
GEO 493.07

Geology of Illinois: Teaching Rocks, Minerals, and Mining

July 15-17, 2019

Northern Illinois University, DeKalb, IL

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Overview

The main focus of the workshop is Illinois geology, mining, land reclamation, sustainability, and environmental issues. Misconceptions about the aggregates industry are also explored. During this workshop, teachers learn about, and actively participate in, various hands-on educational activities suitable for teaching earth science in the classroom. The information presented in the workshop lectures is then brought to life during field trips to active Illinois mining operations and land reclamation sites.

Learning Outcomes

- Participants will learn content and processes to encourage K-12 students to learn about their local environment.
- Participants will gain experience with activities related to earth science, geology and mining suitable for K-12 students.
- Participants gain knowledge about the geologic history of Illinois.
- Participants will discuss the processes, as well as the social, economic, and environmental impacts of mining.
- Participants will tour aggregate facilities and visit geologic field sites where they may organize their own field trips.

Evaluation

You will be given a packet of content questions to answer based on each of the presentations in the workshop. You can answer questions during presentations, use the presenters' notes and handouts, read the textbook provided, and ask any of the instructors for help during presentations, breaks, meals, bus rides, etc. Your answers will be evaluated on accuracy and completion.

During or after the workshop, you will create your own lesson plan (on your own or partnering with other teachers) that you may use in the future. Submit your lesson plan for evaluation directly to me at the end of the workshop, via email (ltranel@ilstu.edu), or through the ReggieNet website (see side bar). Your lesson plan will be evaluated based on the extent of careful and thoughtful completion and application of the NGSS standards of proficiency in science that:

- demonstrate behaviors that scientists engage in as they investigate the natural world.
- incorporate scientific concepts that link or crosscut with other fields.
- focus on a core idea important to earth science.

Grading

Grade Scale

- A: 90-100
 - B: 80-89
 - C: 70-79
 - D: 60-69
 - F: <60
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Point Distributions

- Questions Packet: 80 points
- Lesson Plan: 20 points

Website

Reggienet:

<https://reggienet.illinoisstate.edu/xsl-portal>

View and submit assignments, check grades, find additional resources for the class.

Milestones

Workshop: July 15-17

- July 17: Submit questions packet at the end of the day
- July 29: Submit lesson plan (I will accept late submissions)

Field Trip Preparations

The following are required (*) or recommended items.

- Shoes appropriate for walking and quarry visits
- Positive attitude*
- Rain gear & jacket
- Camera
- Sun screen
- Bug spray

Schedule

Monday - Wednesday

Workshop lectures and activities at Northern Illinois University followed by field trips to mines, quarries, and fossil collection sites (See 2019 Workshop Schedule for more details).

Thursday – Friday and the following week

- Extra time to work on Lesson Plan if needed.
- Optional Online Forums on ReggieNet (Participate at your own availability. Opportunity to use online discussion to collaborate on lesson plan partnership)

Lesson Plan Rubric (20 points total)

Exceptional: (16-20 points) Each section of the lesson plan worksheet is complete. Descriptions and information are very clear and detailed. Each section demonstrates a deep level of planning and reflection. The lesson plan aligns very well with NGSS standards.

Very Good: (12-16 points) Each section of the lesson plan worksheet is complete. Descriptions and information are mostly clear and detailed. Each section demonstrates a good level of planning and reflection. The lesson plan aligns well with NGSS standards.

Satisfactory: (8-12 points) Some sections of the lesson plan worksheet were incomplete. Descriptions and information are sufficient to understand the methods, objectives, etc. Each section demonstrates a satisfactory level of planning and reflection. The lesson plan satisfactorily aligns with NGSS standards.

Needs Improvement: (4-8 points) Many of the sections of the lesson plan worksheet were incomplete. Descriptions and information are unclear or difficult to understand. Each section demonstrates a need to improve the level of planning and reflection. The lesson plan needs improvement to align with NGSS standards.

Incomplete: (0-4 points) Most of the sections of the lesson plan worksheet were incomplete. Descriptions and information are unclear or not included. Does not demonstrate much planning or reflection. The lesson plan does not align with NGSS standards.

Lesson Title:

Course:

Grade Level:

Time Duration: Will this lesson and activities be completed in a single day or over several days?

Lesson Purpose/Rationale/Essential Question:

Provide an overview of the main topics or central theme that will be addressed in this lesson. Describe why this topic/lesson is important for your students to understand.

Prior Knowledge Required:

List the prerequisite knowledge, skills, or abilities that are required for a student to be able to fully participate in this lesson.

Objectives/Learning Outcomes:

List the specific observable behavior or skills that a student will be able to complete as a result of this lesson. Be specific regarding how the students will be able to demonstrate the behavior or skill. Two spaces are provided, but your lesson may require more or fewer objectives.

1.

2.

Standards:

List the NGSS content area standards or learning standards that this lesson is designed to address. Select from the most relevant standards in your content area.

Materials and Resources Required:

Teacher: List the materials and resources that are required for the teacher to conduct this lesson.

Student: List the materials and resources that are required for the student to fully participate in this lesson.

Instruction: Fill out the following table with the specified information. Use as many of the Activity boxes as you need. You do not need to use all the boxes provided. You may add more boxes if they are needed for your plan.

Activity/Method Title	Time	Description/Procedure
<i>Induction/Anticipatory Set:</i> List the title or type of introduction that will be used.	List the length of time for which this activity is designed.	Describe the procedure of this activity/method. This is best as a bulleted list of teacher actions. This should include specifics such as discussion questions, lecture content, grouping strategies, etc. as appropriate. Include any documents, handouts, presentations, etc. as attachments.
<i>Learning Activity/ Method #1:</i> List the title or type of activity or method that will be used (i.e. lecture, cooperative learning).		
<i>Learning Activity/ Method #2:</i>		
<i>Learning Activity/ Method #3:</i>		
<i>Learning Activity/ Method #4:</i>		
<i>Closing:</i> List the title or type of closing activity that will be used.		Describe the procedure that will be used to close the class. How will you provide closure to the lesson?

Assignment/Homework:

List any assignments or homework that will be given throughout the lesson.

Assessment (formal and/or informal):

Provide a list of sources of information that you will use to determine if the students are meeting the lesson objectives. These should be directly tied to the objectives. There may be both formal and informal formative and summative assessments. Include any assessment tools as attachments. Include some specific questions you may ask through informal formative assessment. Explain the assessments for each stage of lesson plan, including the introduction, learning activities, and conclusion.

Formative:

Summative:

Accommodations/Modifications/Adaptations:

Describe any adaptations that will be in the lesson to meet the needs of all students.
