

## **Intended learning outcomes (ILOs) for the programme ‘Master of Science in Biology’ at the Vrije Universiteit Brussel.**

A graduate of the programme ‘Master of Science in Biology’ ...:

### *General*

- ILO1. has a broad knowledge on living organisms and their relationship with abiotic matter, and understands biology in an integrative way, across the traditional levels of biological organization.
- ILO2. has the necessary knowledge on concepts and models in basic natural sciences to select appropriate methods for the analysis of biological data and processes, and to draw scientific conclusions supported by appropriate statistical methods.
- ILO3. is able to efficiently perform an extended literature study in a scientific domain, to assimilate the state-of-the-art, to extract novel scientifically interesting research topics, and to turn relevant questions into a well-structured scientific research plan.
- ILO4. is able to actively collaborate with researchers in the lab or in the field, and to assume responsibilities in such a group.
- ILO5. is able to present scientific results and research plans in a clear and concise way, both written (paper and project) and orally, to peers as well as to the broader community, including in English
- ILO6. understands how scientific research plays an important role in the society, and understands both the opportunities and ethical implications of it.

### *Graduation option ‘Molecular and Cellular Life Sciences’*

- ILO7. has a broad knowledge of biological systems, from molecules to the level of cells and organisms, and understands therefore the functioning of microbial, vegetal or animal organisms (including humans).
- ILO8. can independently perform and analyze experiments in a molecular laboratory and is able to link the obtained results with the molecular, cellular and physiological functions of the studied organism.
- ILO9. can understand and analyze past and present experiments in one field of life sciences, can generate new approaches or concepts applicable to another research field, and has an attitude of constantly updating his/her knowledge with new developments and methods in biology.

### *Graduation option ‘Ecology and Biodiversity’*

- ILO10. has a broad knowledge on methods and concepts in biodiversity, ecology, biogeography and evolution.
- ILO11. can independently perform and analyze observations, both in the field and under lab conditions, and is able to investigate research questions on biodiversity and ecosystems across levels of biological organization.
- ILO12. Is integrated in the scientific community through direct interaction with professionals and participation in ongoing research, and has an attitude of constantly updating his/her knowledge with new developments and methods in biology.

### *Graduation option ‘Herpetology’*

- ILO13. has a broad knowledge on the systematics, taxonomy, natural history and evolution of amphibians and reptiles.

- ILO14. can independently perform and analyze herpetological observations, in the field and under controlled lab conditions, and is able to investigate and understand these observations in an integrative way, across the levels of biological organization.
- ILO15. Is integrated in the herpetological community through direct interaction with professional herpetologists, participation in ongoing research, and professional internship in a natural history museum or herpetological lab, and has an attitude of constantly reflecting on his/her knowledge and to update it with new developments and methods in biology.

*Graduation option 'Human Ecology (ICP)'*

- ILO16. has a broad knowledge on human-environment interactions with a focus on biodiversity and biological resources in human-altered ecosystems.
- ILO17. can independently perform field work, surveys and experiments and is able to investigate research questions on the human-environment interaction through modern analytical techniques, on humans and on the ecology of biological resources, with emphasis on data treatment.
- ILO18. Is integrated in the scientific and in policy communities through direct interaction with professionals and has an attitude of constantly updating his/her knowledge with new developments and methods in biology, to develop sound, science-based policies within a (global and) development context.

*Graduation option 'Tropimundo' (Erasmus Mundus Masters Course in Tropical Biodiversity and Ecosystems)*

- ILO19. demonstrates enhanced knowledge of the field of tropical biodiversity and ecosystems, including interdisciplinary fields, and masters the key concepts in their ecological and socio-ecological functioning, demonstrates enhanced understanding of the constituting biodiversity and environmental elements of one or more tropical ecosystems and demonstrates enhanced understanding of processes and/or methods and/or techniques in tropical biodiversity and ecosystem studies.
- ILO20. can independently perform field work, surveys and experiments in tropical ecosystems (in situ) and demonstrate enhanced ability to work and learn independently and as a member of a team, and/or to generate ideas, and/or to identify problems, and/or to develop creative and effective solutions, and/or to synthesise and communicate concepts and knowledge while maintaining a critical judgment.
- ILO21. demonstrates enhanced understanding of the stakes, challenges and open issues of conservation and management and therefore must be able to situate natural and anthropogenic impacts on tropical biodiversity and ecosystems into a holistic context, and to demonstrate scientific, ethical and social understanding.