

# Informal Education Practicum and Seminar

## MSED 350 (3 credit hours)

### IIT's Mathematics and Science Education Program

The overall conceptual framework for our program borrows heavily from Shulman's (1986) *Knowledge Growth in Teaching* with the ultimate focus on *the Teacher as Transformer of Subject Matter*. The program focuses on the development, revision, and elaboration of six primary domains of knowledge that both theory and research have indicated are essential for effective instruction. It is this combination of domains of knowledge that distinguishes the expert teacher from others possessing one or more of the following domains of knowledge.

1. **Subject matter knowledge:** Knowledge of foundational ideas and conceptual schemes, data and procedures within a specific subject matter area.
2. **Pedagogical knowledge:** Knowledge of generic principles and strategies of classroom instruction (e.g., instructional models and integration of technology) and management.
3. **Knowledge of schools:** Knowledge of educational contexts, i.e., the place of the classroom in the school, school in the community and other social contexts.
4. **Knowledge of learners:** Knowledge of all aspects of intellectual, social and emotional development of all students regardless of cultural, social, ethnic background.
5. **Curricular knowledge:** Knowledge of development and implementation of programs and materials.
6. **Pedagogical Content knowledge:** The way of representing and formulating subject matter knowledge that makes it comprehensible to others (i.e., knowledge of how to transform and represent subject matter so that it is comprehensible to students or others).

### Course Description

In addition to a two-hour seminar on campus each week, students will spend approximately five hours per week in an informal education venue. Placements will be at museums, aquaria, zoos, botanical gardens, state agencies with educational programs, etc. The primary goal of the practicum/seminar is to help preservice teachers develop an understanding of the roles informal institutions can play in mathematics/science and technology teaching and learning. Students will also have opportunities to develop and implement instructional materials that capitalize on these community resources to effectively teach All students.

### Course Goals

## **Textbooks and Materials**

There is no text available to suit the needs of this course. Students will be assigned readings from science/mathematics education journals as well as journals specializing in museum studies. Journals will include, but will not be limited to:

*Curator*  
*International Journal of Science Education*  
*Journal of Research in Mathematics Education*  
*Science Education*  
*The Science Teacher*

## **Topical Sequence**

- The Informal Learning Environment
- The Adolescent Learner
- The Adult Learner
- Technology as an Enhancement for Teaching and Learning
- Instructional Design for All students
- Aligning Informal Learning with Curriculum and National Reforms
- Planned versus Unplanned Learning
- Assessment of Learning in an Informal Setting
- Organization and Management of a Field Trip
- Teacher Professional Development

## **Evaluation**

Grades will be based upon total points received from:

Observation Projects (20%)  
Resource Cards (30%)  
Lesson Plans (30%)  
Research Reviews (20%)

There will be no curve. Students will strive for predetermined levels of mastery rather than compete against each other. The levels of mastery are as follows:

90 – 100% = A	60 – 69% = D
80 – 89% = B	0 – 59% = F
70 – 79% = C	

## **Accommodations:**

**Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. My office hours are. . .**

**The Center for Disability Resources is located in the Life Sciences Building, room 218, 312-567-5744 or [disabilities@iit.edu](mailto:disabilities@iit.edu).**

## Resource Idea/Card Section Definitions and Inclusions

1. Title and Source/citation
2. **Idea:** An overview or brief description of the idea and its purpose  
For example: Have students count stripes on sunflower seeds to illustrate a normal distribution.
3. **Connection to Standards:** Specify the National Standards or Benchmark that your Idea will help students achieve.
4. **Use:** Describe when and how the idea will actually be implemented within a lesson  
For example: Please see sample resource idea/card
5. **Materials:** Specify the materials (class set or per student) that are needed for the idea
6. **Modifications:** Identify alternative uses of the idea or alternative materials if recommended materials are unavailable, and include modifications to address the diverse needs of the learners.

**Resource Idea/Card Critique Sheet**  
**MSED 350**

Name \_\_\_\_\_

Grade \_\_\_\_\_

Overall Assessment:

1. I have used the following symbols at the top of each idea/card to indicate deficient items:

- 0 - Idea
  - \$ - Connection to Standards
  - √ - Use
  - \* - Modifications
  - # - Materials
- 

2. Variety of Ideas (e.g., demonstrations, labs, pictures, bulletin board items, etc.)

---

3. Attention to inquiry/problem solving and the nature of science/mathematics.

---

4. General Comments: