

ESM 202 Environmental Biogeochemistry

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Lectures: Bren Hall 1414, 10 to 11:15 am Tuesday and Thursday

Textbook: Biogeochemistry, by Schlesinger and Bernhardt

LECTURES

Jan 10 Introduction: overview, concepts and relevance (AK)

Jan 12 Understanding water quality (AK)

Jan 17 Understanding water quality (AK)

Jan 19 Air quality (AK)

Jan 24 Watersheds and atmospheric deposition (JM)

Jan 26 Nitrogen cycle (JM)

Jan 31 Eutrophication and phosphorus (JM)

Feb 2 Oxygen cycling (JM)

Feb 7 MIDTERM

Feb 9 Carbon cycle and ocean processes (JM)

Feb 14 Terrestrial carbon dynamics (JM)

Feb 16 Wetland biogeochemistry (JM)

Feb 21 Sulfur cycle – sources, processes and effects (AK)

Feb 23 Acid mine drainage (AK)

Feb 28 Trace elements – sources, processes and effects (AK)

Mar 2 Emerging pollutants (AK)

Mar 7 Ecotoxicology (AK)

Mar 9 Life-cycle assessment & biogeochemistry (Geyer)

Mar 14 Restoration approaches (JM)

Mar 16 Synthesis and interactions (JM)

Mar 21 FINAL EXAM (8 to 11 am)

DISCUSSIONS

Tu 1-1:50 and 2-2:50; W 1-1:50 and 2-2:50 (all in Bren 1510)

Week	Topics
1	Water quality concepts
2	Air quality concepts
3	N & P biogeochemistry
4	Midterm and problem set review
5	Carbon cycle
6	Sulfur & acid mine drainage
7	Metals
8	Emerging pollutants
9	Open topic
10	Review for final

GRADING

- Assignments 3 x 15% each
- Midterm 20%
- Final 35%

Reading Materials

Chapters in Biogeochemistry – Schlesinger and Bernhardt 2013

Week	Readings
1	Chapters 1, 2 and 8
2	Chapter 3 and 12, Articles on Particulate Matter
3	Chapter 6
4	Chapter 7
5	Chapter 11
6	Chapters 5 and 9
7	Chapter 13
8	Articles on Trace Elements & Emerging Contaminants
9	Article on Ecotoxicology
10	Chapter 14; Review for final

Articles will be posted to the course website in Gauchospace.
Homework assignments will be posted to Gauchospace.