



University of Puerto Rico  
Mayagüez Campus  
College of Arts and Sciences  
Department of Geology

### Course Syllabus and Instructor Information

**1. General Information:**

Alpha-numeric code: GEOL 6228

Course Title: Structural Analysis of Deformed Terranes

Section: 001

Meeting days and time: **Wednesday, 4:30 PM - 7:20 PM**

Course Location: **F-201**

**2. Professor information:** <https://sites.google.com/site/kstephenhughes/>

Name: Stephen Hughes

Office: F-414 (Geology Dept., Physics Bldg.)

Phone: (787) 832-4040 x2706

e-mail: [kenneth.hughes@upr.edu](mailto:kenneth.hughes@upr.edu)

**Office Hours:** Tu/Th (9:20-10:20am)

Wed. (10:20-11:20am, 1:20-4:20pm)

*\*Or by appointment*

*\*Or anytime my office door is open*

**3. Course Description:**

ADVANCED METHODS OF STRUCTURAL ANALYSIS WITH AN EMPHASIS ON MICROCRYSTALLINE DEFORMATION, FOLIATION DEVELOPMENT, AND RHEOLOGICAL MODELS; TECHNIQUES FOR MEASURING STRAIN, DIFFERENTIATION BETWEEN SIMPLE AND COMPLEX FABRICS ON THE STEREOGRAPHIC PROJECTION, AND BALANCING CROSS SECTIONS. EXAMPLES FROM THE GEOLOGY OF PUERTO RICO AND THE CARIBBEAN WILL BE USED.

**4. Pre/Co-requisites and other requirements:**

GEOL 4006, GEOL 4045

**5. Course Objectives:**

To build upon concepts developed in Introductory Structural Geology, in order to comprehend and analyze complex issues dealing with mostly collisional terranes. Scrutiny of published tectonic studies will be included in the class. A class project will be a major part of the experience. **The goal is to apply practices learned in the first half of the class to have a publishable study (or a significant start) by the end of the semester.**

**6. Instructional Strategies:**

Conference, Discussion, Field Trips, Class Presentations, Class Project

**7. Requirements:**

All students are expected to:

- (1) Attend each class.
- (2) Do all assigned readings.
- (3) Be prepared to participate in class by answering questions and quizzes.
- (4) Check your e-mail (@uprm.edu) for messages about the class.

## 8. Tentative course outline

Date	Session	Topic	Reading/Reference	Tasks
Aug 17	1	Introduction and Review	R&H, Chapter 1&2 Bayly, Chapter 2	<b>Assignment 1:</b>
Aug 24	2	Strain Matrices/Mohr Circle		<b>Assignment 2: Strain Matrix</b>
Aug 31	3	Measuring Practical Strain: Breddin Method, Rf/ $\phi$ Method,	Fossen, Chapter 3	<b>Assignment 3: Practical Strain</b>
Sep 7	4	Shear Sense Indicators	Hanmer & Passchier, 1991	
Sep 14	5	Class Presentations	Journal Articles	
Sep 21	6	Class Presentations	Journal Articles	<b>Take home Midterm Assigned</b>
Sep 28 *No Class*		<i>GSA Conference</i>		
Oct 5 *No Class*	7	<b>Field TRIP, Sat Oct 8</b> Ponce/Juana Diaz		<b>Final Project: Background Paper</b>
Oct 12 *No Class*		<i>Monday Classes</i>		
Oct 19 *No Class*	8	<b>Field TRIP, Sat Oct 22</b> Ponce/Juana Diaz		<b>Class Project: Work Plan</b>
Oct 26	9	Final Project Planning		
Nov 2	10	Final Project Sample Processing		
Nov 9	11	Final Project Update		<b>Class Project: Preliminary Results</b>
Nov 16	12	Final Project Preliminary Results		<b>Class Project: Manuscript Outline</b>
Nov 23 *No Class*		<i>Friday Classes</i>		
Nov 30	13	Manuscript outline due (Group)		<b>Class Project: Draft Manuscript</b>
Dec 7	14	Draft Manuscript due (Group)		<b>Class Project: Final Manuscript</b>
Dec 10-17		<i>Final Exam Period</i> Turn in Final Manuscript (Group)		

## 9. Grading System

Quantifiable (letters)

Standard Curve:	100 – 90	A
	89 – 80	B
	79 – 65	C
	64 – 55	D
	54 – 0	F

## 10. Evaluation Strategies

<b>Grades</b>	<b>Points</b>
3 Assignments	300
1 Class Presentation	100
1 Midterm	500
1 Final Project	
Background Paper	100
Work Plan	100
Preliminary Results	100
Manuscript Outline (Group)	50
Draft Manuscript (Group)	100
Final Manuscript (Group)	200
<u>Semester Long Participation</u>	<u>450</u>
<b>Total Points Possible</b> ( <i>No extra credit</i> )	<b>2000</b>

### 11. Tentative Examination schedule:

Midterm Assigned Sept 21. Due Oct 8.

### 12. Bibliography

*No Required text. Selected excerpts will be distributed.*

### 13. Regulations and Policies:

- **Class attendance** is compulsory. The University of Puerto Rico, Mayagüez Campus, reserves the right to deal at any time with individual cases of non-attendance. Professors are expected to record the absences of their students. Frequent absences affect the final grade, and may even result in total loss of credits. Arranging to make up work missed because of legitimate class absence is the responsibility of the student (Bulletin of Information Undergraduate Studies).

- **Cheating:** Cheating will be dealt with harshly. *All instances of cheating on examinations will be immediately reported to the Dean of Arts and Sciences for review.* There will be no exceptions to this policy.

### 14. According to Law 51

Students will identify themselves with the Institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office, which is part of the Dean of Students office (Chemistry Building, room 019) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

*\* Any information in this syllabus is subject to change.\**