SYLLABUS

Course information							
Code:	Not applicable	Course:	Biodiversity of Peru				
Coordinating area / program:		International Programs			Mode:	Classroom teaching	
Credits:	3	Contact hours:	48		Autonomous study hours:		32
Period:							
Career:	Not applicable						

Contact hours									
Sum:	48	Theory:	46	Practice:	0	Laboratory:	0	Evaluation hours:	2

Course pre-requisites		
Code	**Course**	**Career**
Not applicable	Not applicable	Not applicable

Course coordinators			
Surname and first name	**Email**	**Contact hours**	**Contact site**
Ruelas, Abdí	aruelas@usil.edu.pe	8 a.m. – 6 p.m.	USIL Cusco Center

Instructors
Oscar R. Ortega

Course overview
The Earth's biodiversity is composed of many millions of biological species which are the product of four billion years of evolution. Peru is one of the world's 17 mega diverse countries. The extraordinary biodiversity of Peru means that students are able to observe many of these teeming life forms for themselves, and gain a deeper appreciation of the life that exists all around us.

Course competencies	
Professional competency	Not applicable
Level of professional competency	Not applicable
USIL general competencies	Not applicable

Course learning outcomes		
General learning outcome	**N°**	**Specific learning outcomes**
Identify, analyze and discuss concepts related to biodiversity, its components, importance, sustainable use and conservation.	1.	Students name and explain biodiversity concepts, components, types and importance.
	2.	Students identify the biodiversity found in Peru.
	3.	Students analyze the Biodiversity in Peru and compare it with the biological diversity found in the rest of the world.
	4.	Students evaluate the influence of human activities in biodiversity, and suggest how to achieve its conservation.
	5.	Students discuss sustainable uses of biodiversity in Peru as case studies.

Contents and study activity scheduling						
Session	**Week**	**(hrs)**	**Type**	**Contents**	**Study outcomes and study activities**	**Resources**
Unit	**1:**	Introduction.				
Specific result:		[1]				
1	1	1	AP	Reading of the syllabus. Explanation of the methodology and evaluation system. Classroom norms.	Professor discusses the syllabus with the students, explains the contents, methodology and evaluation criteria.	Syllabus.
1	1	2	AP	How to define biodiversity. Levels of biodiversity. Importance of biodiversity.	Students analyze the meaning of biodiversity, its origin and levels, where biodiversity can be found and its importance.	Textbooks, ppt.
	1	2	AA	Basic concepts of biodiversity.	Students review basic concepts of biodiversity discussed in class.	Textbooks, class notes.
Unit	**2:**	Peruvian Biodiversity.				
Specific result:		[2]				
2	2	2	AP	Geography of Peru.	Students watch a video and	Textbooks, ppt.

					powerpoint presentation on why Peru has a high diversity of ecosystems, species and cultures; analyze the three main geographical regions and eight natural regions.	
2	2	1	AP		Students classify the different regions of Peru according to Antonio Brack's criteria and analyze the characteristics of each ecoregion.	Textbooks, ppt.
	2	2	AA	Geography of Peru.	Students review information about Peruvian geography discussed in class.	Textbooks, class notes.
3	3	3	AP	Birds of Perú.	Students reflect on why Peru is one of the most diverse countries in birds and describe the most representative birds of Peru.	VIDEOS: *Perú: a True Paradise of Birds* , *The Macaw Project* and *The Psitacidae family.*
	3	2	AA	Review information about birds and mammals of Peru.	Students review information about birds of Peru discussed in class and prepare for the next class.	Textbooks, class notes.
4	4	1	AP	Mammals of Perú.	Students name the main characteristics of mammals and the evolution of this group; distinguish different kinds of mammals and where they live; understand the diversity of this group in Perú.	Textbooks, ppt.
4	4	2	AP	Agrobiodiversity of Perú.	Students describe the characteristics of the Andean crops and agriculture.	Textbooks, ppt.
	4	2	AA	Review information about mammals and agrobiodiversity of Peru.	Students review information about the last two topics covered in class.	Textbooks, class notes.
5	5	5	AP	Field trip: Cochahuasi Animal Sanctuary, Huacarpay Lake and Botanical Garden "Felipe Marin".	Students observe birds, mammals, cultivated fields and native plants.	Field trip: direct observation and notes.
	5	2	AA	Review information about biodiversity of Peru and write field trip report.	Students review information of the unit covered in class and write their personal reflections on the results of the field trip.	Textbooks, class notes, field trip notes.
Basic and supplemental mandatory reading:				(2), (3), (12), (14), (15), (16), (17)		
Unit	**3:**	World Biodiversity.				
Specific result:		[3]				
6	6	2	AP	Megadiverse countries.	Students discuss the characteristics and peculiarities of a megadiverse country, name countries that belong to this list and describe the biodiversity found there.	Textbooks, ppt.
	6	2	AA	Review information about megadiverse countries.	Students review information about the last topic covered in class.	Textbooks, class notes.
7	7	2	AP	Biodiversity hotspots.	Students analyze the criteria to consider areas as hotspots, identify where they are located and their characteristics.	Textbooks, ppt.
	7	2	AA	Review information about biodiversity hotspots.	Students review information about the last topic covered in class.	Textbooks, class notes.
8	8	2	AP	Centers of origin of crops (Vavilov and Harlan).	Students recognize the value of crop biodiversity and identify the origin of the main crops in the world; analyze why Peru is one of these centers according to Vavilov and Harlan.	Textbooks, ppt.
8	8	1	AP	Pre-exam review.	Professor and students review all information covered.	Material and Powerpoint presentations
	8	2	AA	Review information for midterm exam.	Students review all information received in class and through autonomous learning.	Textbooks, class notes.

9	9	1	AP	MIDTERM EXAM	Students take the test individually. The test has theoretical questions and essay tasks.	Test.
	9	1	AA	Review the results of midterm exam.	Students revise the results of their exams and prepare questions if there are any.	Results of midterm exam.
Basic and supplemental mandatory reading:				(1), (2), (3), (4), (8), (13)		
Unit	**4:**	Biodiversity and Conservation				
Specific result:		[4]				
9	9	1	AP	Environmental issues in Peru.	Students analyze how human activities affect biodiversity; classify types of pollution and their specific effects on ecosystems.	Textbooks, ppt.
	9	1	AA	Review information about environmental issues in Peru and prepare for the debate.	Students review information about the last topic covered in class and prepare presentations for the following session.	Textbooks, class notes, other resources.
9	9	1	AP	Environmental issues in Peru.	DEBATE: Gold mining in Peru. Students discuss this topic analyzing the causes of environmental problems using their opinions to achieve a consensus.	Students' presentations with Powerpoint slides and other resources.
10	10	1	AP	Climate change.	Students analyze the problem of the climate change and possible solutions; discuss the effects of this issue on the Peruvian and world biodiversity.	Textbooks, ppt. VIDEO: *The Inconvenient Truth*.
	10	2	AA	Review information on environmental issues and climate change and prepare for the debates.	Students review information about the last topic covered in class and prepare presentations for the following session.	Textbooks, class notes, other resources.
10	10	2	AP	Climate change.	DEBATE: Causes of climate change. DEBATE: Importance of using energy properly and finding new sources of energy. The feasibility of using renewable energy.	Students' presentations with Powerpoint slides and other resources.
11	11	3	AP	Environmental issues in Cusco. Field trip: Huatanay River. San Sebastian and San Jeronimo Districts.	Observe different types of pollution.	Direct observation, field trip notes.
	11	2	AA	Review information on environmental issues in Cusco.	Students review information about the last topic covered in class and on the field trip.	Textbooks, class notes, field trip notes.
12	12	1	AP	The International Union for Conservation of Nature Red List.	Students name and analyze the threatened species in the world considered on this list and discuss the causes.	Textbooks, ppt, lab work assignment.
12	12	2	AP	Natural Protected Areas.	Students identify the different types of biodiversity reserves in Peru, evaluate their importance and biodiversity found in these areas.	Textbooks, ppt.
	12	2	AA	Review information about endangered species.	Students review information about the last topic covered in class.	Textbooks, class notes.
13	13	3	AP	Biosphere reserves.	Students understand the concept of biosphere reserve, how the concept started, what the functions of these areas are, where they are located, what the benefits are, who is in charge and who pays for these areas.	Textbooks, ppt.
	13	2	AA	Review information about biosphere reserves.	Students review information about the last topic covered in class.	Textbooks, class notes.
Basic and supplemental mandatory reading:				(6), (10), (11)		
Unit	**5:**	Uses of Biodiversity.				
Specific result:		[5]				
14	14	1	AP	Ecotourism.	Students evaluate the importance	Textbooks, ppt.

					of ecotourism in the conservation of natural resources and in the development of native communities; analyze through critical thinking why ecotourism is considered important for the country.	
14	14	1	AP	Medicinal plants.	Students examine how native communities use plants in their daily life and analyze why most of the western medicine comes from tropical rainforest.	Textbooks, ppt.
14	14	1	AP	Medicinal plants in Cusco. Field trip: San Pedro Market.	Observe different types of medicinal plants.	Direct observation, field trip notes.
	14	2	AA	Review information about ecotourism and medicinal plants.	Students review information about the last topics covered in class and prepare for the debate.	Textbooks, class notes.
15	15	1	AP	Genetic improvement.	Students analyze the Malthusian theory about food security and carrying capacity; reflect on how wild species can be used to improve crops and on the impacts of this activity.	Textbooks, ppt.
15	15	1	AP		DEBATE: Conventional hybridization vs. GMOs.	Students' presentations with Powerpoint slides and other resources.
15	15	1	AP	Pre-exam review.	Professor and students review all information covered in the course.	Powerpoint presentations, class notes, readings, other resources.
	15	2	AA	Review information for final exam.	Students review all information covered in the course for the exam.	Class notes, readings, other resources.
	16	2	AA	Review information for final exam and prepare for final presentations.	Students review all information covered in the course for the exam.	Class notes, readings, other resources.
16	16	2	AP	FINAL PAPER PRESENTATIONS.	Students present their final papers in class.	Students' research and presentations.
16	16	1	AP	FINAL EXAM.	Students take the test individually. The test has theoretical questions and essay tasks.	Test.
Basic and supplemental mandatory reading:				(5), (7), (9)		

AA: autonomous learning
AP: contact learning

Methodology
The methodology to be used includes a combination of tools in order to facilitate the enhancement of knowledge, promote debate in class and increase students' ability to formulate proposals, such as presentation-debate classes and case studies.

Evaluation system		
Grades for each type of evaluation and the final grade for the course are rounded to whole numbers. The final grade is the average of the continuous assessment, mid-term exam and final exam grades.		
Nº	**Type of evaluation**	**Weight**
1	Continuous assessment	60%
2	Mid-term exam	20%
3	Final exam	20%

Continuous assessment (*)						
Type of evaluation	**Percentages**	**Description of disaggregated components of the evaluation**			**Week**	**Make-up evaluation**
		N°	**Description**	**%**		
Type 1: Assignments.	90%	1	Report 1	5%	6	NO
		2	Report 2	5%	11	NO
		3	Report 3	5%	12	NO
		4	Report 4	5%	13	NO
		5	Debate	25%	15	NO
		6	Reading Sessions and Presentations	25%	15	NO
		7	Final Paper	30%	16	NO

		TOTAL		**100%**		
		Comments:				
Type 2: Participation in Class.	10%	1	Participation in Class	60%	16	NO
		2	Attendance	40%	16	NO
		TOTAL		**100%**		
		Comments:				

(*) Continuous assessment includes independent study activities.

General guidelines
1. Students who arrive more than 10 minutes late will be counted as absent. 2. No food is allowed in class.

Course specific rules
1. The use of computers in class is allowed and encouraged. 2. The use of Internet in class is allowed if related to the content of the course. 3. The order of field trips can be changed according to the schedule of each specific term. 4. The duration of the final seminar can vary according to the number of students in the group. The duration of the lectures will be adjusted to the number of hours of the final seminar. 5. Written assignments should be presented in by students in digital (not printed) form.

Attendance policy	
Total percentage of permitted absences in language courses:	**20%**
Total percentage of permitted absences in other courses:	**30%**

Basic and supplemental mandatory reading

Basic and Supplemental mandatory reading:

1. BELLARD, C. et al. 2014. *Vulnerability of biodiversity hotspots to global change.* Global Ecology and Biogeography. John Wiley & Sons Ltd.
2. BRACK, A. 2008. *Peru: Land of Forest.* Graph Ediciones, Lima.
3. BRACK, A. 2000. *Ecología del Perú*. Editorial Bruño, Lima.
4. BROOKS, T.M. et al. 2006. *Global Biodiversity Conservation Priorities.* Science 313, 58.
5. BUSSMAN, R.W. et al. 2007. *Blending Traditional and Western Medicine: Medicinal plant use among patients at Clinica Anticona in El Porvenir, Peru.* Ethnobotany Research & Applications 5:185-199.
6. COETZER, K.L. et al. 2014. Reviewing Biosphere Reserves globally: effective conservation action or bureaucratic label? *Biological Review.* No 89, pp. 82–104.
7. FAGAN, J. et al. 2014. *GMO Myths and Truths.* 2nd. Edition. Earth open source.
8. HARLAN, J.R. 1992. *Crops and Man*. American Society of Agronomy / Crop Science Society of America.
9. HOPPE, C. 2009. *Ecotourism in Peru and the Relationship to Community Health: An International Qualitative Research Study.* UW-L Journal of Undergraduate Research XII.
10. IUCN. 2009. *Wildlife in a changing world: an analysis of the 2008 IUCN Red List of Threatened Species.* IUCN; Barcelona Lynx Edicions™.
11. JACOBSON, M.Z. and DELUCCHI, M.A. 2011. Providing all global energy with wind, water, and solar power. *Energy Policy* 39 (2011) 1154–1169.
12. KRICHER, J. 1999. *A Neotropical Companion (Second edition).* Princeton University Press, New Jersey.
13. MYERS, N. 1988. Threatened Biotas: "Hot Spots" in Tropical Forests. *The Environmentalist.* Vol. 8, No 3: 187-208.
14. PULGAR VIDAL, J. 2014. *Geografía del Perú. Las ocho regiones naturales del Perú.* Editorial PUCP.
15. SCHULENBERG, T. et al. 2007. *Birds of Peru.* Princeton University Press.
16. TAPIA, M. 2000. Mountain Agrobiodiversity in Peru. *Mountain Research and Development,* Vol. 20 No 3: 220–225.
17. WILSON, D.E. and SANDOVAL, A. 1996. *Manu: The Biodiversity of Southeastern Peru.* Lima: Smithsonian Institution.
18. ZIMMERER, K.S. 2014. Conserving agrobiodiversity amid global change, migration, and nontraditional livelihood networks: the dynamic uses of cultural landscape knowledge. *Ecology and Society* 19(2): 1.

Supplemental optional reading

Approved by:	**Validated by:**
	Office of Curriculum Development
Date:	Date: