

**Methods & Materials in Early Childhood I (62.410/510)**  
**3 Credits**                      **Monday 5:00-8:00 PM**

Dr. Frank D'Angelo (Instructor from January 25- March 1)

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**Office Hours:** Tues/Thurs: 7:00-7:45 AM  
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Dr. Ruth R. Kennedy (Instructor from March 15 – May 7)

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**Office Hours:** Mon: 3:35-4:50 PM (beginning 3/15/10)  
Tues: 3:35-4:50 PM (beginning 3/16/10)  
\*Additional hours by appointment

**Course Description:** The purpose of this course is to begin an inquiry into the teaching of math and science including both what to teach and how to teach it.

**Course Requirements:** The course requirements reflect the kinds of expectations required of professional teachers. These include prompt and regular attendance, responsive participation, written work completed in a professional manner and turned in promptly, use of higher-level cognitive abilities such as application, analysis, and synthesis, and a demonstrated commitment to teaching as a chosen career. *Tardiness, absences, leaving before dismissal, neglecting to follow instructions for assignments, late assignments, or inappropriate behavior in class (such as sleeping or text messaging) will reflect negatively in the final grade.*

Bloomsburg University is committed to the fundamental values of preserving academic honesty as defined in the Student Handbook. Students agree that by taking this course all required papers may be subject to submission for textual similarity review to **Turnitin.com** for the detection of plagiarism. All submitted papers will be included as source documents in the **Turnitin.com** reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin service is subject to the Terms and Conditions of Use posted on [Turnitin](http://Turnitin.com)'s website. *Please note it is considered a violation of academic honesty to submit an assignment in this course which has already been submitted in another course.*

**Syllabus subject to change at the discretion of the professor.**

**Course Objectives:**

- Describe strategies for fostering positive family/school partnerships.  
INTASC # 1-2, 9-10      DAN 1a -1b, 2b, 4c, 4d, 4e, 4f
- Design inquiry based, hands-on activities that support young children's construction of concepts and skills essential to a basic understanding of math and science. INTASC #1-9      DAN 1a-1f, 2a-2e, 3a-3e, 4a, 4b
- Explain how young children acquire knowledge by comparing the mental development theories of Piaget, Vygotsky, and Bruner  
INTASC #1-9      DAN 1a, 1b, 1d, 2b, 2e, 4a, 4e
- Explain how to implement a developmentally appropriate approach to assessment  
INTASC #8-9      DAN 1a-1c, 1f, 3d, 4b, 4c
- Develop activities to integrate mathematics and science together as well as with other areas of the curriculum  
INTASC #1-9      DAN 1a-1f, 2a-2e, 3a-3e, 4a, 4b, 4d, 4e
- Demonstrate skills for selecting appropriate materials for science and math instruction as well as for setting up a safe, healthy, and nurturing learning environment. INTASC #1-9      DAN 1a-1f, 2a-2e, 3a-3e, 4a
- Define key terms in science and math INTASC #1-9      DAN 1a-1f, 2a-2e, 3a-3e, 4a
- Relate theory to practice      INTASC #1-10      DAN 1a-1f, 4a, 4e, 4f
- Relate science & math to daily needs INTASC #1-10      DAN 1a-1f, 2d, 2e, 3a-3e, 4a, 4d, 4e, 4f
- Integrate technology into science and math instruction INTASC #1-9      DAN 1a-1f, 2a-2e, 3a-3e, 4b, 4e

**Required Textbook:**

Prairie, A. P. (2005). Inquiry into math, science, and technology for teaching young children. Clifton Park, NY: Delmar.

### Tentative Course Outline

Date	Topic(s)	Due	Required Readings
1/25	Child Development		(Chapters 2-3)
2/1	Inquiry	Geometry literature presentations #1-5	Chapters 1, 8, & 20
2/8	Classifying & Comparing	Measurement literature presentations #6-10	Chapter 7
2/15	Patterning & Fractions	<b>Math Journal Article</b>	Pages 239-244
2/22	Geometry & Measurement	Number sense literature presentations #11-15	Pages 244-263
3/1	Number Sense	<b>Math lesson plan</b>	Chapters 10 & 14
3/15	<b>Midterm Exam</b>		
3/22	Physical Science	<b>Science Journal article</b>	Chapter 16
3/29	Assessment & Earth Science	Physical science literature presentations #16-20	Chapters 4, 6, 9, & 17
4/5	Life Science & Technology	<b>Science lesson plan</b>	Chapters 11, 18, & 19
4/12	Family Involvement	Earth science literature presentations #21-25	
4/19	Learning Environment	Life science literature presentations #26-30	Chapters 5, 12, & 13
4/26	Learning centers	<b>Learning centers</b>	
5/3	<b>Virtual Assignment</b>	<b>Virtual Assignment</b>	
	<b>Final Exam - 6:30-8:30 PM</b>		

#### Attendance:

Students will earn 1 point (up to 11 points) for each class attended (not including 3/15, 4/26, or 5/3) and for excused absences (documented illness, participation in a university sponsored event, or death in the family). Tardiness, leaving before dismissal, or inappropriate behavior in class (such as sleeping or text messaging) will result in a loss of points.

#### Grading: (for more details see the individual rubrics)

Attendance	_____ out of 10 points
Journal article reviews (2)	_____ out of 20 points
Children's literature	_____ out of 10 points
Virtual assignment	_____ out of 10 points
Lesson plans (2)	_____ out of 20 points
Learning center (group project)	_____ out of 20 points
Mid Term and Final Exam	_____ out of 100 points

≥ 174 points = A	155-164 points = B	138-145 points = C
169-173 points = A-	150-154 points = B-	133-137 points = C-
165-168 points = B+	146-149 points = C+	125-132 points = D

**NOTE: Assignments turned in late will be docked 10% for every day they are late. APA format must be used for citations and bibliographies. All assignments must be typed, 1 1/2 spaced in 10 or 12 size font of Times New Roman with one inch margins.**

Assignments:

1. **Journal article review:** Teachers need to be lifelong learners. Reading professional journals is one way to go about this. On 2/15 and 3/22 each student will share a 5-minute summary of an article related to early childhood math or science education with his or her group. By these dates an at least one-page summary/reflection should be submitted through Blackboard. Suggested journals include Mathematics Teacher, Science Teacher, Childhood Education, and Young Children.
2. **Children’s literature presentation:** Once during the semester each of you will have an opportunity to read a picture book to the class and share how it could be used in a science or math lesson. One key message of this class is to read to your students every day and give them free time to read and write as well.
3. **Lesson plans:** Submit a math lesson plan by 3/1 and a science lesson plan by 4/5 for either **preschool or Kindergarten**. Lesson plans should identify the age level, standards, objectives, resources, introduction, development, accommodations, and closure. See the rubric for more detailed information.
4. **Learning center:** Groups of 2-3 students will each create an integrated math and science learning center appropriate for children ages 3-8. The learning center should exhibit the hands-on, minds-on philosophy. As the children cycle through your learning center, you will provide appropriate assistance. To sign up for a table contact Karen Roszel at the Bloomsburg Public Library (784-8584).
5. **Extra Credit:** Four points may be earned through submitting a copy of a valid ACEI membership card along with signatures by an officer documenting attendance at (at least) three meetings during the semester. Ten points may be earned by submitting documentation of participation as a SHARE tutor for 10 hours this semester (or other community service that involves working with children). No student may receive more than a total of ten points extra credit.

**LESSON PLAN RUBRIC**

	<b>1 point</b>	<b>½ point</b>	<b>0 points</b>
<b>Standards:</b>	State standards listed by number and letter, written out, and aligned with objectives.	State standards are listed by number and letter.	Standards are missing.
<b>Objectives:</b>	Lesson-specific, performance-based; written with 3 parts (condition, performance, and criterion)	Condition or criterion missing; performance is not assessable or unclear	Not specific; not performance-based; condition and criterion missing
<b>Introduction:</b>	Motivation is specifically described; appropriate for the purpose of the lesson; links to students’ interests	Motivational device is indicated, but not described	Motivational device is missing
<b>Lesson Elements:</b>	Usable by substitute teacher; learning activities support objectives and progress in a logical order	Unusable by substitute teacher; some learning activities do not support objectives and/or lack logical progression	Unusable by substitute teacher; learning activities do not support objectives and/or lack logical progression
<b>Differentiated Learning Activities:</b>	Strategies are specific and appropriate for diverse learners	Strategies support at least one type of diverse learner	No differentiated learning activities provided
<b>Resources &amp; Technology:</b>	Resources and technology integrated into the lesson are appropriate for the learners	Use of resources and technology is evident, but is not lesson-specific	No evidence of appropriate and available resources used.
<b>Formative Assessment:</b>	Described in detail and aligned with specific objectives	Assessment is not aligned with objectives	No evidence of assessment
<b>Approach:</b>	Lesson demonstrates a hands-on, minds-on philosophy ( <b>2 points</b> )	Lesson demonstrates a hands-on philosophy ( <b>1 point</b> )	Lesson is not hands-on or minds-on
<b>Interdisciplinary Connections:</b>	Logical, purposeful interdisciplinary connections are made	A “forced” interdisciplinary connection is made	No interdisciplinary connections are made.

### LEARNING CENTER RUBRIC

	4 points	2-3 points	0-1 point
<b><u>Integrates math and science:</u></b>	The activities infuse math and science concepts.	The activities adequately integrate math and science concepts.	Only math or science concepts are incorporated, not both.
<b><u>Exhibits hands-on, minds-on philosophy:</u></b>	Learning center activities give the student a variety of opportunities to explore, discover and create as well as use problem solving and critical thinking skills.	Learning center activities offer the student an opportunity to explore, discover and create as well use problem solving and critical thinking skills.	Learning center activities do not offer the student an opportunity to explore, discover and create or use problem solving or critical thinking skills.
<b><u>Developmental appropriateness:</u></b>	Learning center activities selected demonstrate outstanding understanding of age appropriateness	Learning center activities selected are age appropriate.	Learning center activities selected are not age appropriate..
<b><u>Presentation:</u></b>	Center is colorful; the presentation creates interest.	Center is neat	Center lacks color or is sloppy
<b><u>Variety:</u></b>	Activities allow students a variety of ways to practice and apply skills.	Activities allow students a couple of ways to practice and apply skills.	Activities give students one way to practice and apply skills.

### Journal Article Reflection

Criteria	2 points	1 point	0 points
<b>1. Summary</b>	Has fully anticipated reader questions in selecting information; summarizes content succinctly	Has anticipated most reader questions in selecting information; summarizes content but not succinctly	Has anticipated few reader needs in selecting information
<b>2. Reflection</b>	Provides a reaction that expands and reflects on the key ideas. Interesting ideas throughout	Provides a reaction that reflects on ideas although not all are key ideas. Interesting ideas in places	Summary and reflection are not balanced. Exploration of ideas superficial.
<b>3. Mechanics</b>	Very few or no faults with respect to spelling, punctuation, or grammar.	Occasional faults with respect to spelling, punctuation, or grammar.	Frequent errors with respect to spelling, punctuation, or grammar.
<b>4. Selection</b>	Professional journal article about science or math topic for early childhood	Covers a science or math topic for early childhood	Covers a science or math topic
<b>5. Length/ Citation</b>	Is at least one page long; citation is complete in APA format	Is at least ¾ of a page long; citation is incomplete	Less than ¾ of a page long; citation is missing

### CHILDREN'S LITERATURE RUBRIC

Criteria	2 points	1 point	0 points
<b>1. Selection:</b>	Selected text was well-written, engaging, and age appropriate	Selected text was reasonably well-written; would be of interest to most listeners	Selected text would not be of wide interest and appeal for the intended audience
<b>2. Voice:</b>	Reader's voice reflected tone, mood, and character traits found within the text	Reader's voice used effectively through most of the story	Reader missed opportunities to engage the audience through effective use of voice
<b>3. Pacing:</b>	Pacing complemented the text and encouraged active listening	Pacing of the reading kept most readers listening	Pacing of the reading was too fast or too slow
<b>4. Science/Math:</b>	Made a clear connection as to how this text could be effectively used for math or science	Made a connection between the text and math or science	Failed to make a connection of how to use the text in a math or science lesson
<b>5. Discussion board:</b>	Added the title of the book and the name of the author to the children's literature discussion board.		Failed to post the title and author on the children's literature discussion board.