Course Syllabus
Geological Mapping & Communication (GLY 206)
Synchronous In-Person
University at Buffalo

Instructor: Dr. James Boyle
Email: jamesboy@buffalo.edu
Office: Cooke 453
Lectures: MWF 11:30-12:20PM**,** Cooke 15
Student Hours: Tu 11AM-12PM, W 2-3PM, or by appointment (zoom room)

Lab Instructor: Meredith Cole
Email: macole2@buffalo.edu
Student Hourse: 2:30-3:30PM (Cooke 15), 3:30-4:30PM (zoom room)

With COVID-19 continuing to spread throughout the country setting strict expectations seems like wishful thinking at best. All I can ask at this time is that everybody follow the UB and New York State health guidelines and remember that those rules are to protect others as well as yourself.

Public Health Compliance in Classroom setting: As indicated in the Student Compliance Policy for COVID-19 Public Health Behavior Expectations (https://www.buffalo.edu/studentlife/who-we-are/departments/conduct/coronavirus-student-compliance-policy.html), in our classroom you are required to:

1. Obtain and wear masks/face coverings in campus public spaces, including campus outdoor spaces.
2. Maintain proper physical distancing in public spaces and must stay 6 feet apart from one another.
3. Stay home if you are sick.
4. Abide by New York State, federal and Center for Disease Control and Prevention (CDC) travel restrictions and precautionary quarantines.
5. Follow campus and public health directives for isolation or quarantine.
6. Should you need to miss class due to illness, isolation or quarantine, you are required to notify the course instructor and make arrangements to complete missed work.
7. You are responsible for following any additional directives in settings such as labs, clinical environments etc.

Students who are not complying with the public health behavior expectations will be asked to comply. Should the non-compliant behavior continue, course instructors are authorized to ask the student to leave the classroom. Non-compliant students may also be referred to the Office of Health Promotion to participate in an online public health class to better educate them on the importance of these public health directives for the entire community.

Discord Server: In an attempt to reduce the difficulty of communicating while maintaining social distancing, wearing masks, and the strong possibility that some people might be unable to attend some lectures in person we will be using a discord server for the course [server name = GLY206_UB_Spring2021]. I will provide a link to the server at the start of the course.

Course Description: While many other disciplines in the sciences utilize maps in some contexts they have an outsized role in communications within the field of geology. This is because many of the phenomena geologists are concerned with are only apparent at scales larger than a person can see from any one vantage point. Geologists also have the somewhat unique challenge of how to express the temporal component of layered rocks because of the direct relationship between the stacking patter and relative age of rock units. This course will teach you not only how to read, interpret, and construct geologic maps but also introduce student to some of the specialized communication vehicles of geology such as the cross-section and stratigraphic columns. You will also practice supplementing these visual representation with both text and oral presentations. These skills will be used in future coursework and be required in almost any profession that uses geology.

Learning Outcomes:

Course Learning Outcome	Maps to the Following Program Outcomes / Competencies:	Delivered through the Following Instructional Method(s):	Student Achievement Assessed with the Following Method(s)/Assignments:
1. Compose in academic, professional, and/or workplace genres related to a field of study.	UBGE, SUNY Basic Communication, MSCHE Oral & Written Communication	Assigned readings; lab reports; writing assignments; lecture	Formal writing assignments; informal writing assignments; labs
2. Apply writing processes common to that field.	UBGE, SUNY Basic Communication, MSCHE Oral & Written Communication	Writing assignments	Formal writing assignments (table/figures and figure captions, unit descriptions, and abstracts)
3. Compose and deliver a professional presentation.	UBGE, SUNY Basic Communication, MSCHE Oral & Written Communication	Lecture; discussion; peer review	Oral presentations
4. Describe the conventions of genres within a field.	UBGE, SUNY Basic Communication, MSCHE Oral & Written Communication	Assigned readings; lab reports; writing assignments	Informal writing assignments; in-class activities
5. Make effective disciplinary and professional arguments.	UBGE, SUNY Basic Communication, SUNY Critical Thinking, SUNY Information Literacy, MSCHE Oral & Written Communication, Critical Reasoning & Analysis	Assigned readings; class discussion; writing assignments; peer review.	Formal writing assignments
6. Reading topographic maps; locating features on topographic maps; creating a topographical profile.		Assigned readings; lecture; in-class activities	Passing scores on in-class exercises 1 - 3 (Spencer)
7. Reading and interpreting geologic maps for lithology and		Assigned readings; lecture; in-class activities	Passing scores on exercices 4 – 6 (Spencer)

structure.			
8. Reading, interpreting and constructing a stratigraphic column and a geologic cross section; applying Steno's Principles.		Assigned readings; lecture; in-class activities	Passing scores on exercices 7 – 9 & 11 (Spencer)

Materials: This course has no required text but posted readings will mostly come from "*Basic Geologic Mapping"* 5th edition by Richard Lisle, P. Brabham, and J. Barnes 2011, and "*From Research to Manuscript: a guide to scientific writing*" 2nd edition by Michael J. Katz 2009.

Both of these texts will be posted to UBLearns under the "Course Information" tab.

Additional required material (bring to class Wednesday & Friday):

1) Detachable graph paper tablet, 1/4 inch gridded rule (4 squares/inch), number all pages in the order handed in for grading
2) Sharp pencil with eraser No. 2, and No. 3 or No. 4; or HB and 2H
3) Colored pencils, standard 12-color Prismacolor set or equivalent
4) Fine permanent pen (such as a Sanford Sharpie permanent marker, or KohINoor or Rotring Rapidograph)
5) Tracing paper
6) Metric and Imperial units ruler
7) Protractor
8) Calculator (you'll need access to trigonometric functions)

Means of Assessment:

WRITING ASSIGNMENTS

Assignment	Formal or Informal*	Word Count	Notes
One Page Summaries of Assigned Readings	Informal	~500 each	**Due weekly**
Presenting Numerical Data as a Table or Figure With a Caption	Formal	250	
Write a GSA or AGU abstract	Formal	2 @ 500 each	
Writing Unit Descriptions	Formal	1250	
Lab Assignments	Informal	~500 each	**Due weekly**
Create a Geologic Map With Coordinating Text	Formal	1500	
1-page Critique of Oral Presentation	Informal	500	
Total Formal Word Count = 4000			

*Formal refers to assignments for which both draft and revised versions are submitted. Informal refers to any writing where there is no draft version submitted for review.

The specific details regarding grade distribution are as follows (and are subject to change):

Grade Points		Grade scale (%)			
One-page summaries	10%	A	94-99	C	74-77
Lab** Assignments	20%	A-	90-93	C-	70-73
Communication Exercises	15%	B+	88-89	D+	68-69
Scientific Figure	12.5%	B	84-87	D	65-67
Abstract	12.5%	B-	80-83	E	<65
Unit Descriptions	10%	C+	78-79		
Final Mapping Project	20%				

**"Lab" here refers to our Wednesday class when we will be doing mapping exercises and minimal lecture.

Assignments

One Page Summaries: Due by 11:59PM on Sunday each week you will be responsible for a 1-page (**12 pt. font, single-spaced**) summary of the assigned reading or critique for that week. See the schedule below for the assigned readings or critiques each week. These summaries will be submitted through UBLearns under the "Assignments" tab **with the title "LastName_FirstName_WeekXSummary"**. Additional details for each assignment will be posted at the start of each week. I will be dropping the lowest two scores (except for the oral presentation critique the last week of class) in this category for calculating final grades.

Lab Assignments: While we do not have a formal "lab" component to the course we will treat Wednesday as a pseudo-lab day where with minimal lecturing. Instead the periods will be spent completing a mapping assignment that will put the lecture material from Mondays into practice. These assignments should be able to be completed during the class time but will be due by the start of the next lab class (i.e. one week later).

Communication Exercises: In Friday's class each week we will go over a communication aspect of the sciences. These will almost always be accompanied by a short in-class exercises that will include both participatory and graded assignments. Communications assignments are generally due by the start of the following Monday's class.

Scientific Figure: It is difficult to the importance of summary figures in communicating science and so each student will construct a scientific figure with accompanying figure legend and caption. Student's will be able to choose one of several datasets to summarize in a figure of their own design. A rough draft of the figure will be due by the start of class on March 15th. The final product will be due by the start of class on March 22nd.

Abstract: In many cases abstracts are the only portion of an article or talk that will be read before deciding whether to invest further time in it or move on. Because of this practicing writing an abstract is a critical part of science communication and forces the writer to focus in on the most important content. Students will write two abstracts (~500 words each max) from among a set of articles provided. A draft version of the abstract will be due by the start of class on March 29th. The final versions will be due by the start of class on April 5th.

Unit Descriptions: One of the most fundamental part of any field geology is to be able to describe lithological units in a way that other trained geologists can understand. This is often accomplished by a combination of written text describing the rock units and constructing a stratigraphic column showing the relationships among the units. In class students will be given a set of samples, maps, and field observations to practice this task. Unit descriptions will be due by the start of class on March 8th. We will expand on this dataset for our communication assignment in week 11.

Final Mapping Project: At the end of the semester you will be responsible for submitting both a draft (due by 11:59PM on April 30th) and a revised report (due by 11:50PM on May 14th) of ~1500 words. This is a written explanation of your chosen map. It should include an explanation of what the map is, what parts were done well or poorly, and why. At the end of the semester each student will give a short (~7.5 minutes) presentation in front of their peers explaining a map of their choosing. The map does not have to be related to geology **but does need to be submitted to me (via UBLearns) for approval by the start of class on April 23rd**. Further detailed instructions and rubric will be provided later in the semester.

Make-up Policy: Assignments for this course are built so that it is possible to complete the assignments outside of class. However, it will be much more difficult to complete the assignment if you are unable to participate in the class in real-time. In cases where students are unable to attend in person due to quarantine or other circumstances please let Dr. Boyle know as soon as possible. I will make every effort to allow you to continue attending class virtually.

Academic Integrity: Academic integrity is a fundamental university value. Through the honest completion of academic work, students not only advance their educational objectives, they sustain the integrity of the university and facilitate the transmission of knowledge and culture based upon the generation of new and innovative ideas. The Undergraduate Academic Integrity Policy provides additional information about what UB considers to be academic dishonesty and the possible consequences for violating UB's policies on academic integrity. In particular, you should be sure that you are aware of what UB considers to be academic dishonesty and that you understand how to avoid academic dishonesty. If you are unsure about the meaning of any of this information please talk to me or your academic advisor about them and we will try to clarify our expectations.

Accessibility Resources: If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course. The Office of Accessibility Resources will provide you with information and review appropriate arrangements for reasonable accommodations.

Student Wellness: As a student you may experience a range of issues that can cause barriers to learning or reduce your ability to participate in daily activities. These might include strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, health concerns, or unwanted sexual experiences. Counseling, Health Services, and Health Promotion are here to help with these or other issues you may experience. You learn can more about these programs and services by contacting:

Counseling Services: 120 Richmond Quad (North Campus), phone 716-645-2720
202 Michael Hall (South Campus), phone: 716-829-5800

Health Services: Michael Hall (South Campus), phone: 716- 829-3316

Health Promotion: 114 Student Union (North Campus), phone: 716- 645-2837

If you find yourself struggling with course-related issues, or any other issues regardless of the reason, please don't hesitate to contact me so I can help you resolve the difficulty or direct you to some other resource who can.

Lecture Schedule

Dates	Week	Monday	Wednesday	Friday	Weekly Writing (1-page due)
		Lecture	*Lab*	*Communication*	
2/1-2/5	1	A	B	C	Orwell
2/8-2/12	2	D	E	F	Katz Ch3
2/15-2/19	3	G	H	I	Lisle 3.1-3.5
2/22-2/26	4	J	K	L	Critique of a published figure
3/1-3/5	5	M	N	O	Lisle Ch7
3/8-3/12	6	P	Q	R	Lisle 6.1-6.5
3/15-3/19	7	S	T	U	Lisle 6.6-6.9
3/22-3/26	8	V	W	X	Critique of actual GSA/AGU abstracts
3/29-4/2	9	Y	Z	AA	Lisle Ch10
4/5-4/9	10	BB	CC	DD	Critique of published Cross-Sections
4/12-4/16	11	EE	FF	GG	Lisle Ch11
4/19-4/23	12	HH	II	JJ	-
4/26-4/30	13	KK	LL	MM	Critique of Previous Lecture Slide Presentations
5/3-5/7	14	NN	OO	PP	Critique of oral in-class presentation
5/10-5/15	15	**Exam Week**			

A	Introducton & Syllabus
B	Plagiarism
C	Communicating Ideas
D	Mapping Basics I
E	Mapping Basics Extraction
F	Introducton & Scientific Writing
G	Topographic Base Maps
H	Topographic Activities
I	Presenting Numerical Data I
J	Surficial, Igneous, & Bedrock Maps
K	Distinguishing deposit types
L	Presenting Numerical Data II
M	Description of Lithological Units
N	Lithological Description Case Study
O	Writing Geological Unit Reports
P	Inclined Beds & Folding
Q	Mapping Inclines & Folds
R	Constructing Scientific Figures I
S	Faults & Unconformities
T	ID Contact Types
U	Constructing Scientific Figures II

V	Field Equipment & Survey Approaches
W	Strike & Dip Practice
X	Abstract I
Y	Cross-Sections & 3D Maps I
Z	Interpreting Cross-Section Maps
AA	Abstract II
BB	Corss-Section & 3D Maps II
CC	Create Cross-Section Maps
DD	Remote Mapping Case Study
EE	Structural Geology Mapping
FF	Structural Geology Map Case Study
GG	Writing a Geologic Map Report I
HH	Writing a Geologic Map Report II
II	Mapping Final Project I
JJ	Mapping Final Project II
KK	Presentation Styles
LL	Mapping Final Project III
MM	Mapping Final Project IV
NN	Presentations
OO	Presentations
PP	Presentations