

GEO 350: Landform Field and Laboratory Techniques (4 credits)

Fall 2007

Course Information and Syllabus

Schedule: M, 3:00 to 6:40 pm

Location: 144 Wilkeson

Email: seanb@buffalo.edu

Instructor: Dr. Sean J. Bennett

Office: 126 Wilkeson Quad

Office Hours: T and W, 2:00-4:00 p.m.

Course objectives: This course is intended to introduce students to data collection techniques in Earth Systems Science. Students will actively participate in the data collection, data analysis, and error determination, individually and in groups, in both field and laboratory settings. Many of the topics will be linked to relevant environmental and geomorphic issues, and points for discussion will be posed. Students will develop and enhance their skills in data collection, reduction, and analysis, analytical thinking, scientific writing, and the preparation of professional reports.

Course format: Ten (10) field and laboratory exercises and five (5) in-class discussions. Field and laboratory exercises will take place regardless of weather conditions, and all students should be dressed appropriately. Each exercise will be introduced and demonstrated in the field, a brief lecture on safety issues will be provided, and a handout will describe detailed information regarding objectives, data collection techniques, data processing and presentation requirements, and expectations. Communication, announcements, data sharing, and other pertinent information will be provided via E-mail and UBlerns.

In-class meetings will be devoted to discussing upcoming exercises, previous activities and prepared reports, feedback on grades and suggestions for improvement, and student presentation of fact sheets.

Meeting times, locations, and tasks may vary depending upon the scheduled activity, weather, or other opportunities. Your flexibility and willingness to drive to remote locations would be appreciated.

Students should come prepared for outdoor activities lasting several hours. Recommended materials include clipboard or field notebook, calculator, backpack, and pens and pencils.

Course Syllabus

Exercise No.	Date	Activity	Assignments Due	
			Report	Fact Sheet
1	Aug. 27	<i>In-class meeting; Topographic Surveying I</i>		
	Sep. 3	NO CLASS		
2	Sep. 10	Topographic Surveying II	1	
	Sep. 17	<i>In-class meeting; presentation of fact sheets</i>	2	1
3	Sep. 24*	Hydraulic Geometry of Stream Channels		
4	Oct. 1*	Stream Channel Gradient and Water Quality	3	
5	Oct. 8*	Measurement of Stream Discharge	4	
	Oct. 15	<i>In-class meeting; presentation of fact sheets</i>	5	2, 3, and 4
6	Oct. 22*	Rainfall and Evaporation		
7	Oct. 29	Soil Analysis I	6	
8	Nov. 5	Soil Analysis II	7	
	Nov. 12	<i>In-class meeting; presentation of fact sheets</i>	8	5, 6, and 7
9	Nov. 19	Global Positioning Systems		
10	Nov. 26	Hydraulic Flumes and Flow Velocity	9	
	Dec. 3	<i>In-class meeting; presentation of fact sheets</i>	10	8, 9, and 10

*These activities will be conducted off-site at a site to be determined.

Course requirements: No formal text is available for this course—all materials as well as recommended readings will be provided to the students and made available on UBl earns. All students will be required to sign a standard “Assumption of Risk” form before the term begins.

Assessment:

1. Ten (10) written laboratory assignments (20 points each), summarizing all results prepared individually but based on individual, team, or class-wide data collection. Assignments sent to the instructor by E-mail will not be accepted.
2. Two (2) Fact Sheets (up to two-pages long; 10 points each), summarizing pictorially the field and laboratory activity, prepared as a group (in MS-WORD), and presented to the class via laptop computer and projector (i.e., PowerPoint Presentation). One designee (or more) from the group may be chosen to present the Fact Sheet, but designees cannot make more than one presentation during the semester.
3. Field attendance is mandatory (5 points each).
4. Those individuals who miss a field campaign are solely responsible for securing collected data from a student colleague (not the instructor) to complete the written assignment. Should a student miss a field campaign, (i) that student will not receive the 5 points for attendance, and (ii) the completed assignment will be worth a maximum of 5 points (25%) rather 20 points. Thus, each absence from a field campaign will result in a 15 point or 7% reduction in the final grade (see below).
5. Participation (30 points) includes asking questions and providing answers, assisting in field and laboratory campaigns, and willingness to assist other students.

Grading matrix: Below is a table listing all activities, their number and worth (points), and their percentage of total used to determine the student’s final grade.

<i>Activity</i>	<i>Total Number</i>	<i>Points per Event</i>	<i>Total Points</i>	<i>% of Total</i>
Field attendance	10	5	50	17
Laboratory reports	10	20	200	67
Fact sheets	2	10	20	6
Participation	N.A.	N.A.	30	10
Total			300	100

Penalty for late reports: All assignments submitted after close of business on due date will be assessed a 4-point (20%) deduction per day. After four (4) days, no late work will be accepted. Fact Sheets not submitted and presented on time will receive a “0” grade.

Final grade: Below is a table that lists the range of percentages (first and second column) and the equivalent University letter grade (last column) I will use for grading. For example, should your cumulative average for all assignments plus participation equal 72% (i.e., 216 out of 300 points), you will receive a final grade of B– (72% is greater than or equal to 70% and less than 73%). All numerical grades will be rounded up or down to the nearest integer. The Instructor reserves the right to adjust the scores of the cumulative average if it is necessary to boost the performance of the entire class. This will be done numerically and of equal weight for every student.

Greater than or equal to (%)	Less than (%)	Equivalent University letter grade
85	100	A
80	85	A–
77	80	B+
73	77	B
70	73	B–
67	70	C+
63	67	C
60	63	C–
55	60	D+
50	55	D
0	50	F

General guidelines for laboratory reports:

- All laboratory reports must have the following headings: (a) Objectives, (b) Procedure, (c) Results, (d) Discussion, (e) Conclusions, and (f) References (if necessary)
- Reports will be assessed for content, accuracy, originality, presentation, organization, and overall writing quality
- All figures and tables require a caption and must be numbered sequentially in order of appearance
- Equations should be numbered sequentially in order of appearance, and all variables defined
- All material presented must be accurately and correctly cited
- Citations and references should follow the style and format of the *American Geophysical Union*

General guidelines for writing:

- Plagiarism or the submission of work not your own will result in “0” grade for the assignment
- Write in third person rather than first (i.e., use “Soil samples were collected at...” rather than “I collected soil samples...”)
- Use a formal, scientific, and professional voice—avoid slang, editorial, and colloquial language, never use contractions, and never misspell, misquote, or misrepresent anything
- Write concisely—avoid wordiness, redundancy, and ambiguity
- Keep observations, measurements, and results separate from interpretations
- Choose a tense and use it consistently—activities are typically presented using the past tense, while results are typically discussed using the present tense (i.e., “Samples were collected...,” “A contour plot of elevation is shown in Figure 1,” and “The bulk density of the soil increases with depth below the surface (Figure 2).”)

General guidelines for fact sheets:

- Comprised of two (2) pages (submitted as MS-WORD files) of informative pictures showing various aspects of the activities undertaken, focused on “people” conducting work (i.e., all pictures should be active with people)
- Text should be a concise, chronological narrative, a few lines long, of the activity that accompanies or complements the figures; avoid referring to figures—placement of the text close to the figure ensures that the contextual connection is made
- Write in a positive, informative, and active voice (“Jane Walker is focusing the theodolite onto the target...”)—avoid lapses in language (see above)
- Presentation should have a “beginning,” a “middle,” and an “end”
- There is zero tolerance for insensitive or discriminatory language and pictures (please be reminded of UB’s policy “No person, in whatever relationship with the State University of New York at Buffalo, shall be subject to discrimination on the basis of age, creed, color, handicap, national origin, race, religion, sex, or marital or veteran status”)

General guidelines for presenting fact sheets:

- Students will present the Fact Sheets standing in front of the class
- Students are allotted 10 minutes per presentation
- Format should be restricted to about 10 PowerPoint slides (laptop computer and projector will be provided)—include title and authors, the objectives of the exercise, the main pictures and accompanying text, and some simple concluding statements or summary
- Speak to the audience and not the screen, use a relaxed, confident, and authoritative tone, make eye contact with the audience, and minimize gestures
- Respect each other at all times

Schedule for Fact Sheets.

Exercise No.	Date	Activity	Fact Sheet Due	Fact Sheet Preparers			
1	Aug. 27	Topographic Surveying I	Sep. 17	Berlinghoff	Case	Cecilio	
2	Sep. 10	Topographic Surveying II	Oct. 15	Gallisdorfer	Kohles	Ingelman	
3	Sep. 24*	Hydraulic Geometry of Stream Channels	Oct. 15	Szocki	Jones	Katz	Lopez
4	Oct. 1*	Stream Channel Gradient	Oct. 15	Martinez	Rowe	Padliya	
5	Oct. 8*	Measurement of Stream Discharge	Nov. 12	Tucholski	Williams	Yost	
6	Oct. 22*	Rainfall and Evaporation	Nov. 12	Cecilio	Ingelman	Lopez	
7	Oct. 29	Soil Analysis I	Nov. 12	Yost	Case	Kohles	Katz
8	Nov. 5	Soil Analysis II	Dec. 3	Padliya	Williams	Berlinghoff	Fello
9	Nov. 19	Global Position Satellite Systems	Dec. 3	Szocki	Martinez	Fello	
10	Nov. 26	Hydraulic Flumes and Flow Velocity	Dec. 3	Gallisdorfer	Jones	Rowe	Tucholski

*These activities will be conducted off-site.