

POPULATION ECOLOGY

Class Meeting Information

16 weeks
3 hours per week

Course Description

This course is intended for students who are interested in learning to:

- Comprehend ecology theory;
- Develop a critical attitude for the analysis of different aspects in the administration and management of populations;
- Comprehend how living beings are organized, which are the emerging characteristics of the different levels of organization and how they relate to the abiotic medium.

Prerequisites — Classes or Knowledge Required for this Course

There are no prerequisites for this course, but it is recommended to have taken “Introduction to Ecology” or a similar course. There will be a review of that course given in the first unit.

Course Objectives

At the end of this course, students will be able to:

- Value the importance of biological diversity and the possible measures to for conservation.
- Comprehend how species are assembled into communities and how they can change in space and time.
- Be familiar with the structure of natural and anthropic ecosystems
- Describe the characteristics of the biogeographical regions of Argentina and other examples from around the world.
- Discuss the different schools of thought in the distinct aspects of the Theory of Ecology.

Evaluation and Grading

Evaluation of Student Performance

Class Attendance	20%
Participation	25%
Short Answer Quiz	25%
Final Exam	30%
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	100%

Grading Scale

A	=	90%	–	100%
B	=	80%	–	89%
C	=	70%	–	79%
D	=	60%	–	69%
F	=	59%	or less	

Code of Conduct

All participants in the course are bound by the Universidad de Congreso Code of Conduct, found at <http://www.ucongreso.org/institucional/la-universidad/bienvenida>

Netiquette

When we have a need for communication that is private, whether personal, interpersonal, or professional, we will use individual email or telephone. Our primary means of communication is written. The written language has many advantages: more opportunity for reasoned thought, more ability to go in-depth, and more time to think through an issue before posting a comment. However, written communication also has certain disadvantages, such a lack of the face-to-face signaling that occurs through body language, intonation, pausing, facial expressions, and gestures. As a result, please be aware of the possibility of miscommunication and compose your comments in a positive, supportive, and constructive manner.

Academic Honesty Policy

The University is an institution of learning, research, and scholarship predicated on the existence of an environment of honesty and integrity. As members of the academic community, faculty, students, and administrative officials share responsibility for maintaining this environment. It is essential that all members of the academic community subscribe to the ideal of academic honesty and integrity and accept individual responsibility for their work. Academic dishonesty is unacceptable and will not be tolerated at the Universidad de Congreso. Cheating, forgery, dishonest conduct, plagiarism, and collusion in dishonest activities erode the University's educational, research, and social roles.

If students who knowingly or intentionally conduct or help another student perform dishonest conduct, acts of cheating, or plagiarism will be subject to disciplinary action at the discretion of Universidad de Congreso.

Course Outline

Orientation Week (First Week of Course)

Orientation Week Objectives:

- Navigate around the course site
- Post self-introduction message to a discussion forum
- Describe the contents of the course syllabus

UNIT 1: *Population characteristics.*

UNIT 2: *Population conservation.*

K & r strategies. Intra & inter-specific interactions: competition, predatory, herbivory, grain-eating, facilitation, mutualism, symbiosis. Ecological and evolutionary consequences of the interactions. Co-evolution. Changing populations and geographical patterns in the diversity of islands. The theory of balance in island biogeography. Population source and population drain.

Characteristic of vulnerable species, conservation. External factors causing extinction and/or numeric reduction. The management of wild populations and the design of conservation strategies. The administration of populations.

UNIT 3: *Communities.*

The concept of community, emergent properties. Diversity: concept, types of diversity, indexes. The community scheme in space and in the time. Ecological successions. Community stability.

UNIT 4: *Ecosystems.*

The organization of ecosystems. Energy flow, photosynthesis and productivity. Generation structures. Bio-geo-chemical cycles; sedimentary and atmospheric. Man and the ecosystems. Environmental problems, biodiversity, fragmentation of habitats, extinction, global change.

UNIT 5: *Local Biomes.*

Bio-geographical provinces. Ecosystems of Argentina and Mendoza: main characteristics and restrictive factors of each one. Main human activity that is developed in each region.

UNIT 6: *International Biomes.*

Bio-geographical examples from around the world: main characteristics and restrictive factors, main human activity.

Course Text or Online Resources

Required texts/ chapters/ or articles for this course are:

- BEGON, M., HARPER, J. y TOWSEND, C. 1988. **Ecología. Individuos, Poblaciones y Comunidades.** Ed. Omega. 886 Pág.
- CRISCI, J.V.; J.J. MORRONE & A. A. LANTERI. 1993. **El valor de la diversidad biológica.** In: Goin, F. & Goñi, R. (Ed.) Elementos de Política Ambiental, 353-360. Honorable cámara de Diputados de la Provincia de Buenos Aires.
- LAGOS, Susana. 2005. **Metapoblaciones.** Apuntes de clase. Licenciatura en Gestión Ambiental. Universidad de Congreso.
- MATTEUCCI, s.d. & J. MORELLO. **Singularidades territoriales y problemas ambientales de un país asimétrico y terminal.** Realidad económica 169: 70-96.
- RICKLEFS, R.E. 1998. **Invitación a la Ecología.** La Economía de la Naturaleza. Panamericana. 4ta. Ed., Pág. 692.
- VILLAGRA, P.E.; R. VILLALBA & J.A. BONINSEGNA. 2004. **Causas, mecanismos y consecuencias del cambio global.** Apuntes de clase. Fac. de Ciencias Agrarias. U. N. Cuyo.
- VILLAGRA, Pablo. 2003. **Ciclo de los materiales.** Apuntes de clase. Fac. de Ciencias Agrarias, U.N. Cuyo.

Optional Text Resources

- MARGALEF, R. 1974. Ecología. Ed. Omega. Barcelona. 951 pag.
- MC NAUGHTON y WOLF. 1983. Ecología general. Ed. Omega.
- ODUM, E. 1971. Ecología. Ed. Interamericana. 3ra Ed. México. 639 Pág.
- ODUM, E. y SARMIENTO. 1998. Ecología. Un puente entre la ciencia y la sociedad.
- PIANKA, E.R. 1982. Ecología evolutiva. Omega. 365 pag.

- RICKLEFS, R.E. 1990. Ecology. Freeman. 3th Ed. 896 Pág.