ECED 2385 - Math and Science in Early Childhood
3 Credit Hours

Course Description:

Math and Science in Early Childhood is a course covering the standards, principles, and practices in teaching mathematics and science to young children ages birth through eight. The course emphasizes developing an integrated math and science curriculum that includes appropriate content, processes, environment and materials, and child-centered choices. Field experience is required.

Course Outcomes:

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

1. Identify learning outcomes for young children in math and science. (1a, 5c)
2. Identify standards for math and science instruction and programming in early education settings. (5c, 6d)
3. Identify appropriate individual child assessment methods in math and science learning. (3b)
4. Discuss how technology can be integrated to support development of math and science in the curriculum. (4b, 5b, SS5)
5. Design, implement, and evaluate science inquiry experiences for children in an integrated, research-based curriculum. (1c, 4b, 4c, 4d, 5a, 5b)
6. Design, implement, and evaluate math experiences for children that support the development of learning outcomes. (1c, 4b, 4c, 4d, 5a, 5b)
7. Identify effective strategies for involving families in supporting math and science for young children. (2c)

NAEYC Standards for Early Childhood Professional Preparation:

The following standards from the National Association for the Education of Young Children are addressed in this course and are linked above to course outcomes:

Standard 1: Promoting Child Development and Learning

1a. Knowing and understanding young children's characteristics and needs, from birth through age eight.

1c. Using developmental knowledge to create healthy, respectful, supportive, and

challenging learning environments for young children.

Standard 2: Building Family and Community Relationships

2c. Involving families and communities in young children's development and learning.

Standard 3: Observing, Documenting, and Assessing to Support Young Children and Families

3b. Knowing about and using observation, documentation, and other appropriate assessment tools and approaches, including the use of technology in documentation, assessment and data collection

Standard 4: Using Developmentally Effective Approaches

4b. Knowing and understanding effective strategies and tools for early education, including appropriate uses of technology

4c. Using a broad repertoire of developmentally appropriate teaching/learning approaches.

4d. Reflecting on own practice to promote positive outcomes for each child.

Standard 5: Using Content Knowledge to Build Meaningful Curriculum

5a. Understanding content knowledge and resources in academic disciplines: language and literacy; the arts – music, creative movement, dance, drama, visual arts; mathematics; science, physical activity, physical education, health and safety; and social studies.

5b. Knowing and using central concepts, inquiry tools, and structures of content areas or academic disciplines.

5c. Using own knowledge, appropriate early learning standards, and other resources to design, implement, and evaluate developmentally meaningful and challenging curriculum for each child.

Standard 6: Becoming a Professional

6d. Integrating knowledgeable, reflective, and critical perspectives on early education

Supportive Skills

5. Skills in identifying and using professional resources.

Prerequisites and Corequisites:

ECED 2315 - Early Childhood Curriculum is required.

Course Topics:

- Introduction to Math and Science for Early Childhood
- Standards and Assessment
- Science Inquiry Processes
- 3 Areas of Science: Life Science, Physical Science, & Earth and Space Science
- Planning an Indepth Science Study
- 5 Areas of Mathematics: Number Concepts, Geometry, Algebra, Measurement, & Displaying and Analyzing Data
- Home-School Connections

Specific Course Requirements:

The student must have access to young children (several children within the age range of birth through eight.) in order to complete field work assignments. This can be informal settings such as family or relatives, but preferably access to an early childhood program such as a child care center. The student must have a working knowledge of how to operate in the online environment.

Required Textbooks:

Please visit the Virtual Bookstore to obtain textbook information for this course. Move your cursor over the "Books" link in the navigation bar and select "Textbooks & Course Materials." Select your Program, Term, Department, and Course; then select "Submit."

Supplementary Materials:

Tennessee Early Learning Developmental Standards

Tennessee Department of Education Curriculum Standards for Mathematics K-12

Tennessee Department of Education Curriculum Standards for Science K-12

Regarding software, it is recommended that you have Microsoft Word on your computer in order to submit your assignments; this is not a free program. If you write your assignment in any other program, you will need to save them as RTF (Rich Text Format) files. You will also need to have the following free programs on your computer: Adobe Reader, Adobe Flash Player, Real Player, and Quicktime. Free downloads are available for the these free programs at Adobe.com and Quicktime.com and Real Player.com. All assignments must be submitted in MS Word or RTF format.

Hardware and Software Requirements:

Minimum hardware requirements can be found here.

Minimum software requirements can be found here.

Common applications you might need:
To read a PDF file download the latest version of Adobe Reader here
Don't have Microsoft Word? Explore an alternative OpenOffice here
Accessing a PowerPoint file? Download the PowerPoint Viewer here

Web Resources:

Purdue OWL Online Writing Lab (for APA, MLA, or Chicago style)

The Writing Center Online Writer's Handbook

Student Resources:

- Technical support information can be found on the TN eCampus Help Desk page.
- Smarthinking virtual tutoring is available **FREE** of charge. to access Smarthinking, visit the course homepage and select Smarthinking under Course Resources. You also view sample sessions to see what Smarthinking offers and how it works.
- Information on other student issues or concerns can be located on the TN eCampus Student Resources page.

Instructor Information:

Please see "Instructor Information" in the Getting Started Module for instructor contact information, virtual office hours, and other communication information. You can expect to receive a response from the instructor within 24-48 hours unless notified of extenuating circumstances.

Testing Procedures:

Learning outcomes in this course are assessed through Fieldwork, Discussion, Major Projects (2), and Midterm and Final Exams. Your grade will consist of points earned for each of these assessments.

Modules Format
The course is designed in Module format on the Content page. The Module activities include a set of experiences and assignments to support your active learning and engagement with the content. You are expected to work through and complete each item in each module. The modules are presented in an asynchronous format, meaning that you are able to work on your class readings and assignments at your own time and place. You do not have to be online at any particular time during the week. However, there are important weekly deadlines you must meet! You must adhere to the schedule in terms of completing and turning in assignments. There is one Getting Started Module to complete in the beginning. After that, you will usually have one Content Module to complete each week. (Summer terms may have 2 modules during a week since the summer term is condensed).

Module Assignments
You are expected to FULLY participate in each module before you attempt the Module Assignments. .You are expected to read and study EACH module topic under Course Content. AFTER you completely study the module information, read readings, view videos and presentations and explore the websites offered, you will THEN complete Module Assignments. You will complete module assignments consisting of fieldwork (book reviews and learning experiences), and discussion with classmates. Your module assignments may not be graded

until you have fully participated in the module content, under Course Content. Full participation in Content means you have read and studied All content topics in the module.

All assignments are due on Sunday evenings at 11:59 p.m. Central Standard Time. Most Sundays you will have Module assignments due, but there are other projects and exams also due throughout the semester. Use the Calendar and Class Schedule (in Getting Started Module) to keep you up to date.

Please plan your schedule so that last-minute technical difficulties will not prevent you from meeting those dates.

Fieldwork with Children

Learning about early childhood education requires you to interact and engage with young children, families, and teachers throughout the ECED coursework. Some of the fieldwork assignments require you to engage in activities with young children. (See specific instructions on assignments.) The student must have access to young children (several children within the age range of birth to eight) in order to complete fieldwork assignments. This can be in informal settings such as family or relatives homes, but it is preferable, if possible, to do these experiences in an early childhood program such as a child care center or family child care home. These experiences require the student to be in the "teacher" role; thus, it is not acceptable to do these with your own children. Contact your home college advisor and/or instructors if you need help in locating local resources for your fieldwork. Your “home” college is familiar with your local community and options available. Your instructor may be from a different part of the state and cannot offer suggestions in your local area.

Grading Procedures:

Exams

There are two exams to be taken online and are timed. You do NOT have to go to a campus to take the exam. Only one attempt is allowed on the exam. Exams cannot be taken late.

Projects

Two individual projects are required for this course: Science Tray and Science Study Project. You are required to submit both of these projects to receive a passing grade in this course. If you fail to turn in one of these, you will receive an F for the course. These are major assessments in the course that demonstrate your knowledge and skill in teaching math and science in early education; completion of these are mandatory for passing the course.

Instructions and Grading Rubrics

Detailed instructions and grading criteria (grading rubrics) are provided for each major assignment. The grading rubrics will be used to award points earned for student work. It is expected that students follow instructions carefully, study the grading criteria, and ask questions if they do not understand an assignment. For some assignments, you will be required to complete the grading rubric as a self-grading component of the assignment. The

purpose of this self-grading is to focus your attention on the expectations for the assignment and enhance your own self-evaluation and critical thinking skills. Even though you may submit a self-scored rubric, the instructor will make the final determination on all grades and scores.

The instructions and Rubrics are provided for major projects and weekly assignments under Getting Started Module. You will want to review these rubrics before you submit your assignments to make sure you are meeting the grading criteria. Also detailed instructions for assignments are found under each Assignment Dropbox. The easiest way to make sure you have completed all required activities is to follow each link in the Course Content area and submit assignments, discussions, tests, and projects by the due dates. Refer to the Syllabus for specifics on grading criteria and points for assignments, projects, and exams.

Assignment Expectations

All assignments except exams and discussion postings must be submitted through the Dropbox tool. Do not send assignments through email. Students must submit assignments in Microsoft Word format or Rich Text Format (RTF) using 10 or 12 point font. Spelling, punctuation, grammar, and sentence structure will be taken into consideration in grading all assignments. Assignments should reflect college-level work. Points will be deducted for numerous errors.

Testing Procedures

Testing will be completed online within the Course Management System. Exams must be taken by the due date. The exams do NOT require a proctor and can be taken at your own computer.

Grading Turn-Around

In general, assignments submitted on time will be graded within 7-10 days of submission due dates. You will be notified if there is a need to vary this schedule. Assignments submitted late will be graded by the end of the course.

Late Assignments

If you miss a deadline and wish to submit late work, you have up to ONE week beyond the due date to submit the assignment, but no later. Late work will have 10% deduction in points taken off the grade. Submit late work to the appropriate Assignment dropbox. Once the Assignment box is closed, you can no longer submit. Do not send through email. Assignments submitted late will be graded by the end of the semester term.

You should deliver assignments in Central Standard time or Central Daylight Savings time

(whichever is applicable). Assignments are due on Sunday evenings, 11:59 p.m.

Questions or Concerns about Grading

Any time you have a question as you progress through the course, please contact me by phone, email, or in person. My contact information is on the course homepage and the Instructor Contact Information page. To email me, please use the email in our course to contact me regarding course questions. Click on the Classlist link and then select the Teacher tab. Select the box next to the instructor's name (a checkmark will display). Click the envelope (below the name), key your message, and click send. If that email is unavailable, you may contact me at my outside email listed under Instructor Information. Please feel free to ask questions, and I will do my best to get back with you in an efficient manner.

Points System for Grading

Assessment Item	Points for Each Item	Total Points	Approximate Percentage
Getting Started Activities	15 points for Getting Started Module (including quiz)	35 points	6%
Fieldwork	15-25 points per module (9 fieldwork assignments)	195 points	33%
Discussion Participation	5 points per module (10 discussion topics)	50 points	9%
Science Tray Project	(1) project worth 100 points	100 points	17%
Science Study Project	(1) project worth 100 points	100 points	17%
Midterm Exam	50 points	50 points	9%
Final Exam	50 points	50 points	9%
Mid-term Feedback	5 points (BONUS--Extra Credit)		Extra Credit
TOTAL POINTS		580 points	100%

Grading Scale:

Grading Scale Percentages : Final grades are based on the following scale.

Percentage	Class Points	Grade
90 - 100%	522 - 580	A
80 - 89%	< text-align: center;">464 - 531	B
70 - 79%	< text-align: center;">406 - 463	C
60 - 69%	< text-align: center;">348 - 405	D
0 - 59%	< text-align: center;">Below 348	F

Assignments and Projects:

Assignments and Projects have been explained above. A sequenced list of assignments and projects module with due dates is available in the Checklist inside the course.

Class Participation:

Students must participate in all interactive aspects of the course. For example, students must communicate with other students through email, students are expected to communicate with the instructor as a learning resource, students must check the course news items on homepage frequently for announcements, and students must actively participate in threaded discussion events. Below outlines additional expectations related to "attendance."

1. Students are expected to participate in the course at least 3 times each week. Participation is defined as: reading email, posting discussion, reading content pages, and/or uploading assignments, etc. The instructor will be monitoring this participation.
2. Students are expected to respond to the instructor's e-mails.
3. Students are expected to contact the instructor with any problems.
4. Students are expected to participate in module discussions. Each student must post an original answer to the discussion topic listed for each module and reply to at least two

of the other students' postings
5. NOTE: Your module assignments may not be graded until you have fully participated in the module content, under Course Content.

Late Policy:

Each week of the course has specific elements that need to be accomplished in that week. Each week's assignment builds on the materials in the previous weeks. Therefore, you should work on the material in the order given in the schedule of assignments. There are no specific days or times that you need to participate. You can work on this course at a time of day best suited to your needs. The detailed due dates for the assignments are listed in the calendar and checklist for the course.

See the "LATE ASSIGNMENTS" policy above under Assessment and Grading. You are encouraged to turn in all assignments on time to avoid reduction in grading points.

Course Ground Rules:

The following two statements (1., 2.) were derived from the TBR System-wide Student Rules document, released January 2012:

RULES OF THE TENNESSEE BOARD OF REGENTS STATE UNIVERSITY AND COMMUNITY COLLEGE SYSTEM OF TENNESSEE SYSTEMWIDE STUDENT RULES CHAPTER 0240-02-03 STUDENT CONDUCT AND DISCIPLINARY SANCTIONS

Read the document in its entirety here.

1. Standards of Conduct:

- Students are required to adhere to the same professional, legal and ethical standards of conduct online as on campus. In addition, students should conform to generally accepted standards of "netiquette" while sending e-mail, posting comments to the discussion board, and while participating in other means of communicating online. Specifically, students should refrain from inappropriate and/or offensive language, comments and actions.

2. Review the TN eCampus Academic Integrity/Academic Honesty Policy**:**

- In their academic activities, students are expected to maintain high standards of honesty and integrity. Academic dishonesty is prohibited.

Such conduct includes, but is not limited to:

- an attempt by one or more students to use unauthorized information in the taking of an exam
- to submit as one's own work, themes, reports, drawings, laboratory notes, computer programs, or other products prepared by another person,
- or to knowingly assist another student in obtaining or using unauthorized materials.

Plagiarism, cheating, and other forms of academic dishonesty are prohibited.

Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are subject to disciplinary action through the regular procedures of the student's home institution. Refer to the student handbook provided by your home institution to review the student conduct policy.

In addition to other possible disciplinary sanctions that may be imposed, the instructor has the authority to assign an "F" or zero for an activity or to assign an "F" for the course.

Other Course Rules:

Students are expected to:

- Participate in all aspects of the course
- Communicate with other students
- Learn how to navigate in Brightspace
- Keep abreast of course announcements
- Use the assigned course management (Brightspace) email address rather than a personal email address
- Address technical problems immediately:
    - Contact Technical Support
    - View Term Calendar here
- Observe course netiquette at all times.

Guidelines for Communications:

Email:

- Always include a subject line.
- Remember without facial expressions some comments may be taken the wrong way.

Be careful in wording your emails. Use of emoticons might be helpful in some cases.
- Use standard fonts.
- Do not send large attachments without permission.
- Special formatting such as centering, audio messages, tables, html, etc. should be avoided unless necessary to complete an assignment or other communication.
- Respect the privacy of other class members

Discussions:

- Review the discussion threads thoroughly before entering the discussion. Be a lurker then a discussant.
- Try to maintain threads by using the "Reply" button rather starting a new topic.
- Do not make insulting or inflammatory statements to other members of the discussion group. Be respectful of other's ideas.
- Be patient and read the comments of other group members thoroughly before entering your remarks.
- Be cooperative with group leaders in completing assigned tasks.
- Be positive and constructive in group discussions.
- Respond in a thoughtful and timely manner.

Library:

The Tennessee Virtual Library is available to all students enrolled in TN eCampus programs and courses. Links to library materials (such as electronic journals, databases, interlibrary loans, digital reserves, dictionaries, encyclopedias, maps, and librarian support) and Internet resources needed by learners to complete online assignments and as background reading will be included within the course modules. To access the Virtual Library, go to the course homepage and select the ***Virtual Library*** link under Course Resources.

Students with Disabilities:

Qualified students with disabilities will be provided reasonable and necessary academic accommodations if determined eligible by the appropriate disability services staff at their home institution. Prior to granting disability accommodations in this course, the instructor must receive written verification of a student's eligibility for specific accommodations from the disability services staff at the home institution. It is the student's responsibility to initiate contact with their home institution's disability services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Disclaimer

The information contained in this syllabus is for general information purposes only. While we endeavor to keep this information up-to-date and accurate, there may be some discrepancies between this syllabus and the one found in your online course. The syllabus of record is the one found in your online course. Please make sure you read the syllabus in your course at the beginning of the semester. Questions regarding course content should be directed to your instructor.