

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: Teaching Science and Math

CODE NO. : ED 273 **SEMESTER:** 4

PROGRAM: Early Childhood Education

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DATE: Jan. 2006 **PREVIOUS OUTLINE DATED:** Jan. 2005

APPROVED:

	_____	_____
	DEAN	DATE

TOTAL CREDITS: 3

PREREQUISITE(S): ED 272

HOURS/WEEK: 3

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*For additional information, please contact the Dean,
School of Health and Human Services
(705) 759-2554, Ext. 2603*

I. COURSE DESCRIPTION:

This is an advanced methods course dealing specifically with math and science concepts and skills with emphasis on Piagetian theory. The focus of this course is familiarizing the students with classification and discovery systems applicable in child care settings.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. ***Research and translate fundamental principles of science and math into learning experiences for children.***

Potential Elements of the Performance:

- analyze Piaget's developmental stages of concept and skill development as it relates to math and science
- examine and interpret the fundamental principles of science and math
- research and plan science and math activities based on fundamental concepts and skills
- participate in an early years math workshop

2. ***Present comprehensive, developmentally appropriate activities which foster math and science principles in young children.***

Potential Elements of the Performance:

- identify, locate and utilize available resources for a science and math program
- recognize the needs and interests of the preschool child relating to science and math
- assess children's developmental level and plan appropriate learning experiences
- apply knowledge, understanding and skill in designing science and math learning experiences
- organize chosen science and math learning environments for young children

3. ***Use process-oriented and divergent teaching techniques to incorporate science and math experiences throughout the curriculum.***

Potential Elements of the Performance:

- select appropriate methods of presenting science and math experiences using process-oriented, open-ended teaching methods.
- present math and science activities in the preschool setting
- communicate and interact effectively with children to encourage problem solving, inquiry and discovery
- document children's learning experiences
- identify naturalistic, informal and structured learning experiences
- identify how math and science learning opportunities can be incorporated into all learning centres
- evaluate one's teaching and the learning of the children following the presentation of math and science activities.

III. TOPICS:

1. Concept Development in Science and Math
2. Fundamental Concepts and Skills and Activities involving Math and Science
3. Scientific Investigations
4. Emergent Curriculum - Project Approach

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Eliason and Jenkins. (2003). ***Practical Guide to Early Childhood Curriculum, 7th Edition.*** Pearson Education Inc. (purchased in previous semester)
2. Sylvia Chard. (1998). ***Project Approach, Book 2.*** Scholastic. (purchased in previous semester)
3. Kostelnik, M, Soderman, A., Whiren A . (2004). ***Developmentally Appropriate Curriculum. Best Practices in Early Childhood Education.*** Pearson Education Inc. (purchased in previous semester)
4. Allen, K and Marotz, L. (2003). ***Developmental Profiles: Pre-birth through Twelve.*** NY: Delmar . (purchased in previous semester)
5. Membership in the ECE Resource Room is strongly recommended.

V. EVALUATION PROCESS/GRADING SYSTEM:**Tests 30%**

Test #1	10%
Test #2	10%
Test #3	10%

Assignments 60%

1. Math Activities 15%
Students will develop a math assessment tool for the group of children they are working with. They will then prepare two developmentally appropriate math activities, using field placement activity forms.
2. Math Documentation Panels 15%
Students will document four math strands they have observed or facilitated in their field placement.
3. Discovery Kits 30%
Students will select a science kit from the ECE resource room. Using the materials in this kit students will research, present, facilitate discussions and document this topic area.

(dates and assignment details to be discussed in class)

Participation 10%

Students are expected to participate in various in-class activities and discussions throughout the course. Some of the activities will require pre-class preparation. These activities must be completed during class time, therefore students who are not present for these activities will not have an opportunity to make them up and will be given a "0" mark for the activity.

Students will be evaluated on the quality of their participation throughout the semester. A rating scale will be provided in class.

Early Years Math Presentation
February 27 , 2006
7:00 – 9:00

Mandatory attendance

The following semester grades will be assigned to students in post-secondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

Note: For such reasons as program certification or program articulation, certain courses require minimums of greater than 50% and/or have mandatory components to achieve a passing grade.

It is also important to note, that the minimum overall GPA required in order to graduate from a Sault College program remains 2.0.

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources

Specific Class Information***Assignments:***

- Major assignments (5% or more) must be submitted on the due date, at the beginning of class, unless otherwise specified by the instructor. If major assignments are late, both the following steps must be taken in order for the assignment to be evaluated;
 1. Major assignments that are late are to be handed in to Room E3209 (slip under the door).
 2. The instructor will be notified, through WebCT, that the assignment has been handed in. An attachment (in Microsoft Word format) of the completed assignment must be included. A reply will be sent back to you indicating that the material has been received.
- Late, major assignments ***will be deducted 5% per day*** (20% maximum deduction). Major assignments ***more than one week late will not be accepted.***
- All assignments are to be typed unless otherwise stated.
- In-class or weekly assignments are due on the assigned date. These assignments will not be accepted after that date, as they are a part of class work and discussions.
- Students are responsible for retaining a file of all drafts and returned assignments. It is strongly suggested that students keep their computer file of assignments until the end of semester. In the event of a grade dispute, students must produce the graded assignment, so it can be recorded
- Students must adhere to dates set for oral presentations unless the professor has approved prior arrangements. Students who do not present on their presentation date will forfeit the mark for that assignment.

Tests/Quizzes:

Tests/Quizzes must be completed on the date scheduled. If unable to attend ***due to illness or extenuating circumstances***, contact the professor prior to the start of the test. An alternative date must be arranged before the next class.

Learning Environment:

In the interest of providing an optimal learning environment, students are to follow these expectations;

- Students should be aware that the expectations for their conduct in class are outlined in the "Statement of Student Rights and Responsibilities" in the Sault College Handbook.
- Late students are expected to quietly enter the classroom and sit in the nearest seat available. Have your notes and writing material ready before you enter class. If assignments and activities have begun, please wait until they are completed. Wait until after class to speak to classmates about missed material. Make sure you have made arrangements with someone in the class to pick up handouts and take notes for you.
- Students are to keep private conversations out of the classroom.

Missed Classes

If a student misses a class, it is their responsibility to ask a classmate to take notes and pick up assignments and handouts. Left over class handouts are available in the shelf unit by the ECE faculty offices (3rd floor E Wing)

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.