SCHOOL OF EDUCATION
VIRTUAL CAMPUS

Mission: Wayland Baptist University exists to educate students in an academically challenging, learning focused and distinctively Christian environment for professional success, lifelong learning and service to God and humankind.

COURSE NUMBER AND TITLE: ECHD 4301 Math & Science for Young Children
TERM AND DATES: January 10 – March 5, 2022

INSTRUCTOR'S NAME: Amy Manchee
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OFFICE HOURS: Response via email/text typically within 24 hours

CATALOG COURSE DESCRIPTION: This course focuses on the integration of math and science with the other important elements of child development for young children. Both math and science are presented from a common conceptual framework, and problem solving is emphasized as the major means of constructing the basic concepts.

REQUIRED RESOURCE MATERIALS:

A. Student Textbook(s) - Charlesworth, R., & Lind, K. (2007). *Math & science for young children* (8th ed.). Florence, KY: Cengage Learning.
ISBN-10: 1305088956
ISBN-13: 9781305088955
This is available as an Ebook.
B. Access to WBU Learning Resources www.wbu.edu/lrc

COURSE OUTLINE:

Part I: CONCEPT DEVELOPMENT IN MATHEMATICS AND SCIENCE
- Development, Acquisition, Problem Solving, and Assessment
- Basics of Science, Engineering, and Technology

Part II: FUNDAMENTAL CONCEPTS AND SKILLS
- Prekindergarten and Kindergarten Concepts and Skills
- More Prekindergarten and Kindergarten Concepts and Skills
- Early Geometry, Parts and Wholes, and Applications of Fundamental Concepts to Science and Engineering

Part III: APPLYING FUNDAMENTAL CONCEPTS
- Pre-K/K Ordering, Measurement, and Data Collection and Analysis
- Integrating the Curriculum

Part IV: SYMBOLS AND HIGHER-LEVEL CONCEPTS AND ACTIVITIES
- Transitioning from Preschool to Kindergarten to Primary

Part V: MATHEMATICS CONCEPTS AND OPERATIONS FOR THE PRIMARY GRADES
- Whole Number Operations, Patterns and Fractions
- Place Value, Geometry and Data Analysis, and Measurement

Part VI: INVESTIGATIONS IN PRIMARY SCIENCE
- Overview of Primary Science, Life Science, and Physical Science

- Earth and Space Sciences, Environmental Awareness, Engineering, Technology and Science Applications

Part VII: THE MATH AND SCIENCE ENVIRONMENT

- Materials and Resources and Math and Science in the Classroom and in the Home

COURSE REQUIREMENTS:

1. The student will: attend class (online presence), read all assigned materials, participate in discussion boards, prepare written assignments, and complete exams by posted due dates and times.
2. The student will respond in a professional manner.

COMPETENCIES FOR THIS COURSE:

Students will understand and apply the following six principles, or "themes" of mathematics instruction as outlined by NCTM.

- Equity: high expectations and support for all children
- Curriculum: more than a collection of activities: coherent, focused on important mathematics and well-integrated across … developmental levels.
- Teaching: understanding what children already know and used to learn, and challenging and supporting them to learn it well
- Learning: children must learn with understanding, building new mathematical knowledge from experience and prior knowledge
- Assessment: should support the learning important mathematics and give useful information to teachers and children
- Technology: is essential in teaching and learning mathematics; a tool to enhance learning

Students are able to articulate priorities for high-quality; meaningful science experiences in early childhood, across a developmental continuum. Depending on children's ages and other characteristics, those experiences shoul help children to, for example:

- Raise questions about objects and events around them
- Explore materials, objects, and events by acdting upon them and noticing what happens
- Make careful observations of objects, organisms and events using all their senses
- Describe, compare, sort, classify and order in terms of observable characteristics and properties
- Use a variety of simple tools to extend their observations (e.g., hand lens, measuring tools, eye dropper)
- Engage in simple investigations including making predictions, gathering and interpreting data, recognizing simple patters, and drawing conclusions
- Record observations, explanations, and ideas through multiple forms of representation
- Work collaboratively with others, share and discuss ideas, and listen to new perspectives
  To earn 10 bonus points for reading the syllabus carefully, send the instructor and email with the following subject before 11:59PM CST on January 16, 2022: <Your name> earned 15 bonus points for reading thoroughly.

STUDENT LEARNING OUTCOMES:

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

- Identify and discuss the discovery approach to teaching/ learning science and math.
- Discuss and explain major concepts in math and science to for appropriate inclusion in the early childhood program
- Develop, plan and implement exploration activities in science and math.

- Describe and develop an operation plan for the coordination of field trips and special events to community resources
- Describe how the science, math, and social studies skills acquired in early childhood are the foundation for the skills taught in the elementary grades.
- Demonstrate how children naturally learn science and math through an integrated approach b question, probing, investigating, problem solving and exploration.
- Report on various approaches or methods of teaching math and science in other countries.

MEANS FOR ASSESSING STUDENT ACHIEVEMENT OF THE OUTCOME COMPETENCIES:

- Completion of chapter review questions
- Completion of tests (open book, timed, not proctored) that will be administered through Blackboard
- Develop lesson plans using the required lesson plan template
- Develop guidelines for field trips and community resources
- Participation in discussion board questions posted in Blackboard with significant, thorough responses that indicate that research, reflective thinking and practical experiences on textbook and related topics (two separate due dates for each topic: one for the original response, and one for responses to classmates' posts)

ATTENDANCE POLICY:

Online Students – Students are expected to participate in all required instructional activities in their courses. Online courses are no different in this regard; however, participation must be defined in a different manner.

1. Student "attendance" in an online course is defined as active participation in the course as described in the course syllabus. Instructors in online courses are responsible for providing students with clear instructions for how they are required to participate in the course. Additionally, instructors are responsible for incorporating specific instructional activities within their course and will, at a minimum, have weekly mechanisms for documenting students' participation. These mechanisms may include, but are not limited to, participating in a weekly discussion board, submitting/completing assignments in Blackboard, or communicating with the instructor.
2. Students aware of necessary absences must inform the professor with as much advance notice as possible in order to make appropriate arraignments. To earn 15 bonus points for reading the syllabus carefully, send the instructor and email with the following subject before 11:59PM CST on January 16, 2022: <Your name> earned 15 bonus points for reading thoroughly.
3. Any students absent 25 percent or more of the online course, i.e., non-participatory during 2 or more weeks of an 8-week term, may received an F for that course. Instructors may also file a Report of Unsatisfactory Progress for students with excessive non-participation.
4. Any student who has not actively participated in an online class prior to the census date for any given term is considered a "no-show" and will be administratively withdrawn from the class without record. To be counted as actively participating, it is not sufficient to log in and view the course. The student must be submitting work as described in the course syllabus.
5. Additional attendance and participation policies for each course, as defined by the instructor in the course syllabus, are considered a part of the university's attendance policy.

Instructor's Additional Policies: All assigned work must be submitted when due. Late work may not be accepted unless previous arrangements/notification has been made. If accepted late, point value may be reduced. **Discussion board responses are not accepted late.**

Instructor's note: The advantage of online learning is the asynchronous environment. In other words, class time is at the student's convenience. Along with this convenience comes a tremendous responsibility. They students must be organized and self-motivated to stay current with all assignments. The management software in Blackboard allows tracking the time that the students log in and participate. All assignments have deadlines for submission. Students who choose to work ahead and submit assignments early are welcome to do so, but understand that you likely will not receive a grade of feedback until after the assignments' due dates.

EVALUATION: University Grading System:

EVALUATION: University Grading System (see Catalog)			A grade of "CR" indicates that credit in semester hours was granted but no grade or grade points were recorded.
A	90-100	Cr for Credit	*****A grade of incomplete is changed if the work required is completed prior to the date indicated in the official University calendar of the next long term, unless the instructor designates an earlier date for completion. If the work is not completed by the appropriate date, the **I** is converted to the grade of **F**. An incomplete notation cannot remain on the student's permanent record and must be replaced by the qualitative grade (A-F) by the date specified in the official University calendar of the next regular term.
B	80-89	NCR No Credit	
C	70-70	I Incomplete*	
D	60-69	W for withdrawal	
F	below 60	WP Withdrawal Passing	
		WF Withdrawal Failing	
		X No grade given	
		IP In Progress	

Course Grading Criteria:

Scoring Rubrics: Scoring rubrics for assignments will be available.

Evaluation:

Course grade will be determined by using the following point system:

Course Scoring System

Assignment	Possible	Earned
6 Discussion Board (20 pts. each)	120	
Project	60	
Chapter Review Questions (10 pts. per chapter)	120	
Test #1	75	
Test #2	75	
Test #3	75	
Test #4	75	
TOTAL	**600**	

A = 550-600 pts.
B = 500-549 pts.
C = 450-499 pts.
D = 400-449 pts.
F = 399 pts. and below

ACADEMIC HONESTY: University students are expected to conduct themselves according to the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination

materials, forgery, or plagiarism. Disciplinary action for academic misconduct is the responsibility of the faculty members assigned to the course. The faculty member is charged with assessing the gravity of any case of academic dishonesty and with giving sanctions to any student involved. Penalties may be applied to individual cases of academic dishonesty; see catalog for more information about academic dishonesty.

PLAGIARISM: The attempt to represent the work of another, as it may relate to written or oral works, computer-based work, mode of creative expression (i.e. music, media or the visual arts), as the product of one's own thought, whether the other's work is published or unpublished, or simply the work of a fellow student.

When a student submits oral or written work for credit that includes the words, ideas, or data of others, the source of that information must be acknowledged through complete, accurate, and specific references, and, if verbatim statements are included, through use of quotation marks as well. By placing one's name on work submitted for credit, the student certifies the originality of all work not otherwise identified by appropriate acknowledgements. A student will avoid being charged with plagiarism if there is an acknowledgement of indebtedness."
Source: http://www.spjc.cc.fl.us/webcentral/admit/honesty.htm#plag

DISABLED PERSONS: It is University policy that no otherwise qualified person with disabilities be excluded from participation in, be denied the benefits of, or be subject to discrimination under any educational program or activity in the University. It is the responsibility of the student to disclose and to provide documentation pertaining to the disability so that appropriate modifications may be made.

GRADE APPEAL STATEMENT: Students shall have protections through orderly procedures against prejudices or capricious academic evaluation. As student who believes that he or she has not been held to realistic academic standards, just evaluation procedures, or appropriate grading, may appeal the final grade given in the course by using the students grade appeal process described in the Academic Catalog. Appeals may not be made for advances placement examinations or course bypass examinations. Appeals are limited to the final course grade, which may be upheld, raised, or lowered at any stage of the appeal process. Any recommendation to lower a course grade must be submitted through the Vice President of Academic Affairs/Faculty Assembly Grade Appeals Committee for review and approval. The Faculty Assembly Grade Appeals Committee may instruct the course grade be upheld, raised or lowered to a more proper evaluation.

COURSE CALENDAR

This course calendar is subject to change. If any changes are made, they will be in the students' favor by extending due dates/times for some assignments/tests in order to allow for more time in some circumstances.

WEEK	DATE	ASSIGNMENTS TO DO THIS WEEK	TEXTBOOK READING FOR THE WEEK	ASSIGNMENTS DUE THIS WEEK Original posts on Discussion Board (DB) are due on Fridays, at 11:59 PM CST Responses to classmates' posts are due on Sundays, at 11:59 PM CST Tests, Chapter Review Questions (RQ) and the Project are due on Sundays at 11:59 PM CST
1	01/10-01/16	Read the Syllabus DB#1, RQ#1, RQ#2	Ch. 1 & 2	DB#1, RQ#1, RQ#2
2	01/17-01/23	DB#2, DB#3, RQ#3, RQ#4	Ch. 3 & 4	DB#2, DB#3, RQ#3, RQ#4
3	01/24-01/30	TEST#1, DB#4, RQ#5, RQ#6,	Ch. 5 & 6	TEST#1, DB#4, RQ#5, RQ#6,
4	01/31-02/06	TEST#2, RQ#7, Begin project	Ch. 7	TEST#2, RQ#7
5	02/07-02/13	DB#5, RQ#8, RQ#9	Ch. 8 & 9	DB#5, RQ#8, RQ#9
6	02/14-02/20	TEST#3, RQ#10, RQ#11	Ch. 10 & 11	TEST#3, RQ#10, RQ#11
7	02/21-02/27	DB#6, RQ#12	Ch. 12	DB#6, RQ#12, Project
8	02/28-03/05	TEST#4		TEST#4