**Auburn University Course Syllabus**

**Course Number:** CTEC 3020

**Course Title:**  Primary Math and Science

**Credit Hours:** 3 semester hours

**Prerequisites:** Admission to Early Childhood Teacher Education, Completion of CTEC 3030/4911 and CTEC 3200/4200

**Co-requisites:** CTEC 4912

**Instructor:** Angela Love, Ph.D., Early Childhood Education Program Coordinator

**Office:** 5018 Haley Center

E-mail: angela.love@auburn.edu

Office Hours: **Tues. 3:30-4:30 pm, Wed. 1:30-3:30; by appointment**

***Email communication is best for more prompt response; email for appointment during or outside of office hours***

**Required Texts:**

(a) *Number Talks* by Sherry Parrish & published by Math Solutions.

(b) *Integrating Math and Science in Early Childhood Classrooms Through Big Ideas: A Constructivist Approach*, by Chaille & Davis;

*(c) Patterns of the Universe: A Coloring Adventure in Math and Beauty*

(d) Whitin, D. J., & Whitin, P. (2014). *New visions for linking literature and mathematics.* Urbana, IL: National Council of Teachers of English.

(e) Reggio-Inspired Mathematics, by Richmond School District, Sep 3, 2015.

(f) *MATH AND LITERATURE, GRADES K-1*

9780941355667

BY SHEFFIELD, STEPHANIE

PUBLISHED BY MATH SOLUTIONS

PUBLICATION DATE: JUL. 30, 2004

(g) ***MATH AND LITERATURE, GRADES 2-3***

9780941355674

BY BURNS, MARILYN

PUBLISHED BY MATH SOLUTIONS

PUBLICATION DATE: AUG. 31, 2004

*You are required to have a* ***composition notebook*** *for your math journal and science notebook.*

*Required reading includes articles posted to Canvas. All readings will be announced on Canvas and provided whenever possible (in Files).*

\***Important Websites:**

**\*You will be expected to use these websites as resources for assignments and teaching, both in-class and for practicum.**

**Investigations in Number, Data, & Space**

* curriculum & the CCSS:<https://investigations.terc.edu/CCSS/>
* online games/activities. K-1**:** <http://investigations.terc.edu/library/Games_K1.cfm>
* online games/activities, 2-3**:** <http://investigations.terc.edu/library/Games_23.cfm>
* games/activities to do offline: <http://investigations.terc.edu/families/doing_math/books_and_resources/>
* Investigations support resources (number talks, blackline masters, CCSS, math links, etc): <https://sites.google.com/site/get2mathk5/home/investigations-support>
* Illuminations: <http://illuminations.nctm.org>
* Blackines: <https://sites.google.com/site/get2mathk5/home/templates-graphic-organizers>

**Professional Development - inside mathematics (problem of the month by grade level, video:** <http://insidemathematics.org>

**Math Dictionary for Kids:** <http://www.amathsdictionaryforkids.com/dictionary.html>

**Next Generation Science Standards**

* A Framework for K-12 Science Education: <https://www.nap.edu/download.php?record_id=13165#>

**Children & Nature Network:** <http://www.childrenandnature.org>

**Engineering Toys for Girls**

* GoldieBlox (Debbie Sterling, founder) website: <http://www.goldieblox.com/pages/about>
* GoldieBlox YouTube Channel: <https://www.youtube.com/channel/UCJUn6QmXuFV9CkuJB9T7F_w>

**Academic Language**

* New Teacher Center Oral Language Development: <http://old.newteachercenter.org>

**Other** **Useful Websites**

National Association for the Education of Young Children: <http://www.naeyc.org>

National Council of Teachers of Mathematics (NCTM): [http://www.nctm.org](http://www.nctm.org/)

National Science Teachers Association (NSTA): <http://www.nsta.org>

National Council of Teachers of English (NCTE): <http://www.ncte.org>

Alabama Math, Science, and Technology Initiative: <http://www.amsti.org>

Alabama State Department of Education: http://www.alsde.org

American Montessori Society: <http://www.amshq.org>

North American Montessori Teachers Association: <http://www.montessori-namta.org>

**COURSE DESCRIPTION**

This course is to provide pre-service teachers opportunities to be more knowledgeable and practical in early childhood (Pre-K, K-3rd grade) curriculum and instruction in the areas of mathematics and science. Pre-service teachers will have a better understanding of children’s learning and development, curriculum development, and instructional methods. Based on their understanding of early learning standards as well as aforementioned areas, pre-service teachers will apply their knowledge to designing, implementing, and evaluating the interdisciplinary curriculum. In addition, through hands-on activities and teaching demonstrations, they will also develop effective teaching strategies working with young children that can be used in their future classrooms.

**COURSE objectives**

Upon completion of the course, students will be able to:

1. Identify important mathematics /science content, process skills, and attitudes appropriate to young children. (NAEYC Standard 1b, 4a, 4b, 4c, & 4d)
2. Become acquainted with the principles and elements of curriculum development (e.g., goal setting, planning, implementing, and assessing curriculum) in mathematics and science. (NAEYC Standard 1a, 1b, 1c, 4b, 4c & 4d)
3. Develop an understanding that early childhood curriculum is an integrated curriculum, and that children’s learning in mathematics and science takes place in integrated learning experiences with concrete materials in a variety of contexts. (NAEYC Standard 4c)
4. Design, implement, and evaluate developmentally appropriate curricular content, strategies, and instructional materials, and reflect on their performance. (NAEYC Standards 1a, 1b, 1c, 4b, 4c, & 4d)
5. Understand how to record, report, and evaluate development level of young children through naturalistic/performance-based assessment and utilize developmentally appropriate assessment and reporting techniques. (NAEYC Standards 3a, 3b, & 3c)

**Auburn College of EDUCATION-CONCEPTUAL FRAMEWORK**

Competent

Competent professionals demonstrate the knowledge and skills needed to facilitate the learning of the individuals they serve. Their competence enables them to model and promote active, collaborative, and ongoing learning. Their efforts are enhanced by their abilities to foster learning communities that are safe, stimulating, and enriched with diversity; engage in reasoned and purposeful decision making; and implement their professional practices in proactive, flexible, and self-regulating ways.

We recognize that the development of professional competence is linked to levels of preparation and experience. We also acknowledge that competence continues to develop over the course of an entire career.

Committed

Committed professionals make reasoned decisions based on thoughtfully constructed values. As a College, we strive to nurture values that support the learning of all people, honor diversity, protect the integrity of learning, and expand the scholarship of our professions. We view these values as professional dispositions, and we define them as filters for responsible decision-making. Our College emphasizes the conscious development of commitments related to professional responsibilities and ethics, collaboration, diversity, and intellectual vitality.

Reflective

We choose to frame reflection as a critical and pervasive habit of mind that permeates and fuels the ongoing expansion of competence and the continued development of reasoned commitments. Reflective professionals subject their own competencies and commitments to continuous scrutiny as they systematically monitor the impact of their professional practices on the individuals they serve and make adjustments as needed. Thoughtful reflection emphasizes reviewing and analyzing past practices in ways that influence and improve future practices. This stance inspires self-initiated professional growth and results in increased capacities for addressing the complexities and dilemmas situated within the work of educational and human services professionals.

**COURSE REQUIREMENTS**

1. **Math Journal/Notebook of Lessons, Ideas, Weekly Reflections, & Weekly observations** **(25 Points):**

* note-taking on readings, class discussions, watching videos in- & outside of class
* in-class reflections on assignments and as assigned each day
* story making process for Stories Matter: book-making culminating project
* weekly documentation of observations in nature, your square yard of quiet sitting and observing & reflecting on patterns in nature to be continued during practicum, all semester
* weekly reflection on your coloring in *Patterns of the Universe: A Coloring Adventure in Math and Beauty*
* Forest Friends
* practicum

1. **Number Talks IN-CLASS Discussion Leader (in pairs)/triplets (15 points).**

To be done in class with 2 other peers, up to 3 per group. Submit any notes (typed) and templates used (dots for subitizing, 10-frames that are filled-in as the provocation) for NTs in class. Must connect with children's book.

**3. In Groups Chapter Presentations:** Each will present one chapter to the rest of the class. Each presentation must (please see rubric on Canvas for qualitative differences in points).

**4. Culminating Provocation** (individually prepared/presented): Each student will be responsible for planning and presenting a Reggio-inspired math and science provocation that is connected to a children’s book. You should draw inspiration from Janice Novakowski’s text *Reggio-Inspired Mathematics*. The provocation will be set up and displayed in class. This provocation may then be used in your practicum classroom. The criteria should be carefully considered and included in your provocation simulation (see Canvas).

**5. Stories Matter: Book-making.**

* 1. **photo gathering -** take 10 or more original photos of important places in your life now, your community, your favorite places on trails or land and/or in the woods, or other important places - bring them to class.
  2. **participate in class provocation by instructor**
  3. **Integrate your ideas and learning from this process into your own story.**
     + - it must be fictional, with any information presented accurately and authentically
       - it must have at least one character
       - it must have a problem or process or journey
       - see rubric on Canvas

**GRADES**

**A = 91-100%, B = 81-90%, C=71-80%, D=61-70%, F=60% or below.**

**Class Policy Statements**

Participation: Students are expected to participate in all class discussions and participate in all exercises. It is the student’s responsibility to contact the instructor if assignment deadlines are not met. Students are responsible for initiating arrangements for missed work.

Attendance/Absences: Attendance is required at each class meeting. If an exam is missed, a make-up exam will be given only for University-approved excuses as outlined in the [Student Policy eHandbook](http://www.auburn.edu/student_info/student_policies/#http://www.auburn.edu/student_info/student_policies/). Arrangement to take the make-up exam must be made in advance. Students who miss an exam because of illness need a doctor’s statement for verification of sickness and should clear the absence with the instructor the day they return to class. Other unavoidable absences from campus must be documented and cleared with the instructor in advance. **Each unexcused absence** will result in 5 points deducted from the class participation grade. **Tardy arrivals** will result in 2 point deducted from the class participation grade. If points from absences and tardy arrivals exceed the 20 points allotted for class participation, the points will be taken from the final total. **Three unexcused absences may result in a teacher candidate being dropped from the program**.

Accommodations: Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT). See <https://fp.auburn.edu/disability/faculty/syllabus.asp>

Honesty Code: The University Academic Honesty Code and the [Student Policy eHandbook](http://www.auburn.edu/student_info/student_policies/#http://www.auburn.edu/student_info/student_policies/) Rules and Regulations pertaining to Cheating and Plagiarism will apply to this class. See <https://sites.auburn.edu/admin/universitypolicies/Policies/AcademicHonestyCode.pdf>

Professionalism: As faculty, staff, and students interact in professional settings, we are expected to demonstrate professional behaviors as defined in the College’s conceptual framework. These professional commitments or dispositions are:

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| --- |
| 1. Creates a caring and supportive learning environment and encourages self-directed learning by ecah student.. |
| 2. Demonstrates behaviors that are consistent with the ideals of fairness and the belief that all students can learn. |
| 3. Demonstrates, models, and exemplifies a commitment to diversity. |
| 4. Engages in responsible and ethical professional practices (shows trustworthiness, nurtures professional relationships, maintains confidentiality regarding students and school matters). |
| 5. Demonstrates professionalism by being prepared, dressing professionally, communicating appropriately, and fulfilling attendance expectations. |
| 6. Shows respect for and cooperates with students, families, colleagues, and members of the community. |
| 7. Shows initiative and self-direction in classroom activities (e.g., organization and management of classroom, planning and implementation of instruction). |
| 8. Follows policy regarding use of digital tools and models digital citizenship and responsibility (e.g., the appropriate use of social media). |
| 9. Contributes to collaborative learning community, models and nurtures intellectual vitality, and demonstrates interest and enthusiasm for the profession. |
| 10. Accepts/acts on constructive criticism and suggestions in a professional way. |
| 11. Monitors and adjusts own professional dispositions as necessary. |
| 12. Reflects on and analyzes past practices to stimulate ongoing improvement for future practice. |

\*Mobile Device Policy: Smartphone use or text messaging or unapproved iPad/Tablet or laptop usage during the class session is viewed as extremely unprofessional and will result in an automatic loss of 5 points of **Class Participation and Professional Behavior grade points** (under COURSE REQUIREMENTS) **for the first occurrence; additional points will be deducted for repeated occurrences**. It is best that phones, iPads, and laptops not be visible during the class session to avoid any misunderstanding of their use.

APPENDIX

**Proposed Calendar**

*This calendar is subject to change based on the needs of the class, knowledge gained, and practice needed to master the concepts taught in this course. Dr. Love will make this determination and give adequate notice of any revisions made. Cohorts B & C both meet in Haley 2438 in the morning; B meets in 2442 and C in 2454 in the afternoon.*

\*\***Indicates Due Dates\*\***