SYLLABUS – A COURSE DESCRIPTION
I. General informaion
  1. Course name: **Bioinformatic data analysis**
  2. Course code: **01-BTA-BIODATA**
  3. Course type (compulsory or optional): **compulsory**
  4. Study programme name: **Biotechnology**
  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):
      laboratory classes: 15 hours
      conversatorium: 5 hours
  9. Number of ECTS credits: **3**
  10. Name, surname, academic degree/title of the course lecturer/other teaching staff:
      dr hab. Marek Żywicki, marek.zywicki@amu.edu.pl
      dr Maciej Szymański, mszyman@amu.edu.pl
      dr Andrzej Zieleziński, andrzejz@amu.edu.pl
  11. Language of classes: **English**
  12. Online learning – yes (partly – online / fully – online) / no: **The supervision of the realization of the bioinformatic project can be partially realized using on-line meetings and collaboration chat.**
II. Detailed information
  1. Course aim (aims)
      The major aim of the module is to teach students how to perform a complete bioinformatic study of a biological problem. For this purpose, under supervision of academic teachers, students will perform the analysis aimed for identification and characterization of the genes and their products involved in a given biological process. This will be achieved by employing multiple biological databases and numerous bioinformatic tools.
  2. Pre-requisites in terms of knowledge, skills and social competences (if relevant)

  3. Course learning outcomes (EU) in terms of knowledge, skills and social competences and their reference to study programme learning outcomes (EK)

Course learning outcome symbol (EU)	On successful completion of this course, a student will be able to:	Reference to study programme learning outcomes (EK)
EU_01	plan a bioinformatic workflow for characterization of a biological process	BT_W05, BT_U01, BT_K01
EU_02	perform and interpret the results of bioinformatic analysis of biological data	BT_W05, BT_U01, BT_U01

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

Course learning content	Course learning outcome symbol (EU)
Planing of the bioinformatic research project aimed for characterization of a given biological process	EU_01
Bioinformatic analysis of a gene expression	EU_02
Functional annotation of a gene expression data	EU_02
Bioinformatic analysis of genes and their products	EU_02

  5. Reading list
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	
Interactive lecture	X
Problem – based lecture	
Discussions	X
Text-based work	
Case study work	
Problem-based learning	X
Educational simulation/game	
Task – solving learning (eg. calculation, artistic, practical tasks)	
Experiential work	
Laboratory work	X
Scientific inquiry method	X
Workshop method	
Project work	X
Demonstration and observation	
Sound and/or video demonstration	
Creative methods (eg. brainstorming, SWOT analysis, decision tree method, snowball technique, concept maps)	X
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
Written exam		
Oral exam		
Open book exam		
Written test		
Oral test		
Multiple choice test		
Project	X	X
Essay		
Report	X	X
Individual presentation		
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	20
Preparation for classes	20
Reading for classes	
Essay / report / presentation / demonstration preparation, etc.	20

Project preparation	20
Term paper preparation	
Exam preparation	
Total hours	80
Total ECTS credits for the course	3

4. Assessment criteria according to AMU in Poznan grade system

Very good (bdb; 5,0): The project was very well planned and conceived. Obtained results were complete and has been very well discussed in the raport.

Good plus (+db; 4,5): The project was well planned and conceived. Obtained results were complete and has been discussed in the raport.

Good (db; 4,0): The project was planned and conceived. Obtained results were almost complete and has been discussed in the raport.

Satisfactory plus (+dst; 3,5): The project was planned and conceived. Most of the results were complete and has been partially discussed in the raport.

Satisfactory (dst; 3,0): Most of the project was planned and at least half of the steps were conceived. Obtained results has been at least partially discussed in the raport.

Unsatisfactory (ndst; 2,0): The project was not planned and half of the steps were not conceived. Results were not provided and has not been discussed in the raport.