



DEPARTMENT OF BIOLOGY, COLLEGE OF SCIENCE
UNIVERSITY OF THE PHILIPPINES BAGUIO

*Iskolar ng Bayan Building, University of the Philippines Baguio, Baguio City 2600
Fax/Tel. No. (074) 444-3128, (074) 442-7231*

CRE 263:

Conservation and Restoration Ecology in Terrestrial Ecosystems

COURSE SYLLABUS

2nd SEMESTER | AY 2024–2025

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APPROVED ACADEMIC CALENDAR

As of 16 May 2024	FIRST SEMESTER (Aug - Dec)	SECOND SEMESTER (Jan - May)	MIDYEAR (June - July)
Deadline for filing application for transfer, appeal for readmission and extension for MRR	24 Jun, Mon	02 Dec, Mon	
ADVANCE REGISTRATION OF FIRST YEAR STUDENTS	10 Jul, Wed – 12 Jul, Fri		
Removal examination period	29 Jul, Mon – 09 Aug, Fri	16 Dec, Mon – 10 Jan, Fri	29 May, Thu – 11 Jun, Wed
Validation for advanced credits	29 Jul, Mon – 23 Aug, Fri	16 Dec, Mon – 24 Jan, Fri	29 May, Thu – 20 Jun, Fri
GENERAL REGISTRATION			13 Jun, Fri
Graduating students (4 th , 5 th , 6 th , 7 th Year etc.)	12 Aug, Mon	13 Jan, Mon	
Third Year & graduate students	13 Aug, Tue	14 Jan, Tue	
Second Year & graduate students	14 Aug, Wed	15 Jan, Wed	
First Year & graduate students	15 Aug, Thu	16 Jan, Thu	
All others & Last day of registration	16 Aug, Fri	17 Jan, Fri	
START OF CLASSES	19 Aug, Mon	20 Jan, Mon	16 Jun, Mon
WELCOME ASSEMBLY FOR FIRST YEAR STUDENTS	19 Aug, Mon		
Deadline for Change of Matriculation (CoM)	30 Aug, Fri	31 Jan, Fri	17 Jun, Tue
UP Foundation Day			18 Jun, Wed
Deadline for filing application for graduation	09 Sep, Mon	10 Feb, Mon	20 Jun, Fri
Deadline for Colleges to submit to OUR tentative list of candidates for graduation	16 Sep, Mon	17 Feb, Mon	25 Jun, Wed
UP College Admission Test (UPCAT)	c/o Office of Admissions		
MID-SEMESTER	12 Oct, Sat	17 Mar, Mon	01 Jul, Tue
Reading and Health Break	28 Oct, Mon – 31 Oct, Thu	13 Mar, Thu – 15 Mar, Sat	
DEADLINE FOR DROPPING SUBJECTS	14 Nov, Thu	15 Apr, Tue	09 Jul, Wed
DEADLINE FOR FILING LEAVE OF ABSENCE	22 Nov, Fri	02 May, Fri	11 Jul, Fri (for enrolled students only)
UP Baguio Foundation Day	02 Dec, Mon		
END OF CLASSES	07 Dec, Sat	17 May, Sat	18 Jul, Fri
Integration Period	09 Dec, Mon – 10 Dec, Tue	19 May, Mon – 20 May, Tue	
FINAL EXAMINATIONS	11 Dec, Wed – 18 Dec, Wed		21 Jul, Mon – 22 Jul, Tue
Graduating students		21 May, Wed – 22 May, Thu	
Other students		21 May, Wed – 28 May, Wed	
DEADLINE FOR SUBMITTING GRADES	07 Jan, Tue		25 Jul, Fri
Graduating students		02 Jun, Mon	
Other students		06 Jun, Fri	
Curriculum Committee Meeting	27 Jan, Mon	19 May, Mon	
Last day for graduating students to submit requirements for academic deficiencies (INCs/4.0s) incurred in previous semesters	10 Feb, Mon	02 Jun, Mon	
Last day for submission of grades of graduating students who cleared their academic deficiencies (INCs/4.0s) incurred in previous semesters	17 Feb, Mon	10 Jun, Tue	15 Sep, Mon
College Faculty Meeting to approve candidates for graduation	17 Feb, Mon	10 Jun, Tue	15 Sep, Mon
Deadline for Colleges to submit APPROVED list of candidates for graduation	19 Feb, Wed	17 Jun, Tue	22 Sep, Mon
UNIVERSITY COUNCIL MEETING	24 Feb, Mon	20 Jun, Fri	29 Sep, Mon
BOR MEETING TO APPROVE GRADUATION	Per BOR schedule	Per BOR schedule	Per BOR schedule
COMMENCEMENT EXERCISES		06 Jul, Tue	

HOLIDAYS IN ACADEMIC YEAR 2024-2025			
2024		2025	
Ninoy Aquino Day	21 Aug, Wed	New Year's Day	01 Jan, Wed
National Heroes Day	26 Aug, Mon	Chinese/Lunar New Year	29 Jan, Wed
Baguio Day	01 Sep, Sun	Araw ng Kagitingan	09 Apr, Wed
Commemoration of the 1986 Sipat Peace Talks	13 Sep, Fri	Maundy Thursday	17 Apr, Thu
All Saints Day	01 Nov, Fri	Good Friday	18 Apr, Fri
All Souls Day	02 Nov, Sat	Black Saturday	19 Apr, Sat
Bonifacio Day	30 Nov, Sat	Labor Day	01 May, Thu
Feast of the Immaculate Conception of Mary	08 Dec, Sun	Independence Day	12 Jun, Thu
Christmas Eve	24 Dec, Tue	Corollera Day	15 Jul, Tue
Christmas Day	25 Dec, Wed	Eidul Fitar	as per official declaration
Rizal Day	30 Dec, Mon	Eidul Adha	as per official declaration
Last Day of the Year	31 Dec, Tue		

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ABOUT UP BAGUIO

The University of the Philippines (UP) was founded in 1908 with its first campus in Manila. Its foundation was then followed soon after by the establishment of constituent units (CUs) and campuses that are strategically located all over the country. In over a century, UP has established eight constituent Universities from its 17 campuses.

The University of the Philippines Baguio (UP Baguio) began as the University of the Philippines College of Baguio (UPCB) (among the growing number of UP campuses in the Philippines), UPCB was established through the initiative of UPCB Alumni in Baguio, Benguet, in 1961. UP Baguio became the 7th constituent university of the UP system in 2002 with a goal to be a hub of knowledge generation and human resource training and development in Northern Luzon.

UP Baguio takes pride in its contribution to nurturing and developing innovative programs in the arts and sciences as it continues to develop the niche it has created over the past decades - Cordillera studies.

Vision

The University of the Philippines envisions itself as a leading regional and global university in an environment that sustains 21st century learning, knowledge creation, and public service for society and humanity. As a constituent of the University of the Philippines System, UP Baguio will sustain its lead position in the delivery of tertiary education in the North.

UP Baguio will continue to nurture and develop innovative programs in the arts and sciences. It will also continue to develop the niche it has created over the past decade in Cordillera Studies.

Mission

Our mission, therefore, as a unit of the UP system and as the leading institution of higher learning in Northern Luzon, is to spearhead the offering of the highest standard of education and to contribute to the overall upgrading of the quality of instruction in the region.

We seek to create an impact by informing our students with a regional perspective, while they are informed with a national and global outlook.

Objectives

Based on the vision, the mandate, and the mission of the university in knowledge creation and public service, four goals were derived:

1. To contribute to national development by building expertise in different fields through the developing and strengthening of academic programs and research policies;
2. To optimize the use of resources through adequate budgetary and policy support, alumni support, and innovation of resource generation;
3. To promote equity amidst diversity in the efforts to achieving excellence and internationalization; and
4. To strengthen and enhance human resource management and promotion systems for the improvement of the welfare of constituents.

ABOUT THE COLLEGE OF SCIENCE

Subsequent to the reorganization of UP Baguio after its institution as the 7th constituent university of the UP system in 2002, the College of Science (CS), being one of the three colleges emerging from the reorganization, evolved from the merger of the Division of Natural Sciences and Mathematics and the Sports, Physical Education and Recreation Division.

The College offers four undergraduate programs, such as the BS Mathematics, BS Biology, BS Computer Science, BS Physics, and three graduate degree programs, namely, Master of Science in Conservation and Restoration Ecology (MS CaRE), Master of Science in Mathematics, and Doctor of Philosophy in Mathematics. All of these programs are regularly reviewed and upgraded to prepare students for careers in education, research, and/or postgraduate studies.

Vision

The College of Science aims to continue offering high-standard and relevant quality education through good practices in program implementation that follow innovative pedagogical strategies that utilize appropriate technology in supporting this endeavor.

It will further its objectives by initiating interdisciplinary programs anchored on disciplinary specializations in its efforts to enhance the efficiency of research conduct and management.

It will continue to encourage and reward scientific productivity by conducting research responsive to the needs of the region, nation, and the global community.

The college envisions itself moving towards a more inclusive and equitable environment that enables faculty members to lead on with exemplary qualifications – mindful of scholarly research and dedicated to public service.

Furthermore, it will support UP Baguio's wellness program for both academic and support staff to guarantee efficiency in service to the university and society.

Lastly, the college, together with the university, will take initiative to continue, strengthen, and widen the reach of its involvement in public service by sharing individual and collective expertise with other academic institutions, local government units, Non-Government Organizations (NGOs), people's organizations, and indigenous communities in the region and other areas.

Mission

In line with the vision of the College, it is our mission, therefore, to produce scientific leaders and civic-minded citizens with high regard for integrity, compassion, and genuine service who lead in research study that follows ethical standards and excellence in instruction, research, and public service.

It is our mission to improve basic facilities and design so that researchers can work more collaboratively and efficiently.

We strive to guarantee the safety of researchers, to minimize adverse impact to the environment, to respect research protocols involving indigenous communities, and to ensure professional conduct as we encourage good instruction, research, and public service in upholding the University's banner of honor and excellence.

Objectives

In accordance with the mission and vision of the University, the college aims to accomplish the following objectives:

1. To continue in formulating new degree programs while sustaining the old ones;
2. To encourage interdisciplinary research across programs;
3. To institutionalize the Science Research Center (SRC) in continuing research responsive to the needs of the region, and in the enhancement of interdisciplinary collaboration within the departments of the College and even with other faculty members in other Colleges of the UP Baguio;
4. To have a closer linkage with the UP Baguio Cordillera Studies Center (UP Baguio- CSC) as the University's research center and as an aide in putting up the Biodiversity and Innovation Research center;
5. To foster an environment suitable for the growth of the academic and support staff; and,
6. To provide public service based on each academic and support staff's specialization.

ABOUT THE DEPARTMENT OF BIOLOGY

The Department of Biology emerged from being a Discipline under the then Division of Natural Sciences and Mathematics in 2002. Currently, it offers a Bachelor's degree in Biology, and a Master's degree in Conservation and Restoration Ecology (MS CaRE).

The BS Biology is a four-year program with a thesis requirement. It provides a thorough grounding in the biological sciences by:

- Instilling among the students important biological principles, theories, concepts, and methods;
- Keeping them abreast with the latest developments in Biology and Allied Sciences
- Honing their research skills in the field and in the laboratory; and
- Inculcating in them a scientific and ethical culture of science.

The BS Biology program offers three Areas of Concentration: General Biology, Ecology & Systematics, and Microbiology.

Vision

Aligned with the goals of the College of Science and the University of the Philippines Baguio, the vision of the Department of Biology is to be a leader in academic excellence, research, and community involvement in Northern Luzon. We envision being an active contributor to the university's commitment to deliver high-quality education by maintaining responsive curricula and instituting relevant academic programs integrating perspectives rooted in specific disciplines in biology. The department aspires for a more inclusive and equitable academic environment, empowering teaching staff, personnel, and students to better engage in scholarly work, interdisciplinary research, and public service.

Mission

The Department of Biology commits to developing, adopting, and employing best practices in innovative pedagogies and technologies in scientific inquiry. We strive to generate knowledge through interdisciplinary research rooted in the biological disciplines. We pursue a vibrant academic environment that produces researchers, professionals, and scientific leaders competent and equipped to responsibly and ethically address and manage environmental and health challenges. We extend our service to the public by sharing individual and collective expertise with various educational institutions, local government units, non-governmental organizations, people's organizations, and indigenous communities in the Cordillera Administrative Region and the rest of Northern Luzon.

COURSE DESCRIPTION AND REQUIREMENTS

About the Instructor

Faculty member in charge	Contact details
 Ph.D. Biology and Systematics) in Animal Science) of Biology ppines Baguio on and advising: Biology, Animal Conservation, Biodiversity and Distribution of Organisms, Animal Behavior, Animal Physiology, Parasitology Research and Publications: ResearchGate; The Philippine Mammal Project Small mammal and Vegetation Publications	Email address: aareginaldo@up.edu.ph Consultation hours: TTh 9:00–11:30; WF 1:30–4:00

Course Details

Course Number:	CRE 263
Course Title:	Conservation and Restoration Ecology in Terrestrial Ecosystems
Course Description:	This course will integrate various biological and ecological principles in the conservation of terrestrial biodiversity and the restoration of land habitats. This will also cover the advances and drawbacks of various approaches to conservation and restoration issues in the terrestrial environment.
Prerequisite:	General Ecology/ Environmental Science or an equivalent that includes coursework in basic ecological principles, field sampling, and monitoring.
Semester/s Offered:	1ST/2ND
Course Credit:	3 units
Number of Hours:	5 hours (2 hrs lec; 3 hrs lab)

Course Requirements

Lecture: 50%

Two examinations/Student-led discussion	30%
Class Activities/Recitation/Remote Activity	20%

Laboratory: 50%

Laboratory/ Field exercise reports/output	25%
Field Notes/Output	15%
Attendance to field trip	10%

Program Learning Outcomes (PLOs)

The Program Learning Outcomes (PLO) of the MS CaRE Program are as follows:

PLO 1	To demonstrate genuine concern and passion for environmental issues that have impacts on species, ecosystems, and people.
PLO 2	To demonstrate professional and ethical integrity in diverse social and academic settings.
PLO 3	To apply concepts, approaches and methods in addressing local and global issues on conservation and restoration
PLO 4	To generate knowledge through independent research and effectively communicate outputs to the public
PLO 5	To demonstrate competence and leadership as environmental biologists with a life-long adherence to honor, excellence, and service

Course Learning Outcomes (CLOs)

At the end of this course, the student should be able to:

CLO 1	Understand concepts and principles of terrestrial ecosystem ecology relevant to conservation and restoration of terrestrial ecosystems.
CLO 2	Integrate current research findings and environmental issues in identifying the major threats to terrestrial ecosystems and the major causes of ecosystem destruction and degradation.
CLO 3	Acquire advanced skills in conducting preliminary assessment of disturbed or degraded terrestrial habitats.
CLO 4	Demonstrate a clear understanding of the concepts and principles of terrestrial ecology in the formulation of methodology that facilitates conservation and restoration of terrestrial ecosystems by coming up with a sound research proposal and/or conducting sound field techniques.
CLO 5	Be familiar and concerned with the regional and national environmental status of terrestrial habitats.

Mapping of CLOs with PLOs

Lecture											
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11
CLO 1	M	I	I	I	I	I	I	I	I	I	I
CLO 2	M	I	I	I	I	I	I	I	I	I	I
CLO 3	F	M	F	F	F	M	M	M	F	M	M
CLO 4	F	F	F	F	F	M	M	F	F	F	F

LEGEND: *I*-Introduced; *M*-Moderately achieved; *F*-Fully achieved

Class Rules

1. The University rule on class attendance (**Article 346** of the University Code) shall be strictly enforced in the class.
2. If a student misses any of the assessments (e.g., quiz, remote activity, recitation, student led discussion), their grade in that assessment is zero, except in instances that absence is due to a valid reason (with proper documentation). A missed recitation will be excused, but for any examination or student-led discussion, re-scheduling will be done. If re-scheduling cannot be made because of another valid reason, a mark of INC will be earned by a student.

3. Cheating, in any form, will warrant you a grade of 5.0 in this course or expulsion from the University.

Grading Scheme

Grade	Equivalent	UP Classification	Grade	Equivalent	UP Classification
98 – 100	1.00	Excellent	65 – 69	2.75	Satisfactory
95 – 97	1.25	Excellent	60 – 64	3.00	Passing
90 – 94	1.50	Very Good	55 – 59	4.00	Conditional
85 – 89	1.75	Very Good	Below 55	5.00	Fail
80 – 84	2.00	Good	DRP		Dropped
75 – 79	2.25	Good	INC		Incomplete
70 – 74	2.50	Satisfactory			

Course Outline

TIMELINE	CLO	Topic	Teaching and Learning Activities	Assessment Tool
Week 1, 2, 3	CLO 1	I. Review of Ecological Concepts and Principles a. The physical Environment i. The Earth's Climate System ii. Energy Balance and Water Ecosystem iii. The Soil b. Overview of Major Terrestrial Ecosystem Processes i. Terrestrial Productions ii. Decomposition iii. Nutrient Cycling c. Major Terrestrial Biomes <i>This chapter reviews basic ecological concepts and principles that are important in the conservation and restoration of terrestrial ecosystems. This chapter will cover concepts in the physical factors that affect ecosystem structure, functions and dynamics of the major terrestrial processes. The chapter ends with a review of the characteristics of the major terrestrial biomes of the world.</i>	• Introducing class policies • Lectures • Reading assigned paper • Discussion	• Recitation • Student facilitation of a discussion
Week 4, 5, 6	CLO 1, 2, 3	II. Natural and Anthropogenic Disturbances and their Impacts in Terrestrial Ecosystem Structure and Processes a. Natural Disturbances b. Fire c. Land Conversion d. Invasive Species in Terrestrial Communities e. Climate Change This chapter identifies natural and human-caused disturbances and their impact on terrestrial ecosystem structure and functions. The most common natural phenomenon and activities of humans that directly or indirectly leads to alteration of ecosystem structure and functions will be identified and discussed. A more focused discussion will be	• Lectures • Reading assigned paper • Discussion	• Recitation • Student facilitation of a discussion

		devoted to the topic of human-induced climate change and terrestrial ecosystems.		
Week 8, 9, 10	CLO 1, 2, 3	III. Philippine Terrestrial Habitats, Protected Areas, and their Current Conditions a. Characteristics of the Major Terrestrial Habitats of the Philippines b. History and Ecological Bases of Terrestrial Protected Areas <i>This chapter provides an overview on the characteristics of major terrestrial habitats in the Philippines and the issues and basis of establishing protected areas. Differences in the climate and characteristic flora and fauna will be presented for each habitat. The rest of the chapter will be devoted to discussing the reasons for the establishment of protected areas as well as the criteria that are being used for the declaration of an area to be protected.</i>	• Lectures • Reading assigned paper • Discussion	• Recitation • Student facilitation of a discussion
Week 12, 13, 14	CLO 1, 2, 3, 4	IV. Principles and Methods of Conservation and Restoration of Terrestrial Ecosystems a. General Principles and Methods b. Conservation and Restoration of Philippine Terrestrial Habitats i. Current Programs and Strategies ii. Future Challenges <i>This explores current principles and methods used in the conservation and restoration of terrestrial ecosystems. Specific conservation and restoration programs and efforts in the Philippines will also be presented.</i>	• Lectures • Reading assigned paper • Discussion	• Recitation • Student facilitation of a discussion

CRE 263 LABORATORY				
31 Aug 2025 Remote Activity		I. Formulating research questions through informed observations of a terrestrial habitat	Field observations	Field output Field notes
07 Sept Remote Activity		II. Designing an ecological research for terrestrial habitat		
27–28 Sep Class Activity		III. A survey of lowland terrestrial habitats A. Tropical Lowland Evergreen Rainforest (Adams, IN) B. Lowland Grassland (Adams, IN) C. Beach Forest (Burgos) D. Vegetation in Sand Dunes (Paoay, IS) E. Tropical Moist Deciduous Forest (Santa IS)	Field observations and exercises	Field Output Field notes
Ilocos Norte and Ilocos Sur				
15–16 Nov Class Activity		Pine Forest Study Workshop Tentative Facilitators Dr. Raelene Crandall Dr. Jennifer Fill	Field observations and exercises	Field output Field notes
Camp John Hay				

List of Reference/ Readings

Andel, J. and Aronson, J. (eds). 2012. Restoration Ecology: The New Frontier. United Kingdom: Blackwell Publishing Ltd.

Barbour, B. G. 1999. Terrestrial Plant Ecology. Menlo Park, Calif. Benjamin Cummings. Turner, I. M. 2001. The ecology of trees in the tropical rainforest. Cambridge, Eng. Cambridge University Press.

Chapin, F. S., III, Matson, P. A., and Mooney, H. A. 2012 (and older versions). Principles of Terrestrial Ecosystem Ecology. New York: Springer-Verlag.

Falk, D. A., Palmer, M. A. and Zedler, J. B. 2006. Foundations of Restoration Ecology. USA: Island Press.

Gurevitch, J., Scheiner, S. M., Fox, G. A. 2002. The Ecology of Plants. Sinauer Associates, Inc. Sunderland, MA, U.S.A.

Jordan, W. R., Glipin, M. E., and Aber, J. D. (eds). 1987. Restoration Ecology: A Synthetic Approach to Ecological Research. USA: Cambridge University Press.

Molles, M. C. 2010. Ecology: Concepts and Applications, 3rd Edition. Boston: McGraw-Hill.