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 <u>not</u> be used to purchase course materials.

COURSE SYLLABUS

EDUC 301
INSTRUCTIONAL PRACTICES FOR MATH TEACHERS

COURSE DESCRIPTION

This course provides professional development for preservice and inservice teachers in mathematics instruction. Students will examine the principles of instruction for number systems, computation, and problem solving and apply theories to classroom settings.

RATIONALE

Mathematics is a core curricular area integrated into all other content areas and essential for productive citizenship. The processes and procedures for teaching mathematics are thus conceptually essential to the development of competent teachers who will be using their skills and knowledge 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 best practices, this course provides foundational precepts for the development of competence in reflective, research-based, instructional practices.

I.   **PREREQUISITE**

For information regarding prerequisites for this course, please refer to the [Academic Course Catalog](#).

II.   **REQUIRED RESOURCE PURCHASE**

Click on the following link to view the required resource(s) for the term in which you are registered: http://bookstore.mbsdirect.net/liberty.htm

III. **ADDITIONAL MATERIALS FOR LEARNING**

A.   Computer with basic audio/video output equipment

B.   Internet access (broadband recommended)

C.   Blackboard recommended browsers

D.   Microsoft Office

IV.   **MEASURABLE LEARNING OUTCOMES**

Upon successful completion of this course, the candidate will:

A.   Explore mathematical concepts that will be used in future classrooms.

B.   Build skeema that will connect prior knowledge to new knowledge.

C.   Develop a tool kit of problem-solving techniques.

D.   Model mathematical concepts using hands-on activities.

E.   Connect between one's own study of mathematics and the elementary school curriculum.

F.   Evaluate proposed strategies in terms of their potential for effectiveness when presented with scenarios depicting instructional strategies and processes.

G.   Select the most appropriate tool and process when presented with scenarios for mathematics instruction.

H.   Apply reasoning processes necessary to solve non-computational and word problems.

I.   Integrate biblical concepts within mathematics activities.

J.   Synthesize instructional methods related to classroom differentiation

K.   Conduct research of recent trends in math education

V.   COURSE REQUIREMENTS AND ASSIGNMENTS

A.   Textbook readings and presentations

B.   Course Requirements Checklist

After reading the Course Syllabus and Student Expectations, the student will complete the related checklist found in Module/Week 1.

C.   Discussion Board Forums (4)

Discussion boards are collaborative learning experiences. Therefore, the candidate is required to post 1 thread of 250 words. The candidate will post 2 replies of 150 words. Each thread must be supported with at least 1 citation in current APA format. Each reply must cite at least 1 source in current APA format as well. Acceptable sources include peer-reviewed journals, articles, the course textbook, and the Bible. (MLO:A, B, C, E, I, K)

D.   SmartBook/LearnSmart assignments (7)

Students will complete SmartBook/LearnSmart assignments. SmartBook is a digital version of the course textbook with key concepts highlighted. Adaptive practice questions assess each students' skill levels to determine which topics students have mastered and which require further practice. SmartBook actively tailors that content to students' individual needs. (MLO: A, B, C, D, E, F, G, H)

E.   Practice Math Problems (7)

The candidate will complete math exercises/problems during Modules/Weeks 1-7. The problems will have a variety of questions including multiple-choice, multi answers, numeric response, and fill in the blank. (MLO: A, B, C, D, E, F, G, H)

F.   Math Autobiography

The candidate will write a mathematics autobiography. He/she will describe his/her past study of mathematics and success in it, and discuss his/her feelings about mathematics at the elementary level and at the higher levels. Also, the candidate will identify any experiences or mentors he/she has had in learning mathematics. The paper must be 2–3 pages in current APA format. (MLO: A, B, E)

G.   Differented Instruction Essay

The candidate will write a critique of the article "Differentiated instruction in primary mathematics: Effects of teacher professional development on student achievement." The paper must be 2–3 pages in current APA format and must be submitted through the SafeAssign link in Blackboard. (MLO: J)

H.   Lesson Plan and Reflection

The candidate will select a piece of children's literature. Using a provided template, he/she will then create a math lesson plan utilizing the piece of literature. After creating the lesson plan, the candidate will teach his/her lesson either in a classroom or with friends/family. The candidate will then complete the Lesson Reflection to give his/her input about the lesson plan. (MLO: A, B, C, D, G, I)

VI.   **COURSE GRADING AND POLICIES**

A.   Points

Course Requirements Checklist	10
Discussion Board Forums (4 at 50 points ea)	200
SmartBook/LearnSmart Assignments (7 at 15 pts ea)	105
Practice Math Problems (7 at 60 pts ea)	420
Math Autobiography	60
Differentiated Instruction Essay	60
Lesson Plan and Reflection	155
Total	**1010**

B.   Scale

A = 900–1010   B = 800–899   C = 700–799   D = 600–699   F = 0–599

C.   Disability Assistance

Students with a documented disability may contact Liberty University Online's Office of Disability Accommodation Support (ODAS) at LUOODAS@liberty.edu to make arrangements for academic accommodations. Further information can be found at www.liberty.edu/disabilitysupport.

If you have a complaint related to disability discrimination or an accommodation that was not provided, you may contact ODAS or the Office of Equity and Compliance by phone at (434) 592-4999 or by email at equityandcompliance@liberty.edu. Click to see a full copy of Liberty's Discrimination, Harassment, and Sexual Misconduct Policy or the Student Disability Grievance Policy and Procedures.

COURSE SCHEDULE

EDUC 301

Textbook: Bennett et al., *Mathematics for Elementary Teachers: A Conceptual Approach* (2016)

MODULE/ WEEK	READING & STUDY	ASSIGNMENTS	POINTS
1	Bennett et al.: chs. 1–2 2 presentations 1 websites	Connect Registration Quiz Course Requirements Checklist Advising Guide Quiz Introduction/Welcome DB LearnSmart/SmartBook Chapters 1 & 2 Practice Math Problems	0 10 0 0 15 60
2	Bennett et al.: ch. 3 1 presentation	Math Autobiography LearnSmart/SmartBook Chapter 3 Practice Math Problems	60 15 60
3	Bennett et al.: chs. 4–5 1 presentation	DB Forum 1 LearnSmart/SmartBook Chapters 4 & 5 Practice Math Problems	50 15 60
4	Bennett et al.: ch. 6 1 presentation	DB Forum 2 LearnSmart/SmartBook Chapter 6 Practice Math Problems	50 15 60
5	Bennett et al.: chs. 7–8 1 presentation 1 website	Differented Instruction Essay LearnSmart/SmartBook Chapters 7 & 8 Practice Math Problems	60 15 60
6	Bennett et al.: chs. 9–10 1 presentation	DB Forum 3 LearnSmart/SmartBook Chapters 9 & 10 Practice Math Problems	50 15 60
7	Bennett et al.: chs. 11–12 1 presentation	Lesson Plan and Reflection LearnSmart/SmartBook Chapters 11 & 12 Practice Math Problems	155 15 60
8	Presentation 1 website	DB Forum 4	50
		TOTAL	1010

DB = Discussion Board

NOTE: Each course module/week (except Module/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 module/week ends at 11:59 p.m. (ET) on **Friday**.