Introduction to Field Methods - GLY 212 - Syllabus

Fall 2016 - 3 Credits - CRN: 2417

Dr. Scharman **Office: Science 163**
Lecture: MW 10–10:50am Science 165 **Email:** scharman@marshall.edu
Lab: F 1-2:50pm Science 165 **Phone:** (304) 696-5435
Office Hours: MTW 11am-12:30pm, F 8:30-10am; or by appointment
Please do not stop by in the hour before any scheduled class

Required:
- Text: *Geologic Maps: A Practical Guide to the Preparation and Interpretation of Geologic Maps* by Spencer, 2nd Ed.
- Materials: Pencils (no pen on assignments unless noted otherwise); pen for final inking; notebook; C-thru brand protractor-ruler, calculator
- Note: C-Thru brand protractor-rulers can be purchased at Latta's (15th St and 4th Ave); recommend purchasing 2-3.
- Brunton compasses will be checked out at the start of the semester. Rock hammers and map/clip boards will also be checked out as needed.

Pre-requisites:
Introduction to Earth Materials (GLY110) or Physical Geology (GLY200) or Historical Geology (GLY201); and Earth Materials Laboratory (GLY210L) or Historical Geology Laboratory (GLY211L).

Course Objectives:
This course will allow you to develop a basic understanding and working knowledge of many introductory techniques pertaining to geological field methods and map interpretation. This will include introductions to techniques involving topographic map interpretation; Brunton compass use to determine location and collect geologic data; identification of basic geologic relationships; interpretation and presentation of various geologic data in maps; and use of GIS in map production. Overall, each student will be able to collect, compile, analyze, interpret, and present basic map data of various types.

Learning Outcome	Practice of Learning Outcome	Assessment
Topographic Map Interpretation	• Assigned Reading • In-class Activities • Comprehension Quizzes	• Topographic Maps Lab • Surfical Geology Lab • Unconformities/Faults Lab • Folds/Ig-Met Rocks Lab
Brunton Compass Location	• In-class Activites • Comprehension Quizzes	• Brunton Basics Part 1 & 2 Labs • Midterm Exam
Brunton Data Collection	• In-class Activities • Comprehension Quizzes	• Structural Measurements Lab • TN Field Trip
Basic Geologic Relationships	• Assigned Reading • In-class Activities • Comprehension Quizzes	• Surfical Geology Lab • Unconformities/Faults Lab • Folds/Ig-Met Rocks Lab • Indoor Mapping Lab 2 • Soils Lab • TN Field Trip
Geologic Map Interpretation	• Assigned Reading • In-class Activities • Comprehension Quizzes	• Surgical Geology Lab • Unconformities/Faults Lab • Folds/Ig-Met Rocks Lab • Indoor Mapping Lab 2 • Final Indoor Map Exam
Geologic Map Data Presentation	• In-class Activities • Introduction Indoor Mapping Lab • Introduction to GIS Reconnaissance Mapping Lab	• Indoor Mapping Lab 2 • Final GIS Mapping Lab
GIS Map Production	• Introduction to GIS Reconnaissance Mapping Lab	• Final GIS Mapping Lab

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Grading:
In-class assignments: 20%
Comprehension Quizzes: 10%
Lab Assignments: 30%
Midterm Field Exam: 20%
Final Exam Indoor Mapping Exam: 20%

Grading Scale:
A - 90-100%; B - 80-89%;
C - 70-79%; D - 60-69%;
F - 0-59%

Course Style:
This course is will be taught in the style of a "flipped" classroom. A "flipped" classroom means that pre-recorded lectures and reading materials on a topic will be given to you ahead of the regular class time. The scheduled class time is then utilized for comprehension quizzes, in-class assignments, discussion, and other learning activities.

Links for pre-recorded lectures for each topic (some exceptions) will be posted a week in advance on the course's Blackboard page. Reading assignments from the textbook for each week's topic are listed in the schedule on the last page of this syllabus. Other handouts and documents will also be available through Blackboard. You should listen to, read, and take notes from the lecture recordings and assigned readings prior to when the topic is covered in class.

- Monday and Wednesday class periods: devoted to learning activities and discussion for the scheduled topic. Be prepared for each of these classes to begin with a brief content comprehension quiz, followed by some discussion, and a learning activity.
- Friday class periods: devoted to a longer lab assignment. Each lab assignment is due at the start of the following Friday's class (unless noted otherwise). Each lab assignment is worth the same amount of points (20 points).

This will be the general workflow for the class periods each week of the semester. See the course schedule for any deviation from this structure. As the Professor, I will do my best to also remind you in advance to any temporary changes in this general structure.

Late Work Policy:
Unless otherwise stated in the instructions, lab assignments are due one week after they are introduced, at the start of lecture. Credit will be lost for late work, at the rate of 1 point/day (i.e. 5% of total assignment grade). ***Assignments are considered late if they are not turned in by the start of lecture; if they are submitted anytime after that, a grade deduction will occur.*** Weekdays are the only days that apply towards the late penalty. For example: if a lab assignment due on Friday is not submitted until the following Monday, a penalty of 2 points will be deducted, resulting in a maximum possible grade of 18 out of 20 points.

No make-ups for comprehension quizzes or in-class learning activities will be given for late arrivals or absences from class. Time extensions for lab assignments, and alternate make-up assignments for in-class activities, quizzes, and exams will only be allowed for a university-excused absence. An alternate deadline will be set in such cases for lab assignments.

No attendance will be taken. However, if you miss class it will negatively affect the In-class Assignments/Quiz and Lab Assignments portion of your overall grade. Regular absence from class may also impact your performance on lab assignments and exams.

University Excused Absence Policy:
Absences that are classified as University Excused Absences are the following: serious medical reasons, legal reasons, military obligations, or university activities excused by the academic deans. Serious medical reasons are defined as student illness or critical illness/death in the immediate family; "immediate family" is defined as a spouse/life partner, child, parent, legal guardian, sibling, grandparent or grand-child. Routine doctor appointments are not excused; such appointments should be scheduled around your classes.

If you miss ***less than 3 consecutive hours*** of the course, you must speak with me about any make-up work. Note, in this case, it is up to the professor to determine if your absence is considered an official university excused absence. Professor must receive proper notification/documentation of an university excused absence. Please speak to me sooner rather than later about such absences.

If you miss ***3 consecutive hours or more*** of class, you must speak with the Dean of Student Affairs Office. In such a case, notice of an excused absence must be received by the instructor from the Dean of Student Affairs office prior to completing the make up work.

There will be no make-up quizzes/assignments without a university excused absence. All excused assignments and make-up quizzes must be completed prior to taking the final exam.

Field Trips:
There will be a few afternoon field trips during Friday labs. In order to maximize the time allotted to complete lab assignments during these short field trips, the lab may run long on these days. For these short field trips to locales in town, you will be responsible for transportation to the field site and back to campus. Please talk with fellow students in advance to arrange shared rides.

In addition to Friday afternoon field trips, there will be one weekend field trip to eastern Tennessee. We will be joining another class led by Dr. Hooks from the University of Tennessee at Martin on this field trip to look at some basic field relationships and apply your new skills. This field trip will depart at 8am on Friday October 28 and return the night of Saturday October 29. Lodging for the trip will be at an established campground near the field sites, so please arrange tent and sleep bag rental from the recreation center if necessary.

Please notify your other professors of a potential absence due to these university excused absences. If necessary, and with proper notification in advance, I would also be happy to write a brief email explaining such an absence to any professor from another course.

Extra Credit Opportunity:
A student may earn extra credit in this course by constructing and annotating a Gigapan image for a selected outcrop in the Tri-state region with the guidance of Professor Scharman.

The extra credit Gigapan project will entail:
- ***Selecting an Outcrop***: this outcrop can be one you have in mind, or one that Professor Scharman has in mind. Keep in mind that some outcrops are just not suitable - or safe enough (e.g. along I-64, etc.) - to Gigapan. Outcrop should be within ~45 minutes drive of campus.
- ***Taking Gigapan Photos***: arrange a time to meet Professor Scharman to 1) learn how to use the Gigapan equipment, and then 2) to meet in the field to collect images of the outcrop. You will also spend some time looking at the outcrop, collecting observations in your notes, to later annotate the photo. Plan to spend an afternoon at the selected outcrop.
- ***Stitching Gigapan Photos***: independently stitch together collected photos into a complete Gigapan and upload to website database.
- ***Annotated Final Gigapan Photo***: take time to annotate the Gigapan outcrop photo with geological observations at specific points in the outcrop.

If you are interested, you must speak with Professor Scharman during office hours to select an outcrop and arrange a time to take Gigapan photos of the outcrop.

Extra Credit Deadlines: (all by 5pm)
- Friday Sept. 16: Notify Professor of intent to pursue extra credit, select outcrop, arrange time.
- Friday Nov. 4: Complete Gigapan photo collection.
- Friday Dec. 9: Final Gigapan photo uploaded and annotated.

A completed extra credit project provides you with the opportunity to earn up to 10% extra applied toward the Lab Assignment portion of your grade.

A rubric will be provided with further details of grading the extra credit project.

Note: this will be the only extra credit opportunity available in GLY212. Professor Scharman must agree to a time that works with his schedule, and will not loan Gigapan equipment to students to complete on their own.

Note about Personal Conduct:
Everyone in the course is expected to act in a professional and courteous manner. Any disruptive or offensive behavior - especially that directed at anyone else in the class - will not be tolerated. Any violation will be met with a requirement to drop the course and forfeit any associated grades. All cell phones must be turned off, put away, and remain away, for the duration of each class period. It is extremely unprofessional, as well as a waste of the Professor's and fellow student's time, if you are looking at a cell phone while a conversation/lecture/lab is in progress. Having a cell phone out during a quiz is considered cheating. Finally, the Professor will only respond to emails that are written with at least a basic level of professionalism and courtesy.

By your continued enrollment in this course, you agree with the policies in this syllabus and to the following University Policies: Academic Dishonesty; Excused Absence Policy for Undergraduates; Computing Services Acceptable Use; Inclement Weather; Dead Week; Students with Disabilities; Academic Forgiveness; Academic Probation and Suspension; Academic Rights and Responsibilities of Students; Affirmative Action; Sexual Harassment

The full text of each policy is available at: http://muwww-new.marshall.edu/academic-affairs/policies

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Tentative Course Schedule

Date	Topic	Reading
MW Aug. 22/24	Introduction; Topographic Maps	Chapters 1, 2
F Aug. 26	Lab 1: Topographic Maps	
MW Aug. 29/31	Map Interpretation Basics	Chapter 3
F Sept. 2	Lab 2: Brunton Compass Basics Part 1 (Marshall Quad)	
M Sept. 5	***Labor Day*** - No Class	
W Sept. 7	Map Interpretation Basics	Chapter 3
F Sept. 9	Lab 2a: Brunton Compass Basics Part 2 (Marshall Quad)	
MW Sept. 12/14	Sedimentary Rocks; Aerial Photographs	Chapters 4, 5
F Sept. 16	Lab 3: Introductory Indoor Map Exercise	
MW Sept. 19/21	Geologic Maps of Bedrock; Homoclinal Beds	Chapter 7
F Sept. 23	Lab 3 Continued	
MW Sept. 26/28	***GSA Annual Conference*** - No Class	
F Sept. 30	Lab 4: Structural Measurements (Ritter Park Tennis Courts)	
MW Oct. 3/5	Surficial Geology	Chapter 6
FM Oct. 7/10	Lab 5: Surficial Geology	
W Oct. 12	Midterm Review	
F Oct. 14	***Midterm Exam***: Brunton Compass/Field Location ID (Rotary Park)	
MW Oct. 17/19	Unconformities; Faults	Chapters 9, 11
F Oct. 21	Lab 6: Unconformities and Faults	
MW Oct. 24/26	Fold Patterns	Chapter 10
F-Sat. Oct. 28/29	Field Trip - Eastern TN (Depart 8am Friday, Return Saturday Night)	Handout
MWF Oct. 31/Nov. 2/4	Igneous and Metamorphic Rocks	Chapters 10, 12
F Nov. 4	Lab 7: Fold Patterns/Igneous/Metamorphic Rocks	
MWF Nov. 7/9/11	Lab 8: Indoor Mapping Exercise 2	
MW Nov. 14/16	Soils	Handout
F Nov. 18	Lab 9: Soils	
MWF Nov. 21/23/25	***Thanksgiving Holiday*** - No Class	
MW Nov. 28/30	Reconnaissance Mapping with ArcGIS	Handout
F Dec. 2	Lab 10: Introduction to GIS Reconnaissance Mapping	
MWF Dec. 5/7/9	Lab 11: Final GIS Mapping (TN Field Trip Data)	
M Dec. 12	***Final Indoor Map Exam*** - 10:15am-12:15pm	