

Biol. 463
Global Ecology
Fall 2024
Exam I

Readings & associated study questions

Vitousek et al. 1997
Nance et al. 1988
Richter and Markewitz 1995

Lockeretz 1978
Montgomery 2007

Textbook chapters

Chapters 1, 7, 10 (pgs. 190-194), & pages 21-23

Web sites & associated study questions

Plate Tectonics & Continental Crust

Lecture materials up to, and including, the lithosphere

Handouts available as PDF & PowerPoint files on class web site.
Lecture recordings 1-8 available in shared Google Drive folder

Items of special note (not a comprehensive list):

Formation of Earth
Plate tectonics & boundaries
Continental drift
Supercontinent cycle/Wilson cycle
Soil formation & structure

Soil classifications
Rock weathering mechanisms & reactions
Link between rock weathering and global climate (e.g., silicate weathering CO₂ thermostat)
Soil Chemistry: Cation exchange & soil buffering mechanisms

Useful terms to know & to be able to place into the context of global ecology (not a comprehensive list):

IPAT
Nebula
Asthenosphere
Continental crust
Oceanic crust
Magma ocean
Planetesimals
Core
Mantle
Magnetic dynamo
Felsic
Mafic
Continental drift
Divergent boundary
Convergent boundaries
Parallel (transform) boundary
Eclogite
Ridge push
Slab pull

Subduction
Oceanic volcanic island arc
Pangea
Supercontinent
Active margin
Passive margin
Rift valley
Linear sea
Mid-ocean ridge
Seafloor spreading
Supercontinent cycle
Extroversion
Introversion
Curie temperature
Urey Reaction
Positive feedback loop
Negative feedback loop
Positive coupling
Negative coupling

Parent material
Congruent dissolution weathering
Incongruent dissolution weathering
Denudation
Carbonation reaction
Soil texture
Bowen Reaction Series
Eluviation
Illuviation
A horizon
B horizon
C horizon
O horizon
E or A_e horizon
Caliche
Cation Exchange Capacity
Aluminum buffering

Exam time, location, & structure

Time of the exam: February 7; 6:30-8:30 PM

Location: In person in 3306 LSB

Structure of exam: The exam will consist of three parts: answer 4 out of 5 term explanations (10 pts each); answer 3 out of 4 multiple choice (5 pts each); and answer 3 out of 4 in depth questions (15 pts each).

No questions will be from the homework problem sets.

No questions will be from material covered only in textbook, but textbook should reinforce/clarify information in lectures and other readings.

Detailed answers expected for term explanations & in-depth questions!

This is a **closed book exam**, meaning that **no outside sources of information are to be used during the exam (books, internet, notes, other people, etc.)**.