ESM 202 Environmental Biogeochemistry

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LECTURES

Week 1  Introduction: overview, concepts and relevance  (TH & AK)
Week 1  Understanding water quality  (AK)

Week 2  Understanding water quality – redox (TH)
Week 2  Nitrogen and phosphorus cycles – sources, processes & effects (TH)

Week 3  Eutrophication, wastewater treatment, fertilizer management (AK)
Week 3  Sulfur cycle – sources, processes and effects (TH)

Week 4  Trace elements – sources, processes and effects (TH)
Week 4  Acid Mine Drainage (TH)

Week 5  Air pollution: urban smog, stratospheric ozone (AK)
Week 5  Industrial Ecology, Life-Cycle Assessment & Biogeochemistry (AK)

Week 6  Analyzing environmental samples (TH)
Week 6  MIDTERM  Feb 10 – in class

Week 7  Carbon cycle – drivers of emissions (AK)
Week 7  Carbon cycle – ocean processes (AK)

Week 8  Terrestrial carbon dynamics (AK)
Week 8  Ecotoxicology - Assessing the effects of chemicals (TH)

Week 9  Emerging pollutants (TH)
Week 9  Wetland biogeochemistry (AK)

Week 10  Modeling biogeochemistry for policy decisions (AK)
Week 10  Synthesis and interactions (TH & AK)

16 Mar  FINAL EXAM  (8 to 11 am)
DISCUSSIONS

Week

1. Overview of discussion section mechanics, sign-up for topics
2. Water quality
3. N & P biogeochemistry
4. Eutrophication
5. S and trace elements biogeochemistry
6. Midterm Review
7. Carbon Cycle & Climate Change
8. Assessment of effects of chemicals on ecosystems
9. Integration of policy and science
10. Review for final

GRADING

- Presentation and participation in discussions 10%
- Assignments 50%
- Midterm 15%
- Final 25%