

Module name	Evolutionary biology
Module code	B-BM.063Eng
ISCED code	0511: Biology
Study cycle	I ^o
Semester	summer
Responsible for this module	Marek Kucharczyk Department Zoology and Nature Protection email: marek.kucharczyk@umcs.pl
Language of instruction	English
Website	
Prerequisites	general knowledge of botany, zoology, genetics and ecology
ECTS	2
ECTS points hour equivalents	Contact hours (work with an academic teacher) – 30 - lectures: 15 - labs: 15 Non-contact hours (students' own work) – 30 - preparation for didactic activities - 10 - preparation of written studies of laboratory classes - 10 - studying literature on the subject - 10 Total number of ECTS points for the module - 2
Learning outcomes verification methods	lecture - exam (W1-4, U1) laboratory - continuous assessment (W1-4, U1-2)
Course full description	Lectures: The origin of genetic variation: gene mutations, recombination and variation, alterations of the karyotype. Variation: sources of phenotypic variation, genetic variation in natural populations, variation among populations. Nature of selection and adaptations, levels of selection. The concept of species. Speciation as a result of selection, adaptive radiation, extinction. Evolution of reproduction; sexual reproduction and mating systems. Biological altruism and its evolution. Evolution of interactions: coevolution of enemies and victims, mutualism, evolution of competitive interactions. Ability to defend against infections as a condition for the survival of organisms. Red Queen Hypothesis. Immune mechanisms found in the world of living organisms and their evolution. Labs: The geography of evolution – testing hypotheses in historical biogeography. Island ecology and evolution: challenges in the Anthropocene. Chance and randomness in evolution. What Darwin's Finches can teach us about the evolutionary origin and regulation of biodiversity. Plant-pollinator coevolution – examples of adaptation and evolutionary history. Hosts and

	<p>parasites: diversity, parasitism and coevolution. Adaptation to a polluted environment. Animal mating systems. Female and male reproduction costs. Brood reduction in birds.</p>
Bibliography	<p>Futuyma, D.J. 2017. Evolution (4th ed.). Sunderland, MA: Sinauer Associates</p>
Learning outcomes	<p>KNOWLEDGE</p> <p>W1. Identifies the relationships between the evolutionary biology and other natural science disciplines (K_W04)</p> <p>W2. Knows basic notions and terminology used in evolution sciences (K_W05)</p> <p>W3. Describes evolutionary processes occurring in populations based on observations, and literature data (K_W11)</p> <p>W4. Characterises relationships between organisms and environment and evolutionary processes connected with these relationships (K_W12)</p> <p>SKILLS</p> <p>U1. Exhibits understanding of recommended academic textbooks and specialist scientific texts (also in English) of biological evolution available in scientific information systems (K_U08, K_U09, K_U10, K_U11)</p> <p>U2. Writes thematic review papers and prepares oral presentations of the scope of the subject using specialist terminology, based on indicated and independently selected scientific texts (K_U12, K_U13, K_U16, K_U17)</p> <p>SOCIAL COMPETENCES</p> <p>K1. Adopts an active attitude towards acquisition, extension, and updating knowledge of variability and evolution (K_K03)</p>
Practice	<p>.....</p>
Teaching methods	<p>Lecture and discussion</p>