

- A short, take-home, open-book exam to be submitted the day after the last lecture; answer four questions clearly and concisely in about 20 min each. **Late exams** will not be accepted.

Course goals: The goal of this course is to provide a sophisticated understanding of ecosystem flow and structure, from landscape to global scales.

Grading: Letter grades will be assigned based as follows: leading in-class discussion: 25%; active participation: 25%; short, take-home essay exam: 50%.

Grade scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; < 60 F

LECTURES AND REQUIRED READINGS

1. Biogeochemical Cycles: Water
(Reading: Durack et al. 2012)
2. Biogeochemical Cycles: Carbon and Nitrogen
(Reading: Trumper et al. 2009; Galloway et al. 2005)
3. Trophic Interactions
(Reading: Estes et al. 2011)
4. Landscape Ecology
(Reading: Forman 1995)
5. Macroecology and Biogeography
(Reading: Rosenzweig 1995, Brown & Maurer 1989)
6. Global Ecology
(Reading: Lovelock et al. 1973)

Take-home essay exam due by email at 4 pm the day after lecture 6.

Americans with Disabilities Act (ADA): The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit <http://disability.tamu.edu>.

Academic Integrity: For additional information please visit:

<http://aggiehonor.tamu.edu> and

<http://aggiehonor.tamu.edu/Descriptions/Plagiarism.aspx> .

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”

Readings List:

Brown, J.H. & Maurer, B.A. 1989. Macroecology: the division of food and space among species on continents. *Science* 243: 1145-1150.

Durack, P.J. 2012. Ocean salinities reveal strong global water cycle intensification during 1950 to 2000. *Science* 336: 455-458.

Estes, J.A. 2011. Trophic downgrading of planet Earth. *Science* 333: 301-306.

Forman, R. 1995. Some general principles of landscape ecology and regional ecology. *Landscape Ecology* 10: 133-142.

Galloway, J.N. et al. 2004. Nitrogen cycles: Past, present, future. *Biogeochemistry* 70: 153-226.

Lovelock et al. 1973. Atmospheric homeostasis by and for the biosphere: the Gaia hypothesis. *Tellus XXVI*: 1-2.

Rosenzweig, M.L. *Species diversity in space and time*. Chapter 1. Cambridge U Press.

Trumper et al. 2009. *The natural fix? The role of ecosystems in climate mitigation. A UNEP rapid response assessment*. UNEP, Cambridge.