SYLLABUS

Math 147/CIEP 104:Mathematics for Elementary School Teachers I

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Course Description: This course provides the fundamental knowledge base for teaching elementary school mathematics. Candidates study the underlying principles of mathematics appropriate for grades k-9. Candidates use Common Core Standards and Principles and Standards for School Mathematics from the National Council of Teachers of Mathematics (NCTM).

Course Rationale and Relationship to the Teacher Education Program: To prepare teachers who can deliver high-quality mathematics education, the Loyola teacher preparation program provides a strong knowledge base, positive attitude, and a wide range of instructional strategies.

Conceptual Framework: www.luc.edu/education/mission/ The School of Education's *Conceptual Framework*—— ***Social Action through Education*** is exemplified within the context of this course. It is the goal of this course to help you become excellent math teachers. Since algebra is the key to higher education, the foundation work that you do in mathematics will assist all students to achieve their highest potential.

<u>STANDARDS</u>

SOE Conceptual Framework Standards (CFS)

- CFS1: Candidates critically evaluate current bodies of knowledge in their field.
- CFS2: Candidates apply culturally responsive practices that engage diverse communities.
- CFS3: Candidates demonstrate knowledge of ethics and social justice.
- CFS4: Candidates engage with local and/or global communities in ethical and socially just practices.

IDEA Objectives

1. Gaining a basic understanding of the subject (e.g., factual knowledge, methods, principles, generalizations, theories)
2. Learning to apply course material (to improve thinking, problem solving, and decisions)
3. Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course
4. Learning to apply knowledge and skills to benefit others or serve the public good

IDEA Course Evaluation Link for Students

Each course you take in the School of Education is evaluated through the IDEA Campus Labs system. We ask that when you receive an email alerting you that the evaluation is available that you promptly complete it. To learn more about IDEA or to access the website directly to complete your course evaluation go to: http://luc.edu/idea/ and click on ***STUDENT IDEA LOGIN*** on the left hand side of the page.

<div align="center"><u>DIVERSITY</u></div>

Issues of diversity (socio-economic, ethnic, exceptionalities, and gender) are addressed through instructional methodology, assessment and technology. Teacher candidates study mathematics contributions made by a wide array of mathematicians.

<div align="center">**METHOD OF ASSESSMENT**</div>

Candidates are expected to put in a minimum of 1.5 x class time in additional outside study.

A wide variety of evaluation strategies are used. Math problems, participation, integrative activities, tutoring, exams, teaching small groups of elementary school children and computer activities contribute to the final grade.

35%: Assignments and Participation

Candidates are expected to participate in each class. Since you are becoming professionals, all assignments (except for Jacobs) should be **typed.** All assignments are due for the next class period. Candidates hand in assignments in a 2-pocket folder.

<div align="center"># No late assignments will be accepted.</div>

5% Lesson Plans and Instructional Materials (5 @ 1% each)

You will prepare and teach five lessons to a small group of children in 4th or 5th grade at Swift School as the service learning component of this class.

Because this course is part of your professional program, the quality of your work is important. The rubric for grading assignments and lesson plans is:

Standard	Points
I would show this to my principal.	1.0
I would show this to my colleagues.	0.9
I would show this to my students.	0.8
This is just for me.	0.7
I was not able to complete the whole assignment.	0.6-0.1
No assignment.	0

30% Quiz 6 @ 5% (4 questions @1.25% on each quiz)

25% Final Exam

5%: NCTM Standards Notebook

· All assignments and class activities will be organized into a binder using the NCTM Standards and turned in at the final exam.

<div align="center">**NCTM Standards Notebook Rubric**</div>

Criteria	%
Neatness	1
5 NCTM tabs	1
Interesting cover	1
Introduction: Why we study mathematics	**1**
100% % of assignments	**1**

Extra Credit: **Candidates will be able to earn up to 5% extra credit for the course through opportunities that will become available during the semester.** Extra credit opportunities are designed as 3-5 hours of engagement/1%. Some of the opportunities include volunteering at schools; attending workshops/lectures on campus; writing math plays, developing math games, designing math activity sheets for children's literature, etc.

Grade Assignments :

A   95-100%

A-   93-94%

B+   91-92%

B   87-90%

B-   85-86%

C+   83-84%

C   80-82%

C-   78-79%

D   77-70%

F   0-69%

Dispositions

All students are assessed on one or more dispositional areas of growth across our programs: *Professionalism, Fairness, and the Belief that All Students Can Learn.* The instructor in your course will identify the dispositions assessed in this course and you can find the rubrics related to these dispositions in LiveText. Disposition data is reviewed by program faculty on a regular basis. This allows faculty to work with students to develop throughout their program and address any issues as they arise.

Livetext Dispostions

Professionalism

- Participates in all classes

- Prepares high quality instructional materials

- Arrives at clinical site ready to teach

All students can learn

- Identifies adaptations for students by name in lesson plan

Fairness

- Gives all students an equal chance to participate in lesson

LiveText

All students, except those who are non-degree, must have access to LiveText to complete the benchmark assessments aligned to the Conceptual Framework Standards and all other accreditation, school-wide and/or program-wide related assessments. You can access more information on LiveText here: [LiveText](#).

Textbooks

Mathematics: a Human Endeavor: a Book for Those Who Think They Don't Like the Subject, Harold Jacobs, 3rd Edition 0-1767-2426-x

Mathematicians Are People, Too Volume I: Stories from the Lives of Great Mathematicians Luetta Reimer, Wilbert Reimer

Riddle Math: Using Student-Written Riddles to Build Mathematical Power, Carl Sherrill, http://morningriverpubs.com/W-RiddleMath.htm

It's in the Cards! Math Card Games, Diane Schiller

The Number Devil: A Mathematical Adventure, Hans Ensenberger ISBN 0-8050-6299-8

The Man Who Counted by Malba Tahan

More Stories to Solve: Fifteen Folktales from Around the World by George Shannon (Author) , Peter Sis (Illustrator)

Live Text LiveText.

Course Outline

Week	Essential Math Idea
1	Multiplication is everywhere
2	Proportions as a problem solving tool
3	Mathematics is a cultural phenomenon
4	"Mathematics is the language God used to create the universe." Galileo
5	Developmental Instruction

6	Math works
7	Patterns are the heart of mathematics
8	Integrating math and the visual and performing arts
9	Infinity
10	Mathematical inventions
11	Fractions and probability should be linked for more productive instruction
12	Measurement is the engine that drives progress.
13	From a geometric perspective, we can think of the world in 0-D, 1-D, 2-D and 3-D perspectives
14	Think like a mathematician: inductive and deductive reasoning
15	"…you can think of almost everything as a math problem." *Math Curse*

Syllabus Addendum Link

- www.luc.edu/education/syllabus-addendum/

This link directs students to statements on essential policies regarding *academic honesty*, *accessibility*, *ethics line reporting* and *electronic communication policies and guidelines*. We ask that you read each policy carefully.

This link will also bring you to the full text of our conceptual framework that guides the work of the School of Education – ***Social Action through Education.***