dr. Margret Hjalmarson  
Email: [mhjalmar@gmu.edu](mailto:mhjalmar@gmu.edu)  
(Dr. Hjalmarson will respond to email between 9 am and 7 pm, Monday through Friday)  
Office Hours: By appointment (in person, by phone or via Blackboard)  
Office Phone: (703) 993-4818  
Office: Thompson Hall, 2201  
Class Meets: DL1 - Tuesdays, 4:30-7:10, online (as noted in schedule)  
DL 2 – Mondays, 4:30-7:10, online (as noted in schedule)

## **I. Course Description**

This course is designed for master's level students in the mathematics education leadership cohort program. Course surveys current literature and large-scale studies in mathematics education and engages students in research, study, and discussion of factors that impact teaching and learning of mathematics in school settings.

Prerequisite: Admission to the Mathematics Education Leadership Master's Degree Program or instructor permission.

## **II. Student Outcomes**

This course is designed to enable students to:

- A. Develop skillful and flexible use of different instructional formats – whole group, small group, partner, and individual – in support of learning goals.
- B. Design, select, and/or adapt worthwhile mathematics tasks and sequence examples to support a particular learning goal.
- C. Construct and evaluate multiple representations of mathematical ideas or processes, establish correspondences between representations, and understand the purposes of doing so.
- D. Use questions to effectively probe mathematical understanding and make productive use of responses.
- E. Develop learners' abilities to give clear and coherent public mathematical communications in a classroom setting.
- F. Manage diversities of the classroom and school –cultural, disability, linguistic, gender socio-economic, developmental – and use appropriate strategies to support the mathematical learning of all students.
- G. Analyze and evaluate student ideas and work, and design appropriate responses.

- H. Use professional resources such as professional organization networks, journals, and discussion groups to be informed about critical issues related to mathematics teaching and learning, e.g., policy initiatives and curriculum trends.
- I. Use leadership skills to improve mathematics programs at the school and district levels.
- J. Read, interpret, and discuss methodologies for implementing school change in mathematics education and for coping with the emotional aspects of change.
- K. Explore and discuss the various aspects of the work of a mathematics leader including: working with different populations (i.e., new and experienced teachers, administrators, parents, and school cultures); managing discussions; identifying and implementing structures for professional development (i.e., Lesson Study, Content-Focused Coaching, Professional Learning Communities); and transitioning into the role of a mathematics specialist.

(\*\*\*Outcomes A – H are quoted directly from page 6-7 of the 2010 AMTE *Standards for Elementary Mathematics Specialists: A Reference for Teaching Credentialing and Degree Programs*)

### **III. Relationship to Program Goals and Professional Organization**

EDCI 646 is designed to enable mathematics education leaders to use strategies to implement and evaluate school change in mathematics teaching and learning. Students need knowledge of effective instruction in mathematics as well as vehicles for change so that they can be a catalyst for school improvement in mathematics. The course was developed according to the *Standards for Elementary Mathematics Specialists* of the Association of Mathematics Teacher Educators (AMTE, 2010).

### **IV. Nature of Course Delivery**

The delivery of this course combines discussion, independent study, student group presentations, writing, and online meetings/assignments. Access to Blackboard and GMU email are required to participate successfully in this course. All communication and announcements from the instructor will be sent via Blackboard or to students' George Mason University email addresses.

Because of the online nature of the course, students need at minimum access to a computer with internet access, a microphone and headphones in order to participate in online class meetings effectively. More information about technology specifications can be found at <http://masononline.gmu.edu/faqs/> which has answers to many questions regarding distance learning.

In our online learning community, we must be respectful of one another. Please be aware that innocent remarks can be easily misconstrued. Sarcasm and humor can be easily taken out of context. When communicating, please be positive and diplomatic. I encourage you to learn more about Netiquette.

## V. Texts and Readings

### Required Texts:

- Felux, C. & Snowdy, P. (2006). *The math coach field guide: Charting your course*. Sausalito, CA: Math Solutions.
- Lewis, C. & Hurd, J. (2011). *Lesson study step-by-step: How teacher learning communities improve instruction*. Portsmouth, NH: Heinemann.
- West, L. & Staub, F. C. (2003). *Content-focused coaching: Transforming mathematics lessons*. Portsmouth, NH: Heinemann.

NOTE: The *Lesson Study Step-By-Step* (Lewis & Hurd, 2011) and *Content-focused coaching* (West & Staub, 2003) texts both include DVDs with video clips we will be using in class. Be sure your copy includes these materials with the book.

### Additional Resources (Optional):

- Andrews, D., & Lewis, M. (2002). The experience of a professional community: Teachers developing a new image of themselves and their workplace. *Educational Research, 44*, 237-254.
- Cochran-Smith, M. & Lytle, S. (1999). The teacher research movement a decade later. *Educational Researcher, 28*(7), 15-25.
- Evitts, T. A. (2004). Action research: A tool for exploring change. *Mathematics Teacher, 97*(5), 366-370.
- Hatch, T., White, M. E., & Faigenbaum, D. (2005). Expertise, credibility, and influence: How teachers can influence policy, advance research, and improve performance. *Teachers College Record, 107*, 1004-1035.
- Lewis, C., Perry, R., & Hurd, J. (2004). A deeper look at lesson study. *Educational Leadership, 61*(5), 18-22.
- Lewis, C. C., & Tsuchida, I. (1998). A lesson is like a swiftly flowing river: How research lessons improve Japanese education. *American Educator, 22*(4), 12-17; 50-52.
- Snow-Gerono, J. L. (2005). Professional development in a culture of inquiry: PDS teachers identify the benefits of professional learning. *Teaching and Teacher Education: An International Journal of Research Studies, 21*, 241-256.
- Takahashi, A., & Yoshida, M. (2004). Ideas for establishing lesson-study communities. *Teaching Children Mathematics, 10*(9), 436-443.

## VI. Course Requirements, Assignments, & Evaluation Criteria

The assignments across the semesters are intended to develop skills in implementing, leading, and evaluating school change in mathematics teaching and learning. All assignments are to be completed on time so that class members might benefit from the expertise and contributions of their colleagues. Late assignments will be worth a lower grade. **Additional details and rubrics for all assignments will be posted on Blackboard. Please review these materials!**

**All assignments are submitted electronically. Include your last name or group name and the assignment title (as given in the assignment description) in the file name when submitting work for the instructor (e.g., Hjalmarson\_LessonStudy\_Individual.doc or group1\_LessonStudy\_Plan.doc).**

Successful completion of this course requires the following:

1. *Introduction/Professional Development Autobiography – (10%)*

The first assignment in the course will be used to introduce students to the class. A set of questions will be posted on the assignment sheet and students will create a blog page in Blackboard including a photo. Students will also need to comment on at least 3 entries posted by their peers in class.

2. *Coaching Project—(40%)*

For this assignment, participants will plan and videotape or audiotape a coaching cycle (one pre-conference and one post-conference) with a classroom teacher. Participants should *not* videotape the actual lesson that is taught by the classroom teacher. As part of this assignment, participants will choose one 5-minute uninterrupted clip from each conference and present these clips to a small group of their classmates. After discussing the clips with the small group, participants will develop a 2-4 page written summary of the important ideas related to mathematical pedagogy and mathematical content that surfaced during their own pre- and post-conferences. Each small group will also choose a representative clip (one pre- or post-conference clip) to discuss with the entire class.

3. *Lesson Study Project – (40%)*

Students will work with a small group to conduct a lesson study. This will include selecting research goals for the lesson, planning the lesson, teaching the lesson (by at least one person in the team), and reviewing artifacts from the lesson.

4. *Reading Discussion Questions & Participation (20%)*

The quality of this course depends heavily and primarily on the regular attendance and participation of all involved. Participation will include taking part in discussions informed by critical reading and thinking and sharing with the class the products of various reading/writing assignments and teacher leader experiences. As part of the reading, each student will be assigned to post discussion questions at least once during the semester connected to the reading for the week. In addition, students will need to post a comment responding to at least one of the discussion questions each week.

Attendance. It is your responsibility to attend all class sessions. Please report your reasons for any absences to the instructor in writing. Tardiness. It is your responsibility to be on time for each class session. Please report your reasons for any tardiness to

the instructor in writing. Class materials will be posted for each class session on Blackboard. Students are responsible for reviewing these materials and submitting required artifacts (where appropriate) to online class discussion boards.

	<b>LEVEL OF PERFORMANCE</b>			
<b>ELEMENT</b>	<i>Distinguished (9 – 10 points)</i>	<i>Proficient (8 points)</i>	<i>Basic (6 - 7 points)</i>	<i>Unsatisfactory (1 - 5 points)</i>
Attendance & Participation	The student attends all classes, is on time, is prepared and follows outlined procedures in case of absence. The student actively participates and supports the members of the learning group and the members of the class. Presentations demonstrate a deep knowledge of content as well as implications for teaching.	The student attends all classes, is on time, is prepared and follows outlined procedures in case of absence; the student makes active contributions to the learning group and class. Presentations demonstrate sufficient knowledge of content as well as implications for teaching.	The student is on time, prepared for class, and participates in group and class discussions. The student attends all classes and if an absence occurs, the procedure outlined in this section of the syllabus is followed. Presentations demonstrate minimal knowledge of content and/or implications for teaching.	The student is late for class. Absences are not documented by following the procedures outlined in this section of the syllabus. The student is not prepared for class and does not actively participate in discussions. Presentations are lacking knowledge of content and connections to teaching.

Evaluation Criteria

Graduate Grading Scale

A	93%-100%	B+	87%-89%	C	70%-79%
A-	90%-92%	B	80%-86%	F	Below 70%

**VII. UNIVERSITY POLICIES**

Additional information about university policies can be found at <http://universitypolicy.gmu.edu/> or within the University Catalog at <http://catalog.gmu.edu/>.

## **HONOR CODE**

To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of George Mason University and with the desire for greater academic and personal achievement, George Mason University has set forth a code of honor that includes policies on cheating and attempted cheating, plagiarism, lying and stealing. Detailed information on these policies is available in the GMU Student Handbook, the University Catalog, or the GMU website ([www.gmu.edu](http://www.gmu.edu)).

## **INDIVIDUALS WITH DISABILITIES POLICY**

The university is committed to complying with the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 by providing reasonable accommodations for applicants for admission, students, applicants for employment, employees, and visitors who are disabled. Applicants for admission and students requiring specific accommodations for a disability should contact the Disability Resource Center at 993-2474, or the University Equity Office at 993-8730.

## **ATTENDANCE POLICY**

Students are expected to attend the class periods of the courses for which they register. Although absence alone is not a reason for lowering a grade, students are not relieved of the obligation to fulfill course assignments, including those that can only be fulfilled in class. Students who fail to participate (because of absences) in a course in which participation is a factor in evaluation, or students who miss an exam without an excuse, may be penalized according to the weighted value of the missed work as stated in the course syllabus (GMU University Catalog, pg. 32)