

Main course information	
Academic subject	Evolutionary Biology of Vertebrates
Degree course	Science of nature I Level
Degree class	L/32
ECTS credits (CFU)	6
Compulsory attendance	Yes
Teaching language	Italian
Academic Year	2019/2020

Docente responsabile	
Name & SURNAME	Giovanni SCILLITANI
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Tutorial time/day	Monday 11:30-13:30, Wednesday 11:30-13:30, Friday 11:30 – 13:30. Appointment by e-mail is suggested

Course details	Pass-fail exam/Exam with mark out of 30	SSD code	Type of class
	Exam with mark out of 30	BIO/06	Lecture/workshop

Teaching schedule	Year	Semester
	I	II

Modalità erogazione	CFU/ECTS	Lessons (hours)	CFU/ECTS lab	Lab hours	CFU/ECTS tutorial/workshop	Tutorial/workshop hours	CFU/ECTS field trip	Field trip Hours
		5.5	44	0.5	6	0	0	0

Time management	Total hours	Teaching hours	Self-study hours
	150	50	100

Academic Calendar	First lesson	Final lesson
	March 2020	June 2020

Syllabus	
Course entry requirements	
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	
<i>Knowledge and understanding</i>	Acquisition of theoretical and operational skills with reference to basic cytology, histology, embryology and anatomy, in order to learn the morpho-functional, comparative and evolutionary aspects of Vertebrate biology. These skills will be acquired thanks to the attendance of theoretical lessons, individual study and laboratory sessions.
<i>Applying knowledge and understanding</i>	Acquisition of operational skills useful for some analyses in the field of vertebrate biology in relation to other courses, such as Zoology, Ecology, Physiology, Genetics and Palaeontology, as well as basic identification of animals and their parts in field activities.
<i>Making informed judgements and choices</i>	Acquisition of autonomy in areas related to the evaluation and interpretation of experimental data for the study of Vertebrate biology, ability in comparing biological structures and explaining variation in the light of interacting evolutionary, developmental and adaptive processes.
<i>Communicating knowledge and understanding</i>	Acquisition of the appropriate vocabulary and terminology related to Vertebrate Biology to be able to understand any further information through a specific bibliography and prepare a relation or speech in a developmental, morfo-functional and/or

	evolutionary context.
<i>Capacities to continue learning</i>	Acquisition of the ability to investigate and read further informations about the disciplines with a critical spirit, through the consultation of texts and databases.

<b>Syllabus</b>	
Course content	The levels of organization of living things. Cell: chemical composition of protoplasm, cell membranes and junctions, cytosol, ribosomes, endoplasmic reticulum, Golgi apparatus, lysosomes, peroxisomes, mitochondria, cytoskeleton, nucleus, mitosis, meiosis. Tissues: epithelial, connective, muscular, nervous. Evolutionary biology: phylogeny of main vertebrate taxa, concepts of omology and analogy. Embryology: gametogenesis, fertilization, ontogenic processes, developmental stages of amphioxus, amphibians, birds and mammals, embryonic adnexa, outline of organogenesis. Comparative anatomy: structures, functions and evolution of the integument, skeleton, musculature (outline), nervous system, sense organs, digestive system, respiratory system, circulatory system, uro-genital system and endocrine glands (outline).
Course books/Bibliography	Calligaro et al. Citologia e Istologia funzionale. Edi. Ermes Stingo et al. Anatomia comparata. Edi. Ermes Menegola E et al. Manuale di Biologia dello Sviluppo Animale. EdiSES.
Notes	
Teaching methods	Lectures with the use of PowerPoint; laboratory activities using microscope slides, models and anatomical mounts.
Assessment methods (indicate at least the type written, oral, other)	Oral exam.
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are)	<i>Knowledge and understanding:</i> students should demonstrate good knowledge about each topic and the ability of connecting the different parts of the program. Memorizing without understanding is meaningless. <i>Applying knowledge and understanding/ Making informed judgements and choices:</i> appropriate descriptions apart, students should focus about morpho-functional, evolutionary, and adaptive aspects of the organs and systems described. They should demonstrate understanding about the interactions between the biological structures and the environmental features. <i>Communicating knowledge and understanding</i> students should use correct technical terms in describing structures and processes and explain them when required. Simple drawings made during the examination to better explain the topics are appreciated. <i>Capacities to continue learning:</i> although the suggested textbooks cover the topics as much as possible, research is always in progress so some updates will be given during the lessons. The ability of students to integrate these contents with those from the textbooks will be evaluated.
Further information	