GEORGE MASON UNIVERSITY
Graduate School of Education

Course Title: Mathematics Education Curriculum Design and Evaluation (K-8)
Program Code: EDCI 856 001 (3 credits)

Fall 2011

Instructor: Dr. Margret Hjalmarson
Office Hours: By appointment
Office Phone: (703) 993-4818
Email: mhjalmar@gmu.edu
Office: 207A Commerce II Bldg.
Class Meets: Wednesday, 7:20-10:00 pm

I. Course Description

Yearlong seminar for Ph.D. students in the Mathematics Education Leadership cohort program. Students engage in research, analysis, design and evaluation of school mathematics curricula.
Prerequisite: Admission to the Mathematics Education Leadership Ph.D. Program

II. Student Outcomes

At the conclusion of this course, students should be able to:
A. Identify standards-based school mathematics curriculum projects; Analyze key characteristics of outstanding curriculum materials for school mathematics.
B. Examine learning theories that have been influential in mathematics education and identify ways those theories have been translated into curriculum materials and strategies for teaching.
C. Evaluate research on NSF-funded and commercially developed school mathematics curriculum materials to make informed choices.
D. Present and discuss a set of school mathematics curriculum materials in depth.
E. Design a school mathematics curriculum project.

III. Relationship to Program Goals and Professional Organization

EDCI 856 is designed to enable mathematics education leaders to evaluate and develop mathematics curriculum materials appropriate for school mathematics. The course was developed according to the joint position statement of the Association of Mathematics Teacher Educators (AMTE) and the National Council of Teachers of Mathematics (NCTM) on Principles to Guide the Design and Implementation of Doctoral Programs in Mathematics Education.

This position statement indicates that the core knowledge expectations for doctoral study in mathematics education include:
• Design effective curricula and learning environments to facilitate the development of deep and connected mathematical understanding,
• Curriculum design, analysis and evaluation,
• Studies of different strands of curricula,
• Comparisons of international curricula,
• Knowledge of historical, social, political, and economic factors impacting mathematics education, and
• Studies of mathematical concepts across grade levels.

IV. Nature of Course Delivery

The delivery of this course combines methods of lecture, discussion, independent study/research, student presentation, and writing.

IV. Texts and Readings

NSF-Sponsored Curriculum (online resource). The K-12 Mathematics Curriculum Center (www.edc.org/mcc/curricula.htm)

Selected articles will be posted on Blackboard (see list at the end of the syllabus).

V. Course Requirements and Assignments

A. Curriculum Research Paper (25%)

Select a topic in curriculum research (e.g., teachers’ use of curriculum, curriculum fidelity, curriculum design, student achievement) and review the literature related to that aspect of curriculum design, use, implementation or development.

B. Equity and Curriculum (25%)

Select an area of diversity in mathematics education (e.g., linguistic, gender, cultural, socioeconomic) and write a paper reviewing the literature in the topic area. Describe what is known in the topic area based on research.

C. Read and Summarize a Dissertation (20%)

Select a dissertation to read from the list provided. Prepare a presentation for the class about the dissertation including the following sections: background information, research questions, methodology, results, and implications for further research.

D. Article Leading (20%)

Select one of the articles assigned for reading during the week. Prepare a summary using the abstract format provided. Lead a discussion of the article in class.

E. Update Vita and Cover Letter (10%)

Update your vita and write a cover letter to accompany your CV. The goal of this assignment is to have you critically exam your goals and objectives in the Ph.D. program and articulate those goals to a prospective employer. It is also designed to help you reflect on areas where you might want to do more work or gain more experience.

Attendance. It is your responsibility to attend all class sessions and to be on time for each class session. You are held accountable for all information from each class session whether you are present or not. Please report your reasons for any absences to the instructor in writing/email.
VI. Evaluation Schema

Determination of the Final Grade:

Graduate Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93%-100%</td>
</tr>
<tr>
<td>A-</td>
<td>90%-92%</td>
</tr>
<tr>
<td>B+</td>
<td>87%-89%</td>
</tr>
<tr>
<td>B</td>
<td>80%-86%</td>
</tr>
<tr>
<td>C</td>
<td>70%-79%</td>
</tr>
<tr>
<td>F</td>
<td>Below 70%</td>
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</tbody>
</table>

VII. College and University Policies

The university has a policy that requests students to turn off pagers and cell phones before class begins.

All assignments and papers must be written using APA 6th edition formatting.

GSE Syllabus Statements of Expectations

The Graduate School of Education (GSE) expects that all students abide by the following:

Students are expected to exhibit professional behavior and dispositions. See gse.gmu.edu for a listing of these dispositions.

Students must follow the guidelines of the University Honor Code. See http://www.gmu.edu/catalog/apolicies/#TOC_H12 for the full honor code.

Students must agree to abide by the university policy for Responsible Use of Computing. See http://mail.gmu.edu and click on Responsible Use of Computing at the bottom of the screen.

Students with disabilities who seek accommodations in a course must be registered with the GMU Office of Disability Services (ODS) and inform the instructor, in writing, at the beginning of the semester. See http://www2.gmu.edu/dpt/unilife/ods/ or call 703-993-2474 to access the ODS.

Approved March 2004, Revised January 2010
VII. Course Schedule
Class meets 10:00 – 3:00 PM, Second Saturdays of the month (note exceptions)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic and Reading</th>
<th>Assignment due</th>
</tr>
</thead>
</table>
| 8/31/11    | **Introduction to Curriculum**  
(Clements, 2007)                                                                       |                          |
| 9/7/11     | **Ideal Curriculum: National Policy**  
(*Common Core Standards*)  
(Cobb & Jackson, 2011; Porter, McMaken, Hwang, & Yang, 2011a, 2011b) |                          |
| 9/14/11    | **Curriculum History & Theory**  
(Dewey, 1902)- *Child & the Curriculum*  
(Baker et al., 2010)  
Updated CV & Cover Letter                                                                 |
| 9/21/11    | **Curriculum Comparison**  
(Schmidt, Houang, & Cogan, 2002; Schmidt, Wang, & McKnight, 2005) |                          |
| 9/28/11    | **Curriculum & Students**  
(Gutstein, 2003; Schoenfeld, 2002; Stein, Remillard, & Smith, 2007)  
(Note Stein, Remillard & Smith is in the Handbook) |                          |
| 10/5/11    | **Large Scale Studies**  
(Harwell et al., 2007; Post et al., 2008)                                          |                          |
| 10/12/11   | **Implemented: Teachers & Curriculum**  
(Remillard, 1999)  
(Remillard, 2000)  
Equity and Curriculum Paper                                                             |                          |
| 10/19/11   | **Curriculum Design & Selection**  
(Hjalmarson & Lesh, 2008; Stein & Kaufman, 2010)                                      |                          |
| 10/26/11   | MTW, Chapter 1, 2, 3                                                            | Dissertation Presentations |
| 11/2/11    | MTW, Chapter 4, 5  
MTW, Choose either 6 or 7                                                            | Dissertation Presentations |
| 11/9/11    | MTW, Chapters 9, 10  
MTW, Choose either 8 or 11                                                           |                          |
| 11/15/11   | MTW, Choose 15 or 16  
MTW, Chapters 18, 19                                                                 |                          |
| 11/23/11   | **Thanksgiving – No Class**                                                       |                          |
| 11/30/11   | MTW, Choose 2 of 20, 21, or 22  
MTW, 23, 24                                                                             |                          |
| 12/7/11    |                                                                                   | Curriculum Research Paper  |
Readings


**Additional Articles**


