

Note:

Course content may be changed, term to term, without notice. The information below is provided as a guide for course selection and is not binding in any form, and should not be used to purchase course materials.

COURSE SYLLABUS

EDUC 301

INSTRUCTIONAL PRACTICES FOR MATH TEACHERS

COURSE DESCRIPTION

This course provides professional development for pre-service and in-service teachers in mathematics instruction. Student will examine the principles of instruction for number systems, computation, and problem solving. Field experiences will provide opportunities to apply theories in classroom settings.

RATIONALE

Mathematics is a core curricular area integrated into all other content areas and essential for productive citizenship, making the processes and procedures for teaching mathematics conceptually essential to the development of competent teachers whose skills and knowledge are needed to positively impact students in PK–12 settings. The structure of this course allows the pre-service teacher to explore effective instructional practices in terms of field experiences, to validate basic competencies, and to reexamine the basic principles of effective instructional practices in terms of the application of those practices within his/her classroom. Supported by recommendations from the National Council for the Teachers of Mathematics and a research base descriptive of conceptual strategies, this course provides foundational precepts for the development of competence in reflective, research-based instructional practices.

I. PREREQUISITES

EDUC 205

II. REQUIRED RESOURCE PURCHASE

Click the following link to view the required resources for the term in which you are registered: <http://bookstore.mbsdirect.net/liberty.htm>

III. ADDITIONAL MATERIALS FOR LEARNING

- A. Computer with Internet access (broadband recommended)
- B. Microsoft Word
(Microsoft Office is available at a special discount to Liberty University students.)
- C. Microsoft PowerPoint

IV. MEASURABLE LEARNING OUTCOMES

Upon successful completion of this course, the student will be able to:

- A. Compute the sum, difference, product, or quotient when presented with basic computational exercises with whole numbers, fractions, or decimals.
- B. Evaluate proposed strategies in terms of their potential for effectiveness when presented with scenarios depicting instructional strategies and processes.
- C. Replicate patterns when given sets of algebraic problems.
- D. Analyze equations to identify the mathematical property depicted when given sets of algebraic equations.
- E. Select the most appropriate tool and process when presented with scenarios for measurement instruction.
- F. Apply the appropriate processes to solve word problems.
- G. Apply reasoning processes necessary to solve non-computational logic problems.
- H. Analyze the implementation of effective instructional strategy in terms of needs of PK–6 students of varying modality when evaluating the strengths of an electronic tutorial.
- I. Initiate learning experiences that remediate specific weaknesses after self-diagnosis of arithmetical strengths and weaknesses.
- J. Identify error patterns of work samples of PK-6 students.
- K. Select the most logical remedial process for PK-6 students.
- L. Implement effective instructional procedures when participating in field experiences.

V. COURSE REQUIREMENTS AND ASSIGNMENTS

- A. Textbook readings, articles, and Presentations
- B. Discussion Board forums (9)

Each forum consists of two parts: the initial thread and the reply. Each week the student will post an initial thread, answering the instructor's prompt; the thread will be approximately 100–150 words in length and must be submitted by 11:59 p.m. Friday of the corresponding module.

The student will then read and reply to at least **two** other students' threads by 11:59 p.m. (ET) Monday of the corresponding module. Each reply will be approximately 25–50 words in length.

For specific instructions and grading breakdown, see Course Content > Syllabus and Assignment Instructions > Assignment Instructions.

C. Math Attitude Survey

The student will complete a fourteen question true/false Math Attitude Survey in Module/Week 1.

D. Textbook Assignments, Questionnaire, and Documentation

Textbook Assignments: Throughout this course, Modules 2–5, completion of specific assignments from the textbook are required. The student will complete each assignment as indicated, in a Word document. Each of these assignments will later be submitted together as “Textbook Assignment Documentation” in Module/Week 7.

Textbook Assignment Questionnaire: Students will also complete a Textbook Assignment Questionnaire in Module/Week 7.

Textbook Assignment Documentation: In Module/Week 7 all the textbook assignments will be submitted via the submission link in the Assignments folder.

This assignment is worth a combined total of 100 points.

E. Essays (6)

The student will complete six essays on various topics. Each essay will be approximately 250–350 words; each must follow APA format. Essays are due in Modules/Weeks 1–5, & 7. For specific details regarding these assignments, see Course Content > Syllabus and Assignment Instructions > Assignment Instructions.

F. Lesson Plan and Reflection

Using a prescribed template and guide, each student will write a lesson plan for this course that incorporates a manipulative (math tool). The student will teach the lesson and complete a reflection. This assignment is due in Module 6. For complete instructions, including a grading sheet and guide, see Course Content > Syllabus and Assignment Instructions > Assignment Instructions.

G. Final Assignment

The student will choose **one** of the following options:

1. The first option needs to be started at the very beginning of the course; however, it is not due until Module/Week 8. Option one includes a minimum of five hours of interactive field experience in either a pre-school, primary, intermediate, or middle school. After the field experience, the student will then write a 500–1000 word observation using APA formatting guidelines.
2. The second option is a research paper. After reviewing specific research articles pertaining to “reform or basics,” the student will give a description of each and explain where he or she stands on the issue.

For specific documents and details pertaining to both options, see Course Content > Syllabus and Assignment Instructions > Assignment Instructions.

This assignment is must be submitted in Module/Week 8.

H. Chapter Quizzes (8)

The student will take eight open-book/open-note quizzes. The quizzes contain multiple-choice, T/F, and matching questions. Each quiz must be completed by 11:59 p.m. (ET) in the module/week which it is assigned.

VI. COURSE GRADING AND POLICIES

A. Points

Group DB Forums (7 at 10 pts. ea, 2 at 25 pts ea)	120
Math Attitude Survey	15
Essays (6 at 50 pts ea)	300
Lesson Plan and Reflection	150
Textbook Assignments/Questionnaire/Documentation	100
Final Assignment	115
Chapter Quizzes (8 at 25 pts ea)	200
Total	1000

B. Scale

A = 900–1000 B = 800–899 C = 700–799 D = 600–699 F = 0–599

C. Late Assignment Policy

The nature of this course requires that the candidate interact with the material, professor and other students on a weekly basis. Because of this, it is difficult to achieve the fullest experience in this learning environment when assignments are late.

If unable to complete an assignment on time, the candidate must contact the instructor immediately by email to make arrangements for the completion of that assignment. Assignments that are submitted after the due date without appropriate excuse and pre-approval will receive the following deductions:

- Assignments submitted after the due date will receive a 10% deduction.
- Assignments submitted more than one week late receives a 20% deduction.
- Assignments submitted after two weeks late or after the final due date of the class will not be accepted without documentation of extenuating circumstances.

D. Disability Assistance

Students with a documented disability may contact Liberty University Online's Office of Disability Academic Support (ODAS) at LUOODAS@liberty.edu to make arrangements for academic accommodations.

COURSE SCHEDULE

EDUC 301

Textbook: Ridener, B., & Fritzer, P. *Mathematics Content for Elementary and Middle School Teachers* (2003).

WEEK/ MODULE	READING & STUDY	ASSIGNMENTS	POINTS
1	Ridener & Fritzer: chs. 1–2 1 Presentation 2 Weblinks	Course Requirements Checklist Class Introduction Group DB Forum 1 Math Attitude Survey Essay 1	0 0 10 15 50
2	Ridener & Fritzer: chs. 3–4 1 Presentation 3 Articles	Group DB Forum 2 Group DB Forum 3 Chapter 3 Quiz Chapter 4 Quiz Textbook Assignment 1 Essay 2	25 10 25 25 0 50
3	Ridener & Fritzer: chs. 5–6 1 Presentation 1 Article 2 Weblinks	Group DB Forum 4 Chapter 5 Quiz Chapter 6 Quiz Textbook Assignment 2 Essay 3	10 25 25 0 50
4	Ridener & Fritzer: chs. 7–8 3 Articles	Group DB Forum 5 Chapter 7 Quiz Chapter 8 Quiz Textbook Assignment 3 Essay 4	10 25 25 0 50
5	Ridener & Fritzer: chs. 9–10 1 Presentation 3 Articles	Group DB Forum 6 Group DB Forum 7 Chapter 9 Quiz Chapter 10 Quiz Textbook Assignment 4 Essay 5	25 10 25 25 0 50
6	—	Group DB Forum 8 Lesson Plan and Reflection	10 150

WEEK/ MODULE	READING & STUDY	ASSIGNMENTS	POINTS
7	Ridener & Fritzer: chs. 11–12	Group DB Forum 9 *Textbook Assignment Questionnaire **Textbook Assignment Documentation Essay 6	10 100 0 50
8	—	Final Assignment	115
TOTAL			1000

DB = Discussion Board

*This assignment contains questions regarding the textbook assignments.

**Failure to submit this assignment will result in a 50 point deduction from the student's grade.

NOTE: Each course week (except week 1) begins on Tuesday morning at 12:00 a.m. (ET) and ends on Monday night at 11:59 p.m. (ET). The final week ends at 11:59 p.m. (ET) on Friday.