

# SYLLABUS – A COURSE DESCRIPTION

## I. General information

1. Course name: **Mammals monitoring methods \_2020en**
2. Course code:
3. Course type (compulsory or optional): **optional**
4. Study programme name: **Environmental protection**
5. Cycle of studies (1st or 2nd cycle of studies or full master's programme): **2nd cycle of studies**
6. Educational profile (general academic profile or practical profile): **general academic profile**
7. Year of studies (if relevant): **I**
8. Type of classes and number of contact hours (e.g. lectures: 15 hours; practical classes: 30 hours):  
**lectures: 10 hours**  
**laboratory classes: 14 hours**  
**outdoor classes: 6 hours**
9. Number of ECTS credits: **3**
10. Name, surname, academic degree/title of the course lecturer/other teaching staff:  
**prof. dr hab. Leszek Rychlik, lrychlik@amu.edu.pl**  
**dr hab. Mirosław Jurczyszyn, jurc@amu.edu.pl**
11. Language of classes: **english**
12. Online learning – yes (partly – online / fully – online) / no: **Not planned**

## II. Detailed information

1. Course aim (aims)
  - 1) **To provide students with knowledge of methods and equipment used today in mammalian research, especially in field investigation and monitoring.**
  - 2) **To teach students the selection of correct methods and equipment in relation to the morphology, physiology, behaviour and eco-morphotype of the animals studied.**
  - 3) **To teach students the selection of proper methods and equipment in relation to the study aims (choice between observation, harvesting, measurements, experiment, or tracking and monitoring).**
  - 4) **To familiarize students with the basic principles of ethical use animals and how to eliminate or reduce mortality, suffering and stress in the mammals studied.**
  - 5) **To acquaint students with the basic principles of designing and conducting research, experiments and monitoring, analyzing data using simple mathematical and statistical tools and the correct interpretation of results, i.e. skills useful for the completion of master's thesis and research papers.**
  - 6) **To develop skills in using literature sources.**
2. Pre-requisites in terms of knowledge, skills and social competences (if relevant)  
**Basic knowledge of systematics, biology and ecology of vertebrates. Basic knowledge and skills in mathematics, physics and chemistry. Ability to read and understand scientific literature in English. Effective communication and readiness to learn.**
3. Course learning outcomes (EU) in terms of knowledge, skills and social competences and their reference to study programme learning outcomes (EK)

<b>Course learning outcome symbol (EU)</b>	<b>On successful completion of this course, a student will be able to:</b>	<b>Reference to study programme learning outcomes (EK)</b>
EU_01	Recognizes mammals belonging to main systematic groups (orders) and ecomorphotypes, can indicate their characteristic features in physiology and behaviour as well as typical habitats	K_W01, K_W04, K_K01
EU_02	Selects and applies methods and equipment optimally suited to the purposes of planned / conducted study on mammals	K_K02, K_W03, K_K05, K_K06
EU_03	Selects and applies methods and equipment optimally suited to the physiology, ecomorphology and behaviour of the mammals studied, so as to ensure effective data collection while eliminating or reducing mortality, suffering and stress in animals	K_W08, K_U03, K_W02, K_K05, K_K06
EU_04	Is able to design and conduct research, experiments and monitoring of mammals, as well as analyse collected data and present in a synthetic way and interpret the results of research and monitoring	K_W08, K_U01, K_U08, K_K05, K_K06
EU_05	Finds useful information from scientific literature and online sources	K_W01, K_W04, K_K01

#### 4. Learning content with reference to course learning outcomes (EU)

<b>Course learning content</b>	<b>Course learning outcome symbol (EU)</b>
Survey of extant subclasses and orders of mammals in terms of the diversity of their morphology, physiology and ecomorphological types	EU_01, EU_05
Presentation of different types of traps and methods of catching mammals, adapted to their size, ecomorphology and behaviour	EU_02, EU_03
Presentation of different ways of short-term and long-term marking of live mammals as well as measuring, weighing, determining sex and condition, collecting tissues for testing	EU_02, EU_03
Acquaintance with methods of estimating and monitoring changes in species diversity, population size and space use	EU_02, EU_03
Acquaintance with methods of direct and remote observation and detection of various mammals (using shelters, binoculars, night vision, radio-telemetry and satellite telemetry, video-recording, photo-traps, ultrasound detection)	EU_02, EU_03

Presentation of methods of detection and estimation of the number of mammals based on traces they left in the environment (tracks, droppings, foraging traces, burrows and nests)	EU_02, EU_03
Acquainting with basic methods of data analysis (from trapping, monitoring, experiments, video-recording) as well as of elaborating and presenting results	EU_04, EU_05
Classification of methods in terms of the degree of invasiveness (arduousness), presentation of ways to eliminate or reduce mortality, suffering and stress in studied mammals of different species. Presentation of the principles of ethical conduct in research (including the "3R" principles: refining, reducing, replacing)	EU_03, EU_05

#### 5. Reading list

##### Wydawnictwa książkowe

1. Feldhamer G.A., Drickamer L.C., Vessey S.H. & Merritt J.F.: **Mammalogy: adaptation, diversity, and ecology.**, WBC/McGraw-Hill, Boston, 2014
2. Vaughan T.A., Ryan J.M. & Czaplewski N.J.: **Mammalogy.**, Jones and Bartlett Learning, Burlington, MA, USA, 2015
3. Nova J. Silvy: **The The wildlife techniques manual. Volume 1: Research, Volume 2: Management.** , Johns Hopkins University Press, New York, 2012
4. McComb B et al.: **Monitoring animal populations and their habitats: A practitioner**, CRC Press Inc., , 2010
5. Barrett W & Peles JD (Eds): **Landscape ecology of small mammals.**, Springer Verlag, , 2013

##### Artykuły w czasopismach

1. ( ): **Scientific articles suggested by the teachers.**, ,

### III. Additional information

1. Teaching and learning methods and activities to enable students to achieve the intended course learning outcomes (please indicate the appropriate methods and activities with a tick or/and suggest different methods)

Teaching and learning methods and activities	
Lecture with a multimedia presentation	X
Interactive lecture	
Problem – based lecture	
Discussions	X
Text-based work	X
Case study work	X
Problem-based learning	
Educational simulation/game	
Task – solving learning (eg. calculation, artistic, practical tasks)	
Experiential work	X
Laboratory work	X

Scientific inquiry method	
Workshop method	
Project work	
Demonstration and observation	X
Sound and/or video demonstration	
Creative methods (eg. brainstorming, SWOT analysis, decision tree method, snowball technique, concept maps)	
Group work	X

2. Assessment methods to test if learning outcomes have been achieved (please indicate with a tick the appropriate methods for each LO or/and suggest different methods)

Assessment methods	Course learning outcome symbol				
	EU_1	EU_2	EU_3	EU_4	EU_5
Written exam					
Oral exam					
Open book exam					
Written test	X	X	X	X	
Oral test					
Multiple choice test		X	X		
Project					
Essay					
Report		X	X	X	X
Individual presentation				X	X
Practical exam (performance observation)					
Portfolio					

3. Student workload and ECTS credits

Activity types	Mean number of hours spent on each activity type
Contact hours with the teacher as specified in the study programme	30
Preparation for classes	10
Reading for classes	20
Essay / report / presentation / demonstration preparation, etc.	15
Project preparation	
Term paper preparation	
Exam preparation	15
Total hours	90
Total ECTS credits for the course	3

4. Assessment criteria according to AMU in Poznan grade system

**Very good (bdb; 5,0): 91-100% of correct answers or points**

**Good plus (+db; 4,5): 81-90%**

**Good (db; 4,0): 71-80%**

**Satisfactory plus (+dst; 3,5): 61-70%**

**Satisfactory (dst; 3,0): 51-56%**

**Unsatisfactory (ndst; 2,0): less than 50% of correct answers or points**