

Syllabus: INST-400-02 Summer Quarter 2009

Earth Science and Humankind

Instructor:

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- Office: Room 240 Science. Office hours 4:30-5:30 PM Mon. (before class) and by appointment.

Course Structure:

- Class meets 5:30-9:30 PM Monday evenings in Science 237.
- Please do not use **cell phones & other electronic devices** during class, except in an emergency.
- In case of **inclement weather**, class will attempt to meet unless Otterbein College officially closes.

Textbook:

- Required: *Environmental Geology* 8th edition by Carla Montgomery (2008).
- Study Guide can be accessed online at www.mhhe.com/montgomery/8e.
- Required: Otterbein College *Integrated Studies Reader* (2006). (Copies in OC Library)

Course Description:

INST 400 is an **integrative studies class** as well as an **earth science class**. It is designed to be an introductory environmental science class with emphasis on environmental geology. Like other integrative studies classes, the goals are to teach students to exercise critical thinking skills, communicate clearly, appreciate inter-disciplinary connections, understand the complexity of contemporary issues and to understand how human beings fit into this particular area. Specifically, INST 400 provides an appreciation for and an understanding of our geological environment. Emphasis is on the analysis of ways that humans and earth interact, including Ohio environmental issues, rock and mineral resources, plate tectonics (including earthquakes), groundwater and surface water (including flooding), formation and importance of soils, energy resources and waste management (including pollution). The class features numerous teaching and learning methods, including lecture, discussion, field trips, newspaper articles, laboratory exercises, papers, problem sets, quizzes, web-based exercises, videos and exams. Since this is an introductory class covering many topics, **many smaller assignments** are done as opposed to large projects. **The workload is substantial in terms of time and energy.**

Main Course Goals:

- Help students accomplish the **common goals of Integrated Studies**: (1) understand human nature; (2) think critically and creatively; (3) communicate accurately and effectively in writing and speaking; (4) develop competencies in a broad range of disciplines; (5) make integrative connections across disciplines; (6) identify beliefs and extend knowledge of ethical and spiritual issues; and (7) access and evaluate information, resources, & technology.
- **“Developing the ability to make, recognize, and evaluate connections among disparate concepts, fields, or contexts is what integrative learning is all about.”** (www.aacu.org/liberaleducation 2007)
- Provide students with an appreciation for and understanding of our geological environment.
- Give students an appreciation for and understanding of how geologic processes are important to our society in terms of current political issues, controversies, local, regional and national happenings and future trends, i.e., “real world” connections and “worldmindedness.”

Grading:

- The grading system is based on **points earned and percentages**:
A= 93%-100% A-= 90%-92% B+= 87%-89% B= 83%- 86% B-= 80%-82%
C+=77%-79% C= 73%-76% C-=70%-72% D+= 67%-69% D= 60%-66%
- Grades are distributed as follows:
Assignments~49% Quizzes~11% Midterm Exam~18% Final Exam~22%
- **Access Blackboard for Announcements, Assignments, Gradebook, and Course Documents.**

Assignments:

- **General Tips for Writing Papers for this Class:**
- ** Use the papers as **learning experiences**; show evidence that you have mastered major ideas.
- ** Be sure to **proofread** before preparing your final draft. SpellCheck does not detect all errors.
- ** Avoid run-on (fused) sentences! There are four (4) ways to join independent clauses: with a comma and a coordinating conjunction; with a semicolon alone; with a semicolon and a conjunctive adverb or transitional phrase; or with a colon.
- ** Students who need help with their writing skills should contact the Otterbein College **Writing Center**.
- **Reaction Papers (15 points each):**
- ** The purpose of the reaction papers is to give you an opportunity to read critically to think critically, one of the main goals of Integrative Studies. The best way to do this is to react, or “talk back”, to the text in writing. What are you thinking and feeling? Why? A high level of scholarship, critical thinking and clear communication are among the expectations.
- ** Specific prompts for reaction papers:
 - a. Part 1 (analysis questions) can be handwritten.
 - b. Part 2 (your reaction) typed, one page, double spaced. **Space is precious. Be concise.**
 - c. **Please do not use direct quotations** from the reading(s). No citations are necessary.
 - d. No more than one spelling/typographical/sentence construction error.
 - e. Make reference to the author(s) by name.
 - f. Cite **specifics** to indicate that you’ve read and analyzed the material.
 - g. Turn in a hard copy. **Please do not send as a Word attachment.**
 - h. Keep a back-up copy.
- ** Grading criteria: grammatical/typographic correctness (level 1), evidence of critical reading (level 2), thoughtfulness of reaction(s) and demonstration of high level thinking (level 3).
- ** “D” and “F” papers can be rewritten; however rewritten papers cannot exceed a grade of “B.”
- **Position Papers (15 points each):**
- ** The purpose of the position papers is to give you an opportunity to weigh data and scientific information from a variety of sources to take an informed position on a local or national public policy issue. A high level of scholarship, critical thinking and clear communication are among the expectations on position papers, which are important Integrative Studies goals.
- ** Specific prompts for position papers:
 - a. Part 1 (T-diagram of pro’s and con’s) one page typed, double spaced.
 - b. Part 2 (your position) one page, typed, double spaced. **Space is precious. Be concise.**
 - c. **Please do not use direct quotations** from the reading(s). No citations are necessary.
 - d. No more than two spelling/typographical/sentence construction errors.
 - e. Use a **“thesis-first”** approach: your position (thesis) must be stated in the first paragraph.
 - f. Intermediate positions are not acceptable, e.g., if Congress is voting, it’s either “yea” or “nay.” It may help to think of your position like a court case. The jury bases their decision on the evidence presented, not on the personal opinions of the lawyers.
 - g. **It is not necessary, nor expected, that your position agree with that of the instructor! How you support your view is more important than what your position actually is.**
 - h. Support your claims with **specific** evidence (facts, examples, etc.).
 - i. Support your position, but also **refute** the counterclaims made by the opposition. If you oppose a particular view, can you suggest better alternatives?
 - j. Make mention of all of the pro’s and con’s, but emphasize some more than others.
 - k. Turn in a hard copy. **Please do not send as a Word attachment.** Keep a back-up.
- ** Grading criteria: grammatical/typographic correctness (level 1), address of all sides of the issue and support of your position (level 2), refutation of the opposition and demonstration of high level thinking (level 3).
- ** “D” and “F” papers can be rewritten; however, rewritten papers cannot exceed a grade of “B.”

- **Laboratory Activities (including field trips and data manipulation exercises) (15 points each):**
 - ** These activities are designed to be **experiential**; students learn best by seeing and doing.
 - ** Some of the lab exercises give you practice in working with quantitative data and in accessing online informational technology. No algebra or calculus is required. Websites and links often change so you may have to explore on your own sometimes.
 - ** Additional purposes of the lab activities include working with and interacting with classmates in a more informal setting.
 - ** Lab activities and field trips can be done with a partner or small group, but the questions must be **completed individually**. Missed field trips can be made up on site and/or online.
- **Quizzes (15 points each):**
 - ** The main purpose of the quizzes is to give students an incentive for doing the readings and assignments and keeping up to date. Since the textbook contains an overwhelming amount of information, you will need to learn to recognize what things are most important. Use the lecture material as the “skeleton” and use the textbook to supplement the lectures.
 - ** Format for quizzes: definitions, completion, true-false, multiple choice, short answer questions.
 - ** Quiz content is based mostly on the lectures, problem sets, Blackboard lecture notes, and the assignments, but there is usually a question or two from the text readings as well.
 - ** A **current environmental article** is to be attached as a part of the quiz grade. The purpose of the articles is to connect the concepts in the course to the “real world.” Please **highlight or underline** the main ideas and write a **one sentence “big idea” summary** on the article margin.
- **Exams (100-120 points each):**
 - ** Refer to the “Course Documents” on Blackboard for exam information.
 - ** Final exam is not cumulative; it covers only the material from the midterm exam on.
 - ** Suggested study priorities: key vocabulary, instructor’s Blackboard lecture notes, problem sets, and textbook readings.
- **Problem Sets (15 points each):**
 - ** The purpose of the problem sets is to provide you with a tangible guide to some of the important information presented. They will contain notes, diagrams, and graphics as well as selected parts of the online **study guide**. Be careful not to be too “particular” on the study guide exercises. Instructor’s personal **lecture notes** are also posted in outline form on **Blackboard** under “Course Documents”, which can be accessed off of the Control Panel.
 - ** For best results, students should read and study the problem sets both **before and after** lectures.

Academic Integrity:

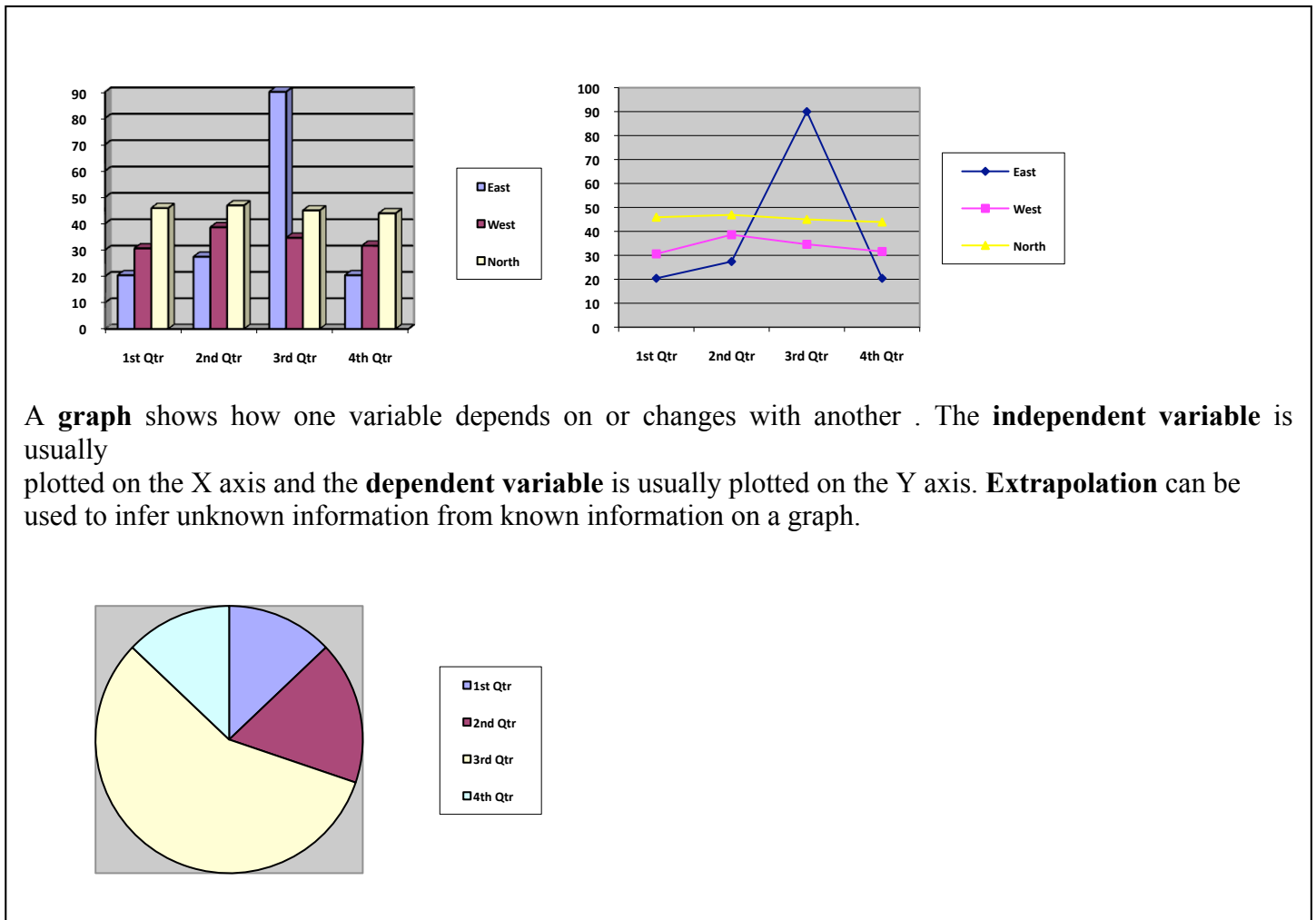
It is expected that students demonstrate academic integrity as described in the Plagiarism, Cheating and Dishonesty Policy stated in the Otterbein *Campus Life Handbook*. All items that are turned in should be original work. Obviously identical wording on different papers will be severely penalized.

Attendance Policy:

Students are expected to attend all class meetings in their entirety. This is especially important because this is an intense course and because it is nearly impossible to reconstruct a particular class. **Missed quizzes and exams** must be made up **before** the graded items are returned to the class. The lowest quiz (zero if absent) will be dropped. **Late assignments will be accepted, but grades will be reduced by one point for each day late.** No assignments will be accepted after the final exam unless special arrangements are made with the instructor. If you anticipate being absent on a given day, notify me and I may be able to provide the assignments **in advance**. In extenuating circumstances I would appreciate an explanation (preferably in advance) for your absence, tardiness or early departure. Please approach me if personal problems and/or concerns come up. I’ll try to be reasonable!

BASIC SKILLS THAT ARE EXPECTED OF STUDENTS

1. Read and interpret data from different types of graphs: bar graphs, line graphs, pie graphs. For example:



A **graph** shows how one variable depends on or changes with another . The **independent variable** is usually plotted on the X axis and the **dependent variable** is usually plotted on the Y axis. **Extrapolation** can be used to infer unknown information from known information on a graph.

2. Calculate percent increase and decrease. When a quantity grows, we can compute its percent increase:

$$\text{PERCENT INCREASE} = (\text{new amount} - \text{original amount}) / (\text{original amount}) \times 100$$

When a quantity shrinks, we can compute its percent decrease:

$$\text{PERCENT DECREASE} = (\text{original amount} - \text{new amount}) / (\text{original amount}) \times 100$$

Both formulas have the following pattern:

$$\text{PERCENT INCREASE OR PERCENT DECREASE} = (\text{change in amount}) / (\text{original amount}) \times 100$$

Examples: (1) A price rose from \$5 to \$7. What percent increase is this? (Answer: 40 %)

(2) A quantity decreased from 90 to 75. What percent decrease it this? (Answer: 16.67 %)

- Use a **“thesis-first” approach** in essays. A **thesis statement** asserts the point the writer hopes to make in the essay. In a “thesis-first” approach, the thesis statement is usually **a single sentence somewhere in your first paragraph** that presents your argument to the reader. The rest of the paper, the body of the essay, gathers and organizes evidence that will persuade the reader of the logic of your interpretation.
- Support generalizations with specifics. Everyone’s thinking is a combination of the general and the specific. A generalization is a statement which has general application; it involves obvious features, not the details. In writing, it is essential to **support or prove generalizations with facts, examples, statistics, personal experiences, illustrations, etc.** that will attempt to convince the reader that what you are saying is true. For example, the statement “my friend is weird” is a generalization that produces unanswered questions: why? what does that mean?, etc. “She never starts studying until after midnight” might be a supportive specific.

INST 400-02 Schedule (subject to change)

Week/Date	Topic	Readings	Assignments (*on Blackboard)	Items Due
Wk.#1 Mon.6/15	Review Syllabus. Intro. to Environmental Science. Rocks & Minerals.	Chapters 1, 2, 13. p. 237-240. p. 644-655 IS Reader.	Student Survey Problem Set(PS) #1 *Paper#1(Reaction) *Lab #1	Student Survey
Wk.#2 Mon.6/22	Plate Tectonics. Volcanoes. Earthquakes.	Chapters 3, 4, 5	Quiz #1 (Rks/Min) Problem Set #2 *Lab #2 *Lab #3	Quiz #1 + Art. #1 L#1(Camp.Geol.) P#1 (Sci. a Faith?)
Wk.#3 Mon.6/29	Water Resources. Flooding.	Chapters 6, 11.	Quiz #2 (Pl.Tect.) Problem Set #3 *Paper #2(Position) *Lab #4 *Lab #5	Quiz #2 + Art. #2 L#2(Earthquakes) L#3(Alum Creek)
Wk. #4 Mon.7/06	Soils. Midterm Exam.	Chapter 12	Problem Set #4 *Lab #6	Midterm Exam PS #1, #2, #3 L#4(WWTP) L#5(Flooding) P#2(Darby Creek)
Wk.#5 Mon.7/13	Energy. Fossil Fuels. Alternatives.	Chapters 10,14,15	Quiz #3 (Soils) Problem Set #5 *Lab #7 *Paper #3(Position)	Quiz #3 + Art. #3 L#6 (OH Soils)
Wk.#6 Mon.7/20	Global Warming. Waste Management.	Chps. 10,16,17,18	Quiz #4(Energy) Problem Set #6 *Paper#4(Reaction)	Quiz#4 + Art.#4 P #3(Cape Wind) L#7(All About Oil)
Wk.#7 Mon.7/27	Air and Water Pollution. Waste Management. Course Evaluation.	Chps. 10,16,17,18	Problem Set #6 Quiz#5("A Civil Action" in class) Problem Set #6 *Lab #8	Quiz #5 ("ACA") P #4 (Cap-and-Trade) Course Evaluation
Wk. #8 Mon.8/03	No Class.	Catch Up.	Work Ahead.	None.
Wk.#9 Mon.8/10	Final Exam.			Final Exam PS #4, #5, #6 L#8(Glob. Warm.) Late Assignments

