Global Ecology and Biogeochemistry – NREM 5053

Instructor: Dr. Gail Wilson
Office: 475 Agriculture Hall
Office Phone: 455-5539
Email: gail.wilson@okstate.edu
Office hours: By appointment

Class times: Monday and Wednesday 2:30 – 3:45 Room 019 Ag Hall


Course Objectives:
1) Increase understanding of global ecology and current global change phenomenon.
2) Acknowledge that ecological concepts are complex and dynamic.
3) Examine key nutrient pools and transformations in the atmosphere, soils, and hydrosphere, with an emphasis on the role of living organisms in nutrient transformations and fluxes.
4) Gain an understanding of patterns and controls of nutrient cycling at a variety of spatial and temporal scales, with an emphasis on processes relevant to biogeochemical cycles at ecosystem and global scales.
5) Increase understanding of the basic tools and knowledge (methodological approaches and analytical techniques) necessary to study biogeochemical cycling in a variety of different ecosystem types in a changing world.
6) Improve skills necessary for success in a science-related career: constructively critiquing and interpreting scientific literature, improving scientific writing and oral presentations, understanding that assimilation of new information is a part of lifelong learning.

Grading:
- Take-home mid-term exam worth 100 pts
- Take-home final exam worth 100 pts
- Presentation (nutrient dynamics and global change interactions: topic of choice) worth 100 pts
- Homework (5 journal article reviews) worth 50 pts
- Class participation worth 50 pts

Total of 400 points possible.
Grading Scale: 100-90% = A; 89-80%=B; 79-70%=C; 69-60%=D; <60%=F

Academic Integrity Policy: “Oklahoma State University is committed to the maintenance of the highest standards of integrity and ethical conduct of its members. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and fraudulently altering academic records) will result in your being sanctioned. Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript (F!), and being suspended from the University. You have the right to appeal the charge. Contact the Office of Academic Affairs, 101 Whitehurst, 405-744-5627, academicintegrity.okstate.edu.”
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Proposed course outline (subject to alterations):

Jan 13 Intro and population aspects of global change
Jan 15 climate change and article discussion
Jan 20 MLK – no class
Jan 22 land use change and water
Jan 27 invasive species – article discussion - article review due
Feb 3 origins
Feb 5 early atmosphere
Feb 10 atmosphere
Feb 12 atmosphere deposition - article review due
Feb 17 lithosphere
Feb 19 chemical weathering
Feb 24 DC – no class – first test
Feb 26 DC – no class – first test
March 3 clays and CEC
March 5 P cycle - article review due
March 10 article discussion
March 12 Biosphere C
March 17 Spring break – no class
March 19 Spring break – no class
March 24 article discussion
March 26 aboveground NPP - article review due
March 31 belowground NPP
April 2 decomposition
April 7 Sorghum meeting – no class
April 9 N cycle
April 14 article discussion - article review due
April 16 organic N
April 21 Presentations
April 23 Presentations
April 28 Presentations
April 30 Presentations
May 5 – 9 Finals