

TLPL 712
Foundations of Mathematics Education III
Theory and Research on Mathematics Curriculum

Fall 2024

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Office Hours: by appointment

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Class Meets: TBD

Course Goals

In mathematics education, curriculum is often thought of, rightly or wrongly as we will see, as an important lever for school change. Mathematics educators -- research-active or not, with leadership roles in school systems, in teacher education, in research and development projects, and in the formulation of education policy -- are frequently called on for analytic or creative work related to the content, organization, presentation, and evaluation of school and early collegiate mathematics curricula. We will concentrate on a small number of goals:

- An overview and structure for understanding the evolution of school mathematics curricula in the US since the inception of public schooling.
- Understanding compulsory schooling in the US as a societal process that involves political and institutional forces that shape disciplinary knowledge into school subjects.
- Developing skill at methods for analyzing **written** curricular materials and understanding the opportunities for learning that they support teachers in providing students.
- Understanding how current mathematics education researchers conceptualize, study and evaluate K-16 curricula.

As a byproduct of this work, each participant will gain familiarity with written curricular materials. However, we will not survey the K-16 curriculum topically. And, we will not focus on how curriculum projects develop materials for teachers and students.

Course expectations and assignments

Attendance and Participation: This course is a blended doctoral seminar. Participants are expected to come to class and to participate actively. In case of an emergency, please contact me, preferably by email, or another participant.

Weekly asynchronous discussion: The class will involve careful reading of a comparatively small number of readings. I encourage you to do these readings on Wednesdays through Sundays and do your course project work Sundays through Wednesdays. The instructor will expect everyone to come with insights to share and questions for discussion each Wednesday.

Participants are expected to read the week's readings and post comments and thoughts (roughly 250 words in length each week) on a shared Google Doc by Sunday noon and to revisit the

document a second time by Tuesday noon to comment on other people's posts before class. use the COMMENT function to interact with your colleagues' posts. The purpose of this weekly correspondence is to give you an opportunity to reflect upon course readings before discussing them in class and for the instructor to get a sense of how the students are processing the readings prior to the class meeting.

Course Project: This course involves the completion of an empirical study.

During the first half of the semester, participants have an opportunity to explore a particular curricular topic and to familiarize themselves with curricular materials of different kinds. In order to keep participants' projects to a manageable size and to keep the work progressing during the first part of the semester, each week, participants will be asked to put their work on the project on-line. The instructor will provide constructive formative feedback on this project twice before a summative assessment is given.

Carrying out an empirical study during a semester is an ambitious goal. During the second part of the semester, approximately every two weeks, there will be a deadline related to this course assignment. Participants are expected to meet these deadlines with appropriate work. This part of the project will be assessed three times, once with a formative grade, once with feedback, and then with a summative grade.

Detailed expectations for these assignments will be presented in separate documents. Individuals will be expected to keep the instructor abreast of their progress on this project and on any difficulties they encounter. Each participant will be expected to present their progress on to their project to the seminar.

Course Grading Procedures

Written assignments and presentations will be graded holistically on a scale of 0-4(A) with basic consideration given to quality of reasoning and clarity of expression. Items will be weighted in proportion to the time/effort required by the assignment. The three graded course project drafts will be weighted at 20%, 20% and 30% of the course grade. Presentation of the course project will be weighted at 10%.

Contributions to the discussion site and to class discussions will also count for 20% of the course grade. Those contributions will be assessed informally, with feedback when more active participation seems called for.

There will not be a final examination.