GEOL 4200: GEOLOGICAL EXPLORATION TECHNIQUES (4 Credits)
Lecture: MWF 11:15am – 12:10pm
Lab: T 9:00 – 10:50am

Course Description: Practical techniques for geological exploration, with emphasis on environmental, mining and petroleum industry applications. Surface and subsurface methods include geological mapping, drilling, core extraction, wireline logging and 2D/3D seismic.

Prerequisites: GEOL 1040 (The Dynamic Earth), GEOL 1045 (Earth, Environment, Resources and Society) and GEOL 2500 (Geological Fundamentals).

Instructor: Dr. Jeannette Wolak, Department of Earth Sciences
Office: Kittrell 305 | Email: jwolak@tntech.edu | Phone: (931) 372 – 3695

Office Hours: MW 12:10 – 1:00pm and by appointment. I have an open-door policy and strongly encourage you to bring questions by at any time.

Recommended Texts:
I recommend that you purchase one of these two texts. Purchase the one that best fits your career plans.


Online Tools:
iLearn - https://elearn.tntech.edu/
Access to supplementary lecture and homework materials will be available through iLearn.

Grading Summary:

Lecture
In-class Participation 5%
Homework (Take-home readings, iLearn assignments) 10%
Exam #1 (Prospecting/Mining Techniques) 15%
Exam #2 (Petroleum Exploration Techniques) 15%
Exam #3 (Seismic Interpretation) 15%

Lab
Lab Exercises 20%
Project #1 (Prospecting/Mining Project) 10%
Project #2 (Petroleum Exploration Project) 10%

Your final grade will reflect both lecture (60%) and lab (40%) components.

Mandatory Field Trip: We will take at least one mandatory Saturday field trip. More details will be provided to you in lecture.
**Attendance Policy:** Given the hands-on component of the course, attendance at all lectures and labs is mandatory. If you have a conflict, please contact me as soon as possible and refer to the make-up policy below.

**Make-up Policy for Exams and Late Work:** Make-up exams will be available on a case-by-case basis. If you have a conflict and miss an assignment or exam, please contact me via email or phone. Late work will be accepted up to one week late at a penalty of 10%. Please note: Once an assignment has been handed back to the class, it is too late to turn in your late work!

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**Materials List:** Please bring the following materials to lecture and lab every time we meet. This is a geology course focused on techniques used in geologic exploration. It is also an opportunity for you to develop professional skills such as organization and technical drawing/note-taking.

- Three Ring Binder – Please keep up with the handouts and notes for this course.
- Jump Drive
- Highlighter
- Colored pencils
- Calculator
- Small bottle of HCl acid (will be provided to you)
- Grain size chart (will be provided to you)
- Hand lens [I recommend a 10X as a starter lens to see grain structure, ooids, etc. Higher magnifications are useful if you are paleo-minded, e.g., identification of very tiny foraminifera. Cheap lenses are sometimes available at Hobby Lobby. Amazon and other online dealers have many lenses to choose from. I will provide lenses for the first two weeks of class; otherwise, please bring your own hand lens.]
- Lanyard for hand lens and grain size chart (optional, TTU ones available at bookstore)

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**Tennessee Tech Disability Policy:** No person with a disability will be discriminated against on the basis of his or her disability as defined in Section 504 of the Rehabilitation Act of 1973 and redefined in Public Law 101-336, the Americans with Disabilities Act (ADA) of 1990. The ADA requires institutions of higher learning to make reasonable accommodations for the needs of qualified students with disabilities as they pursue a postsecondary education. Tennessee Technological University, being committed to high academic standards and the development of self-esteem and dignity in all members of the academic community, will provide reasonable accommodations to assist the student with disabilities in participating in university programs.