

**Biocultural Diversity**

Code: 43058  
ECTS Credits: 6

Degree	Type	Year	Semester
4313784 Interdisciplinary Studies in Environmental, Economic and Social Sustainability	OT	0	1

## Contact

Name: Alvaro Fernandez-Llamazares Onrubia

Email: [alvaro.fernandezllamazares@uab.cat](mailto:alvaro.fernandezllamazares@uab.cat)

## Teaching groups languages

You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

## Teachers

Sandrine Laure Gallois

## Prerequisites

Students are expected to show interest in the intersections between biological and cultural diversity, and the social dimensions of conservation policy and practice. The course will build upon key concepts from different scholarly traditions, such as critical geography, political ecology, cultural anthropology, ethnobiology, or ecological economics. Some general background knowledge of the literature in these fields would be very beneficial, although is not strictly required. Some basic knowledge of conservation science would be recommended (e.g., general notions of conservation history, community-based conservation), since mainstream approaches to conservation will be critically examined during the course. English knowledge (both read and spoken) is required for this course.

## Objectives and Contextualisation

The term "biocultural diversity" refers to the spatial overlap and interlinkages between biological and cultural diversity. There is growing evidence that some of the most ecologically undisturbed landscapes in our planet overlap with areas owned, inhabited and/or managed by Indigenous Peoples and local communities. Moreover, evidence is also growing that this overlap is by no means random, but rather it can be explained through the intricate relations between biological diversity at all its levels and cultural diversity in all its manifestations. As such, there is well-established evidence that losses of biological, cultural, and linguistic diversity are inextricably linked and driven by the same pressures.

In this course, we will explore biocultural diversity, what it is, why it is important and what factors can result in its erosion and maintenance. The course is divided in sessions with different topics related to current biocultural scholarship. Most lectures will combine theory with practical applications, use of support video-graphic materials to illustrate the complex intersections between biological and cultural diversity. We will

also present real-world case studies from ongoing research to exemplify the different challenges of doing field-based research with a biocultural lens. We will use debates, ethical dilemmas and environmental dispute resolution exercises to highlight how biocultural approaches to conservation often imply finding compromises between conflicting goals, views and values. At a methodological level, we will also introduce several tools for conducting literature reviews and meta-analysis of a given research topic (e.g., Web of Science, Scopus), as well as provide a general introduction to different field-based research methods in ethnobiology.

## Competences

- Analyse how the Earth functions on a global scale in order to understand and interpret environmental changes on the global and local scales.
- Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Work in an international, multidisciplinary context.

## Learning Outcomes

1. "Describe the concepts related to the idea of "biocultural diversity. "
2. Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
3. Express ideas and opinions on a complex topic (regarding (relationships of human groups and protection of biodiversity).
4. Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
5. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
6. Work in an international, multidisciplinary context.
7. Work with different case studies on the concept of biocultural diversity.

## Content

The term 'biocultural' is often used as a qualifier in a broad spectrum of contexts and endeavors, particularly in the fields of cultural heritage and ecosystem management. 'Biocultural relations', 'biocultural indicators', or 'biocultural assets' are just a handful of examples of the wide array of etymological and epistemic manifestations that are often brought together under the umbrella concept of 'biocultural diversity', often described as the total variety exhibited by the world's inter-related natural and cultural systems. Although the meaning of the term 'biocultural' is still open to scrutiny, and subject to interpretation, it essentially entails recognizing the symbiotic and mutually enriching relationships between humans and the environment, as part of global efforts to reduce the widening nature-culture divide. Its use often responds to a deliberate attempt to reflect the tightly interwoven links between nature and culture as expressed in land and seascapes all over the world. Not surprisingly, biocultural thinking is becoming a major trend in applied ecology, ethnobiology and related disciplines, and is gaining traction as an effective and just model for conservation policy and practice.

The contents of this course will provide a broad overview of current topics in the study of human-nature relations through a biocultural lens, recognizing the culturally rooted dimensions of complex social-ecological systems. All the lessons highlight, drawing on different methods and theories, that biocultural thinking is critical

to sustaining both the biophysical and sociocultural components of dynamic, interacting and interdependent social-ecological systems. The different lessons are distributed as follows:

- Understanding human-nature interactions through the lenses of historical ecology and ethnobiology
- Intersections between biological and cultural diversity
- The domestication of organisms, landscapes and (socio)cultural niche construction
- Addressing threats to Indigenous and local knowledge systems
- Synergies and tensions between western and indigenous knowledge systems
- Approaching conservation from a biocultural perspective
- The contributions of local knowledge to climate research
- Advancing Indigenous Environmental Justice through a decolonized research agenda
- Biocultural approach to health

The diverse collection of lessons and themes covered in this course will essentially highlight the myriad ways in which biocultural approaches foster transformations towards just, equitable and sustainable futures, and lead to increasing appreciation of the interwoven feedbacks between ecological states and human well-being.

## Methodology

The module consists in 12 sessions of 3 hours each. Sessions are divided in two parts. During the first part (1.5h), students attend a lecture and discuss associated readings (see program below). Students are expected to have read one article associated to each lecture before the class. During the second part (1.5h), students will learn about the different methods used to disentangle the interwoven relationships between biological and cultural diversity, as well as basic negotiation skills for resolving conservation conflicts. They will also learn how to write an essay in preparation for the final essay.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Documentary film visualization and debate	3	0.12	1, 3, 5, 7, 6
Practical lectures	13.5	0.54	3, 5, 2, 6
Role play debriefing	1	0.04	3, 5, 6
Theoretical lectures	13.5	0.54	1, 3, 5, 2, 7
Type: Supervised			
Personal work following instructions from teachers	20	0.8	4, 7, 6

Type: Autonomous

Essay writing and oral presentation	28	1.12	4, 3, 5, 2, 6
Search and reading of scientific texts	66	2.64	4, 7, 6

## Assessment

This module does not offer Single Assessment, as agreed with the coordination of the degree and with the Dean's Office of the Faculty of Sciences.

Students will be evaluated according to:

- Active participation in class (20%), showing understanding of the scientific topics discussed and the readings, as well as the discussions held in class. Teachers will keep a written record of all in-class attendance and interventions, and students will be evaluated based on whether they participate pro-actively with relevant, and timely contributions that move the conversation forward. All sessions will feature a short discussion of the assigned literature for each of the sessions, where the students will be provided with a space to critically reflect on the main ideas from the background readings. In-person attendance to the course is mandatory. If a student misses a class, the student will have to inform the teachers and write a 500-word critical essay on the three readings for the missed class (to be delivered within a week after the missed class).
- Negotiation role play (30%): the performance of each student will be evaluated during the role play simulation, based on three main criteria: (a) the breadth and depth of the scientific arguments deployed during the negotiation; (b) the student's ability to reach optimal outcomes for the stakeholder they represent in the negotiation; and (c) use of the different negotiation techniques taught in the preparatory session before the class.
- Essay (30%), connecting the discourses of 10-15 Indigenous Peoples' leaders with the scholarly literature on biocultural diversity.
- Short oral presentation (20%) of the essay during the last day of the course.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Active participation in class	20%	0	0	4, 1, 3, 5, 6
Environmental negotiation (role-play)	30%	2	0.08	4, 3, 5, 7, 6
Essay	30%	0	0	4, 3, 2, 7
Oral presentation of the essay	20%	3	0.12	3, 7

## Bibliography

Armstrong, C.G., Brown, C. (2019) Frontiers are Frontlines: Ethnobiological Science Against Ongoing Colonialism. *Journal of Ethnobiology* 39: 14-31.

Balée, W. (2006) The Research Program of Historical Ecology. *Annual Review of Anthropology* 35: 75-98.

Beller, E.E., McClenachan, L., Zavaleta, E S., Larsen, L.G. (2020) Past forward: Recommendations from historical ecology for ecosystem management. *Global Ecology and Conservation* 21: e00836.

- Bromham, L., Dinnage, R., Skirgård, H., Ritchie, A., Cardillo, M., Meakins, F., Greenhill, S., Hua, X. (2021) Global predictors of language endangerment and the future of linguistic diversity. *Nature Ecology & Evolution* 6: 163-173.
- Brondizio, E.S., Aumeeruddy-Thomas, Y., Bates, P., Cariño, J., Fernández-Llamazares, Á., Farhan Ferrari, M., Galvin, K.A., Reyes-García, V., McElwee, P., Molnár, Z., Samakov, A., Shrestha, U.B. (2021) Locally-based, regionally-manifested, and globally-relevant: Indigenous and local knowledge, values, and practices for nature. *Annual Review of Environment and Resources* 46: 481-509.
- Cámara-Leret, R., Bascompte, J. (2021) Language extinction triggers the loss of unique medicinal knowledge. *Proceedings of the National Academy of Sciences* 118(24): e2103683118.
- David-Chavez, D., Gavin, M. (2018) A global assessment of Indigenous community engagement in climate research. *Environmental Research Letters* 13: 123005.
- Dickman, A., Johnson, P.J., Van Kesteren, F., MacDonald, D.W. (2015) The moral basis for conservation: how is it affected by culture? *Frontiers in Ecology and the Environment* 13: 325-331.
- Ellis, E.C. (2015) Ecology in an anthropogenic biosphere. *Ecological Monographs* 85: 287-331.
- Farrell, J., Burow, P., McConnell, K., Bayham, J., Whyte, K.P., Koss, G. (2021) Effects of land dispossession and forced migration on Indigenous peoples in North America. *Science* 374: eabe4943.
- Fernández-Llamazares, Á., Cabeza, M. (2018) Rediscovering the potential of indigenous storytelling for conservation practice. *Conservation Letters* 11: e12398.
- Fernández-Llamazares, Á., Lepofsky, D., Armstrong, C.G., Brondizio, E.S., Gavin, M.C., Lertzman, K., Lyver, P.O.B., Nicholas, G.P., Pascua, P., Reo, N.J., Reyes-García, V., Turner, N.J., Yletyinen, J., Anderson, E.N., Balée, W., Cariño, J., David-Chavez, D., Dunn, C.P., Garnett, S.C., Greening (La'goot), S., Jackson (Niniwum Selapem), S., Kuhnlein, H., Molnár, Z., Odonne, G., Retter, G.B., Ripple, W.J., Sáfián, L., Sharifian Bahraman, A., Torrents-Ticó, M., Vaughan, M. B. (2021) Scientists' Warning to Humanity on Threats to Indigenous and Local Knowledge Systems. *Journal of Ethnobiology* 41(2): 144-169.
- Garnett, S.T., Burgess, N.D., Fa, J.E., Fernández-Llamazares, Á., Molnár, Z., Robinson, C.J., Watson, J.E.M., Zander, K.K., Austin, B., Brondizio, E.S., Collier, N.F., Duncan, T., Ellis, E., Geyle, H., Jackson, M.V., Jonas, H., Malmer, P., McGowan, B., Sivongxay, A., Leiper, I. (2018) A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability* 1: 369-374.
- Hanspach, J., Haider, L.J., Oteros-Rozas, E., Olafsson, A.S., Gulsrud, N.M., Raymond, C.M., Torralba, M., Martín-López, B., Bieling, C., García-Martín, M., Albert, C., Beery, T.H., Fagerholm, N., Díaz-Reviriego, I., Drews-Shambroom, A., Plieninger, T. (2020) Biocultural approaches to sustainability: a systematic review of the scientific literature. *People and Nature* 2(3): 643-659.
- Hill, R., Nates-Parra, G., Quezada-Euán, J.J.G., Buchori, D., LeBuhn, G., Maués, M.M., Pert, P.L., Kwamong, P.K., Saeed, S., Breslow, S.J., Carneiro da Cunha, M., Dicks, L.V., Galetto, L., Gikungu, M., Howlett, B.G., Imperatriz-Fonseca, V.L., Lyver, P.O'B., Martín-López, B., Oteros-Rozas, E., Potts, S.G., Roué, M. (2019) Biocultural approaches to pollinator conservation. *Nature Sustainability* 2: 214-222.
- ICCA Consortium (2021) Territories of Life Report. ICCA Consortium. Available at: <http://report.territoriesoflife.org>
- Levis, C., Costa, F.R.C., Bongers, F., Peña-Claros, M., Clement, C.R., Junqueira, A.B., Neves, E.G., Tamanaha, E.K., Figueiredo, F.O.G., et al. (2017) Persistent Effects of Pre-Columbian Plant Domestication on Amazonian Forest Composition. *Science* 355(6328): 925-931.
- Ludwig, D. (2016) Overlapping Ontologies and Indigenous Knowledge. From Integration to Ontological Self-Determination. *Studies in the History and Philosophy of Science Part A* 59: 36-45.
- Maffi, L. (2005) Linguistic, Cultural, and Biological Diversity. *Annual Review of Anthropology* 34: 599-618.

- Purugganan, M.D. (2022) What is domestication? *Trends in Ecology & Evolution* 37(8): 663-671.
- Redvers, N., Celidwen, Y., Schultz, C., Horn, O., Githaiga, C., Vera, M., Perdrisat, M., Plume, L.M., Kobei, D., Kain, M.C., Poelina, A. (2022) The determinants of planetary health: an Indigenous consensus perspective. *The Lancet Planetary Health* 6(2): e156-e163.
- Reyes-García, V., García-del-Amo, D., Benyei, P., Fernández-Llamazares, Á., Gravani, K., Junqueira, A.B., Labeyrie, V., Li, X., Matias, D.M.S., McAlvay, A., Mortyn, P.G., Porcuna-Ferrer, A., Schlingmann, A., Soleymani-Fard, R. (2019) A collaborative approach to bring insights from local indicators of climate change impacts into global climate research. *Current Opinion in Environmental Sustainability* 39: 1-8.
- Savo, V., Lepofsky, D., Benner, J.P., Kohfeld, K.E., Bailey, J., Lertzman, K. (2016) Observations of climate change among subsistence-oriented communities around the world. *Nature Climate Change* 6: 462-473.
- Scheidel, A., Fernández-Llamazares, Á., Bara, A.H., Del Bene, D., David-Chavez, D.M., Fanari, E., Garba I., Hanaček, K., Liu, J., Martínez-Alier, J., Navas, G., Reyes-García V., Roy, B., Temper, L., Thiri, M.A., Tran D., Walter, M., Whyte, K.P. (2023) Global impacts of extractive and industrial development projects on Indigenous Peoples' lifeways, lands, and rights. *Science Advances* 9(23): eade955.
- Sterling, E.J., Filardi, C., Toomey, A., Sigouin, A., Betley, E., Gazit, N., Newell, J., Albert, S., Alvira, D., Bergamini, N., *et al.* (2017) Biocultural approaches to well-being and sustainability indicators across scales. *Nature Ecology & Evolution* 1: 1798-1806.
- Tengö, M., Brondizio, E.S., Elmqvist, T., Malmer, P., Spierenburg, M. (2014) Connecting Diverse Knowledge Systems for Enhanced Ecosystem Governance: The Multiple Evidence Base Approach. *Ambio* 43: 579-591.
- Torrents-Ticó, M., Fernández-Llamazares, Á., Burgas, D., Nasak, J.G., Cabeza, M. (2022) Biocultural conflicts: understanding complex interconnections between a traditional ceremony and threatened carnivores in north Kenya. *Oryx* (early view, ahead of print). doi: 10.1017/S0030605322000035
- Turner, N.J., Gregory, R., Brooks, C., Failing, L., Satterfield, T. (2008) From Invisibility to Transparency: Identifying the Implications of Invisible Losses to First Nations Communities. *Ecology and Society* 13: 7.
- Whitmee, S., Haines, A., Beyrer, C., Boltz, F., Capon, A.G., de Souza Dias, B.F., Ezech, A., Frumkin, H., Gong, P., Head, P., Horton, R. (2015) Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation-Lancet Commission on planetary health. *The Lancet* 386(10007): 1973-2028.
- Zeder, M.A. (2015) Core Questions in Domestication Research. *Proceedings of the National Academy of Sciences* 112: 3191-3198.

## Software

None specifically needed.