

ECOLOGY — Spring 2018

This is a 3-credit course, offering fundamental concepts, theories, and issues in ecology and their applications. Major contents include evolutionary and behavioral ecology, environment and physiological ecology, life history, demography and population growth, population regulation and meta-populations, intra- and inter-specific interactions, community ecology, species diversity and distribution, landscape ecology, theoretical ecology, nutrient cycling and energy flow in ecosystem, global ecology, and conservation. Supplemental contents will be announced as necessary.

Time and place: Tuesday 10:10-12:00 and Thursday 09:10-10:00; LSB Room 3404

Instructors:

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Office hours: after classes, TBA, or by appointments

Textbook:

Molles, M. C., Jr. 2016. Ecology: Concepts & Applications. 7th Edition. McGraw-Hill, NY.

Evaluation: 3 exams (2 mid-terms, 1 final; each 25%), and a term project (25%)*

* Pick up the topic by **3/30**; turn in the outline for approval by **4/27**; the final term paper due by **6/16** before 18:00.

Some useful and interesting online sources:

The International Union for Conservation of Nature (IUCN; www.iucn.org)

The Association of Tropical Biology and Conservation (www.atbio.org)

Biotropica

The Ecological Society of America (www.esa.org)

Ecology; Ecological Applications; Ecological Monographs; Frontiers in Ecology

The British Ecological Society (www.britishecologicalsociety.org)

Journal of Ecology; Journal of Animal Ecology; Journal of Applied Ecology;
Functional Ecology

Ecological Society of Germany, Austria, and Switzerland (www.gfoe.org)

Basic and Applied Ecology

Nordic Society Oikos (www.oikos.ekol.lu.se)

Oikos, Ecography, Web Ecology

Ecological Society of Australia (www.ecolsoc.org.au)

Austral Ecology; Ecological Management and Restoration

Ecological Society of Japan (www.soc.nii.ac.jp)

Ecological Research; Japanese Journal of Ecology

Society of Subtropical Ecology (www.sse.org.tw)

Wk (Date)	Topics (readings)	Instructor
1 (02/27)	Introduction; The nature of ecology (Ch1)	Lee
(03/01)	Physical environments and life forms (Ch 2-3)	Chiou
2 (03/06, 08)	Physical environments and life forms (Ch 2-3)	Chiou
3 (03/13)	Population genetics and natural selection (Ch 4)	Chiou
(03/15)	Adaptations and physiological ecology (Ch 5-6)	Chiou
4 (03/20, 22)	Adaptations and physiological ecology (Ch 5-6)	Chiou
5 (03/27)	Energy and nutrient relations (Ch 7.1-7.4)	Chiou
(03/29)	Ecology, behaviors, and social relations (Ch 7.4, Ch 8)	Lee
6 (04/03)	University Event;	
	Social relations (Ch 8) Population ecology I (Ch 9)	Lee
(04/05)	National Holiday	
7 (04/10, 12)	Population ecology I-II (Ch 9-10); Exam I	Lee
8 (04/17, 19)	Population ecology III; Life histories (Ch 11-12)	Lee
9 (04/24, 26)	Species interactions: competition	
	and exploitative interactions (Ch 13-14)	Lee
10 (05/01, 03)	Species interactions: exploitative interactions (Ch 14)	Lee
11 (05/08)	Species interactions: mutualism (Ch 15)	Lee
(05/10)	Community ecology I: species abundance & diversity (Ch 16)	Nakazawa
12 (05/15)	Community ecology II: environmental complexity (Ch 16)	Nakazawa
(05/17)	Community ecology III: dynamics & structure (Ch 16-17)	Nakazawa
13 (05/22)	Community ecology III; Landscape ecology (Ch 17, 21)	Nakazawa
(05/24)	Landscape dynamics (Ch 21); Exam II	Nakazawa
14 (05/29)	Geographic ecology (Ch 22) ;	Nakazawa
(05/31)	Ecosystem energetics: primary production (Ch 18)	Chen
15 (06/05)	Ecosystem energetics: primary & secondary production (Ch 18)	
(06/07)	Decomposition & nutrient cyclin (Ch 19)	Chen
16 (06/12)	Decomposition & nutrient cycling (Ch 19)	Chen
(06/14)	Succession & ecosystem stability (Ch 20)	Chen
17 (06/19)	Succession & ecosystem stability (Ch 20)	
	Global ecology & climate change (Ch 21)	Chen
(06/21)	Global ecology & climate change (Ch 21)	Chen
18 (06/26)	Final Exam	Chen