

APPROVED

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## The University Of Toledo

APR 10 2012

## New Graduate Course Proposal

COLLEGE OF  
GRADUATE STUDIES

\* denotes required fields

1. College\*: J Herb Edu, Hlt Sci, Human Ser
- Department\*: Curriculum and Instruction
2. Contact Person\*: Rebecca Schi Phone: 530-2504 (xxx-xxxx) Email: Rebecca.Schi Please input the correct Contact Person. Please input phone number in this format: xxx-xxxx. Please input the correct Email Address.
3. Alpha/Numeric Code (Subject area - number)\*: Cl 6170 Please input 2-4 characters for Item 3 Subject Area. Please input the 4-digit numeric code for Item 3.
4. Proposed title\*: Mathematics Charactor not allowed.
- Proposed effective term\*: 201240 (e.g. 201140 for 2011 Fall) Please input the 6-digit numeric code for term.
5. Is the course cross-listed with another academic unit? ☐ Yes ☒ No
- Approval of other academic unit (signature and title) \_\_\_\_\_
- Is the course offered at more than one level? ☐ Yes ☒ No
- If yes, an undergraduate course proposal form must also be submitted. If the undergraduate course is new, complete the [New Undergraduate Course Proposal](#); if the undergraduate course is existing, submit an [Undergraduate Course Modification Proposal](#).
6. Credit hours\*: Fixed: 3 or Variable: \_\_\_\_\_ to \_\_\_\_\_ Please Enter Only Numbers for Fixed Credit Hours Please Enter Only Numbers for variable Credit Hours From Please Enter Only Numbers for variable Credit Hours To
7. Delivery Mode: Primary\* Secondary Tertiary
- a. Activity Type \* Recitation --SelectType-- --SelectType--
- b. Minimum Credit Hours \* 3 Please Enter Only Numbers Only Numbers Only Numbers Please Enter Please Enter
- Maximum Credit Hours \* 3 Please Enter Only Numbers Only Numbers Only Numbers Please Enter Please Enter

c. Weekly Contact Hours \*

8. Terms offered: ☐ Fall ☒ Spring ☐ Summer

Years offered: ☒ Every Year ☐ Alternate Years

9. Are students permitted to register for more than one section during a term? ☒ No ☐ Yes

May the courses be repeated for credit? ☒ No ☐ Yes

Maximum Hours

10. Grading System\*:

☒ Normal Grading (A-F, PS/NC, PR, I)

☐ Passing Grade/No Credit (A-C, NC)

☐ Credit/No Credit

☐ Grade Only (A-F, PR, I)

☐ Audit Only

☐ No Grade

11. Prerequisites (must be taken **before**): i.e. C or higher in (BIOE 4500 or BIOE 5500) and C or higher in MATH 4200

C or higher in CI 6110, or CI 6120, or CI 6130, or CI 6140  
admission to SECE or MIDD LAMP program required

100 Max.

☐ PIN (Permission From Instructor) ☒ PDP (Permission From Department)

Co-requisites (must be taken **together**):

CI 6270 Mathematics student teaching and internship

100 Max.

12. Catalog Description\* (75 words Maximum)

A continued in-depth study of methods and materials for teaching Mathematics in middle and secondary classrooms with an emphasis on academic language and learning assessments; for LAMP Middle Childhood and AYA licensure only. Prerequisite: C or higher in CI 6110, 6120, 6130, or 6140. Co-requisite: CI 6270

13. Attach a syllabus and an electronic copy of a complete outline of the major topics covered. Click [here](#) for template.

Syllabus: \* File type not allowed.

Additional Attachment 1: File type not allowed.

Additional Attachment 2: File type not allowed.

### Course Approval:

Department Curriculum Authority: Rebecca Schuch Date 3-16-12

Department Chairperson: Joseph Chavitt Date 3/16/12

College Curriculum Authority or Chair: Rebecca Schuch Date 4-9-12

College Dean: Barbara J. Gay Date 4.9.12

Graduate Council: PLH Date 5-17-2012

Dean of Graduate Studies:  Date

Office of the Provost:  Date

### Administrative Use Only

(YYYY/MM/DD)

The University of Toledo  
Judith Herb College of Education, Health Sciences, and Human Services  
Department of Curriculum and Instruction

**CI 6170 Mathematics Advanced Methods of Teaching**  
**3 Credit Hours**

**Instructor:**  
**Office:**  
**Office Phone:**  
**Email:**

**Office Hours:**  
**Course Website:** <http://alcot.utoledo.edu>

**Prerequisites:** Admission to the LAMP Cohort program and successful completion of CI 6130 Mathematics Methods of Teaching and CI 6230 Mathematics Practicum

**Corequisite:** CI 6270 Mathematics Student Teaching and Internship

**Overview of CI 6170 Mathematics Advanced Methods of Teaching**

This course is an advance study of content specific teaching and learning including: planning, teaching, student learning, reflection, and professional development. During the semester, emphasis will be placed on exploring appropriate teaching models that reflect the nature, method, and content of your discipline, the characteristics of students, and the nature of the instructional setting. The major course goal is to further develop and integrate ideas about teaching and learning introduced in previous courses and to provide you with appropriate experiences for growth as a professional mathematics educator and the knowledge and tools to develop further.

**Mathematical Objectives and Conceptual Framework**

*It is assumed that learners have to construct their knowledge—individually and collectively. Each learner has a toolkit of conceptions and skills with which he or she must construct knowledge to solve problems presented by the environment. The role of the community—other learners and the teacher—is to provide the setting, pose the challenges, and offer the support that will encourage mathematical construction. (Davis, Maher & Noddings, 1990)*

The above statement is intended to give a feeling of the spirit of what mathematics teaching and mathematics learning should encompass. In the first set of *Standards* published by the National Council of Teachers of Mathematics (NCTM, 1989) 5 basic goals were outlined. All students need to: (1) learn to value mathematics, (2) become confident in their ability to do mathematics, (3) become problem solvers, (4) learn to communicate mathematically, and (5) learn to reason mathematically. In order to create a learning environment where these goals are achievable we ourselves need to work toward understanding mathematics in this way. In our methods course we will explore what it means to think mathematically and to have mathematical power. We will consider what it means when you claim to know something mathematically. We will consider the role discourse and language play in the learning process. We will extend the ideas and experience we have in our on-campus methods course out into your school field placement by exploring how you create rich curriculum and learning environments that allow students to construct rich mathematical understanding. The following serve as our guiding themes:

1. understanding the mathematics subject matter that you teach both conceptually and procedurally;
2. understanding how students learn, think, and reason mathematically, and
3. learning how to use this information to inform planning and teaching—both present and future.

## Course Materials:

No purchased books are required for this course.

Important websites include:

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

Common Core State Standards for Mathematics: <http://www.corestandards.org/>

Ohio Department of Education Academic Content Standards for Mathematics:

<http://education.ohio.gov/GD/Templates/Pages/ODE/ODEDetail.aspx?Page=3&TopicRelationID=1704&Content=110228>

## Grading and Policies:

**Class Attendance and Participation:** You need to be present for each class. Your attendance and participation will be evaluated. For each class you miss, you will lose the equivalent of a letter grade for this portion of your complete grade. Your attendance grade will be lowered one-half of a full letter grade for each time you are tardy to class.

**Assignment Due Dates and Grading:** For any late assignment, the grade will be lowered one letter grade for each day the assignment is late unless prior arrangements are made with the professor. Keep this in mind since a candidate must earn a grade of C or better on each assignment in order to earn a passing grade for the course.

**Special Needs:** Please contact the instructor if you need special arrangements for taking tests, taking notes, special print, or other considerations that may help you more effectively learn or demonstrate learning.

**UTAD Account and ALCOT:** You will be required to have activated and regularly check your UTAD email. Throughout the course we will also use ALCOT (<http://alcot.utoledo.edu>) as a web-based site for course activities. More information will be provided in class.

### Academic integrity is expected as defined by the *Undergraduate/Graduate catalog*:

Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or assignment written, in whole or in part, by someone else. Students are guilty of plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging them. Students guilty of or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university. (*Undergraduate/Graduate Catalog*, 2006-2008, p. 29)

**\*Critical Performances:** As part of your licensure program at the University of Toledo you will be completing a series of *critical performances*. *Critical performances* are program-based assessments of your readiness to continue at each phase of the licensure program. During the advanced methods and internship experience semester you will be demonstrating readiness to teach by completing four critical performances across two cycles of teaching. Each critical performance must conform to all requirements described by the University of Toledo and must be completed satisfactorily in order to pass the course. Critical Performances are denoted with an asterisk.

### Grading Scale:

	90-92 B+	80-82 C+	70-72 D+	62 or under F
95-100 A	86-89 B	76-79 C	66-69 D	
93-94 A-	83-85 B-	73-75 C-	63-65 D-	

## Activities, Evaluation and Assessment Scheme for Mathematics Advanced Methods of Teaching

Each plan/teach/reflect cycle (3 and 4) will be in a specific content area. Adolescent and Young Adult (AYA) candidates will use the same content specific directions for both Cycle 3 and 4. For example, an AYA mathematics candidate will complete a mathematics set for Cycle 3 and a mathematics set for Cycle 4. Middle Grades (MG) candidates will use one content area for Cycle 3 and their other content area for Cycle 4. For example, a LA and science candidate will complete a LA set for one cycle and a science set for the other cycle. Which content area you will use for Cycle 3 will be the same content area you used for Cycle 2 in the fall. Cycle 4 will be the same as the content area used for Cycle 1 in the fall. Below are the content specific components that you will use for Mathematics.

**Full Unit Plan:** For each cycle you will create a 2-3 week unit—a cohesive set of lessons organized around an important mathematical topic or idea. As you design your unit, it is reasonable that lessons may extend beyond one day. Your selection of a series of lessons

should be defined by the amount of time necessary to present a cohesive set of lessons that includes the introduction and development of a concept including some form of cumulative assessment of learning related to the concept.

- Your unit should include opportunities for development of mathematical concepts, procedures, and reasoning/problem solving.
- Each lesson will include objectives (content, process and academic language), alignment with Ohio Standards, lesson activities, embedded assessment statement, relevant assessments, and pdfs of worksheets/handouts and relevant book pages. This is the same lesson plan format used in the Fall semester.
- You will follow the format as described in the TPAC Task One to develop the Planning Commentary.
- Submit full set of lessons, pdf of related book pages and handouts including all assessments, and Planning Commentary.

**Videotape of a Lesson with Commentary:** Using TPAC Rubrics M4 and M5 as a guide, select a lesson that involves developing mathematics concepts, procedures and reasoning/problems solving to videotape and analyze. This lesson should also provide an opportunity to display the **mathematical discourse** (student to student and students to teacher) that occurs in your classroom so that you can address highlight how academic language is being supported. As a goal, consider the Level 4 statement in Rubrics M4 and M5: In the clip(s), "*Are students engaged intellectually in discussions, tasks, or activities...*" and "*Candidate elicits and builds upon students' reasoning/problem solving to explore, extend, or clarify mathematical concepts*".

- Submit video clip and Instructional Commentary using the format described in the TPAC Task 2.

**Assessment of Student Learning:** Assess student learning along both dimensions outlined in the TPAC for Task 3.

Dimension 1: Class Range-of-Learners Study

Dimension 2: Focused Student Study with Documentation

As you choose the assessments and the student work, consider your assessment data, the rubric and the linkage between these two aspects emphasized in rubrics 6, 7 and 8: (a) alignment with identified objectives and standards in the corresponding lessons" and (b) assessments and students work should allow you to analyze and discuss patterns of student understandings, skills, and misunderstandings.

- Submit students work samples, analysis documents, evidence of feedback, and Assessment Commentary as described in TPAC Task 3.

**Analysis of teaching and professional growth:** This will be mathematics specific essay based on Task 4 in the TPAC. (Note: This analysis is completed only for Cycle 4.)

- Submit: Analyzing Teaching Commentary

Assignment	% of Grade	Due Date
<b>1. Cycle 3: Content specific plan/teach/reflect cycle highlighting assessment of student learning and academic language</b> This is the third plan/teach/reflect cycle in the LAMP program. This cycle will highlight assessment plans and use of those plans to illustrate student learning in your content as well as academic language analysis. Cycle 3 includes the following components: <ul style="list-style-type: none"> <li>• Full Unit Plan: Series of lessons (following content specific guidelines), including a Planning Commentary.</li> <li>• Videotape of inquiry lessons including Instruction Commentary</li> <li>• Assessment of student learning including an Assessment Commentary.</li> </ul>	20% 10% 10%	
<b>2. *Cycle 4: Content specific plan/teach/reflect cycle for portfolio (Note: each component must be passed with the TPA rubric for overall passing of course)</b> This is the fourth plan/teach/reflect cycle in the LAMP program. This set of materials will also be submitted online to EAS as your college assessment assignment. It will include: <ul style="list-style-type: none"> <li>• Full Unit Plan: Series of lessons (following content specific guidelines), including a Planning Commentary.</li> <li>• Videotape of inquiry lessons including Instruction Commentary.</li> <li>• Assessment of student learning in your content area including an Assessment Commentary.</li> <li>• Analysis of teaching and growth (both contents for MG) using Analyzing Teaching Commentary Template.</li> </ul> <p><b>*NOTE:</b> Cycle 4 will be submitted to EAS for the College Portfolio. Success completion of Cycle 4 as described in the Teacher Professional (TPAC) is required in order to earn a passing grade for this course.</p>	20% 10% 10% 10%	

3. Other: Attendance, Professionalism and Weekly Assignments	10%	
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