

Modulvariante zu: Vertiefte Pflanzenwissenschaften

Titel: Evolution and diversity of vegetative structures and growth forms in Land Plants, with special focus on flowering plants			
Hochschule/Fachbereich/Institut: Freie Universität Berlin/Fachbereich BCP/Institut für Biologie			
Modulverantwortliche/r: Prof. Dr. Julien B. Bachelier			
Zugangsvoraussetzungen: keine			
<p>Outcomes: After this course, students will have a better understanding of the evolution and diversity of the vegetative structures and growth forms of the main lineages of Land Plants, especially flowering plants.</p> <p>Students will learn first about plant development from the formation of the embryo up to the sexually mature plant in all Land Plants lineages, and the correlation between the morphology and anatomy of their vegetative structures and tissues, and their functions.</p> <p>Students will thus be able to identify and describe vegetative structures of any Land Plants, and by looking at their structure and architecture, reconstruct their development and life history. Importantly, students will become able to disentangle the different processes and mechanisms, especially evolutionary tinkering and convergences, which drive and shape the diversity of vegetative structures and their ecological adaptations..</p> <p>In the course, students will also learn how to search and identify relevant scientific literature to prepare a presentation on a topic of their choice, as long as it is relevant to the class. They will also learn how to read and evaluate critically the quality of scientific publications</p>			
<p>Contents: A detailed syllabus will be provided at the beginning of the course and comprises general information on the organisation and contents. However, we will basically introduce students to the diversity of the vegetative structures and growth forms of the main lineages of Land Plants, especially of flowering plants. Based on the most recent and up-to-date phylogenies, we will thus start from non-vascular plants, i.e., mosses, and explore step-by-step the diversity of extinct and extant lineages of vascular plants.</p> <p>Using living plants in the collection of the BGBM, fresh and fixed plant material, and fossils, we will demonstrate how evolutionary tinkering led not only to the successive evolution of the 3 vegetative ground organs, i.e., shoot, root, and leaf, but also to the repeated and independent evolutionary origins of organs like roots and leaves, or tissues like cambium and wood. We will also explore in detail the diversity of plant growth forms from the formation of the embryo up to the sexually mature plants, and their potential evolutionary and ecological correlations with the habitus and habitat of the plants, e.g., adaptation to extreme environments, and/or differentiation of specialized structures or tissues, e.g., thorns and spikes, bark, etc..</p>			
Lehr- und Lernformen	Präsenzstudium (Semesterwochenstunden = SWS)	Formen aktiver Teilnahme	Arbeitsaufwand (Stunden)
Vorlesung	2	–	Präsenzzeit V Vor- und Nachbereitung V Präsenzzeit S Vor- und Nachbereitung S Präsenzzeit sP Vor- und Nachbereitung sP
Seminar	1	Vortrag und Diskussion	40 75 40
sicherheitsrelevantes Praktikum	5	Durchführung und Protokollierung von Laborversuchen	40
Modulprüfung		Klausur (60 Minuten), ggf. ganz oder teilweise im Antwort-Wahl-Verfahren; kann auch in Form einer elektronischen Prüfungsleistung durchgeführt werden, oder schriftliche Dokumentation der Forschungsergebnisse (ca. 10 Seiten) oder Prüfungskolloquium (ca. 20 Minuten)	
Veranstaltungssprache		Englisch	
Pflicht zur regelmäßigen Teilnahme		Seminar und sicherheitsrelevantes Praktikum: ja, Vorlesung: Teilnahme wird empfohlen	
Arbeitsaufwand insgesamt		300 Stunden	10 LP
Dauer des Moduls		Block 1	
Häufigkeit des Angebots		Winter Semester – Block 1	

Verwendbarkeit	Masterstudiengang Biologie (a) und Masterstudiengang Biologie mit der Spezialisierung (e und f)
-----------------------	---

In folgenden Spezialisierungen verwendbar (Entscheid vom Prüfungsausschuss:

a	b	c	d	e	f
x				x	x

a: Biologie; b: Mikrobiologie; c: Molekular- und Zellbiologie; d: Neurobiologie und Verhalten; e: Biodiversität, Evolution und Ökologie; f: Pflanzenwissenschaften