Teaching catalogue

Type: CM – hall lecture, TD – theoretical exercise, TP – practical exercise. Evaluation– CC – Continuous control, F – final exam, P – Practical exam. Course manager: X – of the entire course, O – of a module of the course, I – invited lecturer. Examination: X – designed evaluation method and exam questions.

University of Montpellier

Year	Module	Level	Type	Hours (total)	Nb students /groups	Evaluation
2010	Introduction à la biologie cellulaire	L1	TP	45	20/3	P
2010	Génétique des populations et évolution	M1	TD	25.5	40/1	CC
2011	Introduction à la biologie cellulaire	L1	TP	18	20/3	CC/F
2011	Génétique des populations et évolution	M1	TD	25.5	40/1	CC
2012	Génétique 2	L2	TD	24	40/1	CC/P

University of Orléans

Year	Module	Level	Type	Hours (total)	Nb students /groups	Evaluation	Course manager	Examination	Teaching innovations
2012	Introduction au regne végétal	L1	TP	41	20/4	CC/F			
2012	Introduction à la biologie cellulaire	L1	TP	36	20/6	CC/F			
2012	Métabolismes énérgétiques et enzymologie	L3	TD	18	40/1	F			
2012	Défis de l'agriculture de demain	L1	CM	6	40/1	F	I	X	
2013	Génétique mendélienne	L2	TD	70	40/4	CC			
2013	Méthodologie de la recherche bibliographique	L1	CM/TD	26	40/2	P/F		X	

Stojanova Bojana, PhD – teaching catalogue

University of Nantes

Year	Module	Level	Type	Hours (total)	Nb students /groups	Evaluation
2013	Biologie cellulaire 1	L1	TP	72	20/6	CC/F
2013	BIologie végétale 1	L1	TP	62	20/6	CC/F
2013	Méchanismes de l'évolution	L1	TP	21.4	20/1	CC
2014	BIologie végétale 2	L1	TP	17	20/2	CC/F
2014	Diversité et évolution des plantes	L3	TP excursion	23	20/2	CC/FR
2014	Systématique et phylogénie	L3	TD	20.3	40/1	CC/P

Ostravska Univerzita

Year	Module	Level	Type	Hours (total)	Nb students/ groups	Evaluation	Course manager	Examination	Teaching innovations
2018	Multivariate statistics	M1	CM	7.5	25/1	CC	O		
2018	Plant breeding techniques	M2	CM	3	30/1	F	O	X	
2019	Genetics and genomics for medical students	L1	CM/TD	21	17/1	CC/F	X	X	Flipped classroom
2019	Plant breeding techniques	M2	CM	6	32/1	F	O		Blended learning
2020	Genetics and genomics for medical students	L1	CM	21	14/1	CC/F	X	X	Flipped classroom
2021	Plant breeding techniques	M2	CM	9	19/1	CC	O	X	Blended learning
2021	Plant systematics and evolution	M1	CM	1.5	10/1	CC	I		
2021	Evolution of plant interactions	M2	CM	19.5	5/1	CC	X	X	Flipped classroom + Blended learning
2021	Plant breeding techniques	M2	CM	9	19/1	CC	O	X	Blended learning
2022	Evolution of plant interactions	M2	CM	19.5	5/1	CC	X	X	Flipped classroom + Blended learning
2022	Plant breeding techniques	M2	CM	9	19/1	CC	O	X	Blended learning
2023	Evolution of plant interactions	M2	CM	19.5	5/1	CC	X	X	Flipped classroom + Blended learning
2023	Applications in plant evolution and genetics	M2	CM	24	6/1	CC	X	X	Flipped classroom
2023	Plant breeding techniques	M2	CM	9	19/1	CC	O	X	Blended learning
2023	Introduction to Botany	L1	TP	24	25/1	CC/F			
2024	Applications in plant evolution and genetics	M2	CM	24	5/1	CC	X	X	Flipped classroom

Stojanova Bojana, PhD – teaching catalogue

Invited lecturer (total 14h)

Year	Module	Level	Type	Hours (total)	Nb students /groups	Evaluation	Course manager	Examination	Teaching innovations
Univerzitet Kiril I Metodij, Skopje									
2021	What is citizen science	L2	CM	1	227	CC	I	X	Citizen science
2022	What is citizen science	L2	CM	1	153	CC	I	X	Citizen science
University of Coimbra (Erasmus+)									
2022	Applied ecology in Mediterranean ecosystems	M2	CM	8	27/1	CC	I		
Frankfurt									
2023	Evolution of mating systems in plants	M2	CM	3	24/1	CC	I		

Resources for Inclusive Education in Evolution

Year	Module	Level	Type	Hours (total)	Nb students/ groups	Evaluation	Course manager	Examination	Teaching innovations
2024	Phenotypic plasticity	L	CM	3	NA	CC	X	X	Blended learning, Inclusive education

Ce module a été développé dans le cadre de l'initiative RI2E, il est libre d'accès et disponible sur l'espace QUBES de RI2E

Summaries of developed courses and modules

Introduction to Genetics and Genomics for Medical Students

Years Taught	**2018-2019, 2019-2020**
Course Managers	Bojana Stojanova (21h, Genetics), Tereza Sevcikova (21h, Genomics)
Audience	First-year international medical students
Language	English
Methods	Flipped classroom, Blended learning, learning through play
Format	3-hour weekly sessions featuring mini-lectures, theoretical exercises, genetic simulations, and reflective exercises

Course Overview:

This course introduced fundamental concepts of genetics and genomics relevant for medical students. It incorporated a blend of active learning methods, including a Flipped classroom approach and gamified simulations. Among the innovative aspects of the course was tasking the students to reconstruct their own family pedigrees which were then used as practical examples for calculating genetic transmission probabilities, and to contextualise ethics of (medical) research (e.g. asking "would you prefer knowing the risk of inheriting a deleterious allele?"). Another innovative aspect was to use a gamified simulation to illustrate linkage disequilibrium. Learning progress was evaluated through non-mandatory continuous controls based on the student participation in Flipped classroom activities (50% if the grade was higher than the final exam grade) and a final exam (50-100%).

Course Content:

Topic	Hours
Principles of Mendelian Genetics	9h
Linkage Disequilibrium	3h
Sex-linked Genes	3h
Quantitative Genetics	3h
Population Genetics	3h

Plant Breeding Techniques

Years Taught	**2018-2023**
Course Manager	Katerina Malachova (15h)
Contributor	Bojana Stojanova (9h)
Audience	M students in Experimental Biology
Language	English (2018-2019), Czech (2020-2023)
Methods	Blended learning, Flipped classroom, gamification
Format	3-hour weekly sessions with pre-recorded videos, gamified quizzes, and discussions

Course Overview:

As a part of the "Applied Genetics" course, this module explored conventional and modern plant breeding techniques, including their societal implications and the consequences for agrobiodiversity. The students were expected to work autonomously, by preparing for each topic in advance using pre-recorded materials; solving pop quizzes in groups; and ultimately gaining enough knowledge to organise a structured and graded debate on the topic. Students were evaluated based on their contribution to the final debate.

Course Content:

Topic	Hours
Conventional Breeding Techniques	2h
Quantitative Genetics	2h
Modern Breeding Techniques	1h
Consequences of Plant Breeding	2h
Structured Debate on applications and consequences of Plant Breeding	2h

Evolution of Plant Interactions

Years Taught	**2020-2023**
Course Manager	Bojana Stojanova (24h)
Audience	M students in Experimental Biology
Language	Czech, English
Methods	Blended learning, learning through play
Format	1h30 weekly sessions; Flipped classroom, invited expert lectures, practical sessions with learning through play

Course Overview:

This course examined key concepts about interactions involving plants from an eco-evolutionary perspective. Plant interactions were divided based on their net outcome for the involved parties (mutualistic, commensal, antagonisitc), on the scale (from chloroplast endosymbiosis, microbiome and arbuscular mycorrhiza to plant-plant competition and niche partitioning in habitats), and on the type of parties involved (plant-plant, plant-pollinators, plant-herbivores, plant-pathogens). A mix of Flipped classroom learning (Lectures and practical exercises), expert guest lectures, and hands-on activities such as designing a board game on plant interactions were used. Students were evaluated based on their participation in the course, and a final project (either designing a new level for the plants interaction game or writing a popular science blog post about any of the topics covered in the course).

Course Content:

Topic	Hours
Competition: From models to community assembly	4h30
Mutualisms: Endosymbiosis, AMF, pollinators	4h
Reproduction: Allogamy, Entomogamy, self-pollination and mechanisms of its avoidance	3h30
Invited Lectures from Experts	6h
Practical Sessions: How do weeds grow? (Designing a board game)	6h

Applications in Plant Evolution and Genetics

Years Taught	**2022-2024**
Course Manager	Bojana Stojanova (24h)
Audience	M students in Experimental Biology, ERASMUS students
Language	English
Methods	Journal club, research facility visits
Format	2-hour biweekly sessions (50%) + research facility visits

Course Overview:

This advanced course focused on the application of genetics in plant evolution and conservation. A journal club format was used combined with a visit to research institutions that preserve and study plant genetic diversity. The objectives were to familiarize students with key concepts in evolution and genetics that are applied in various domains of plant conservation and cultivation. Students were evaluated based on their participation in the course and a final project (writing a popular science blog post)

Course Content:

Topic	Hours
Plant Breeding and Agrobiodiversity	3h
Conservation Genetics	3h
Habitat Fragmentation and Genetic Diversity	3h
Population genetics of non-model species	6h
Quantitative Genetics	3h
Research Excursion	9h

Inclusive education in evolution: Phenotypic plasticity

Years Taught	**NA**
Course Manager	Resources for Inclusive Education in Evolution
Contributor	Bojana Stojanova (1h), Samuel Bogan (1h), Anita Simha (1h)
Audience	L- M
Language	English
Methods	Blended learning, Inclusive education
Format	3 x 1h weekly sessions

Course Overview:

This beginner/intermediate module is part of the initiative RIE2 which provides a central repository of science communication and educational tools that address the white supremacist, capitalist, and settler-colonial underpinnings in evolutionary biology and highlight diverse researchers who engage with these concepts as part of their research. The plasticity module, co-developed with Samuel Bogan (UC Santa Cruz) and Anita Simha (Duke University), aims to give students tools to understand phenotypic plasticity and how it is estimated, the ethic controversy of human nature-vs-nurture twin studies, and the dangers of misinterpreting phenotypic plasticity when genetic and environmental variation cannot be reliably disentangled. The course is currently pending revisions from the RIE2 collective and will then be published under a Creative Commons license.

Course Content:

Topic	Hours
Introduction to phenotypic plasticity – definition, examples, and human studies	1h
Measuring phenotypic plasticity	1h
Misinterpreting phenotypic plasticity	1h