Course title	ECTS code
Programming for biological applications (lab.)	13.9.0002

Name of unit administrating study

Intercollegiate Faculty of Biotechnology UG-MUG

Teaching staff

dr Adam Iwanicki

Studies

faculty	field of study	type	form	specialty	specialization	semester
Intercollegiate Faculty of Biotechnology UG-MUG	Biotechnology	second tier studies (MA)	full-time	all	all	2

Forms of classes, the realization and number of hours	ECTS credits
Forms of classes	2
Ćw. laboratoryjne (to translate)	
The realization of activities	
lectures in the classroom	
Number of hours	
Ćw. laboratoryjne (to translate): 30 hours	

The academic cycle

2013/2014 summer semester

Type of course	Language of instruction
elective (to translate)	polish

Teaching methods	Form and method of assessment and basic criteria for eveluation or examination requirements
Lab classes – practical performance of tasks in the field of bioinformatics	**Final evaluation**
	Zaliczenie na ocenę (to translate)
Consultations with course tutor	**Assessment methods**
	wykonanie pracy zaliczeniowej - wykonanie określonej pracy praktycznej (to translate)
	The basic criteria for evaluation
	The basis for course completion is correct solution of the required bioinformatics tasks. A student gets a satisfactory grade for solving one task, a good grade for solving two, and a very good grade for solving three tasks.
	The basis for completing the course through an assigned project is to correctly solve the assigned bioinformatics problem, with the correct use of Perl language as a tool.

Required courses and introductory requirements

A. Formal requirements

Molecular Biology

B. Prerequisites

Aims of education

The aim of the course is to acquaint students with practical possibilities offered by the use of Perl language as a tool for solving simple bioinformatics problems connected with analyzing DNA sequences and proteins and with processing the data derived from experiments.

Students will acquire knowledge about application of Perl language in bioinformatics, will learn the basics of this language of programming (K_W06) and will become skillful in using it which will allow him to plan effectively how to solve simple bioinformatics problems (K_U01, K_K03). Students will also acquire an ability to analyze and interpret empirical data with the use of bioinformatics methods (K_U05). The acquired knowledge and skills will be a good starting point in the independent investigation of problems connected with applications of bioinformatics methods in biotechnology (K_K01).

Course contents

The course covers the basics of programming in Perl language in bioinformatics applications, such as analyzing sequences of DNA and proteins, processing biological data such as files in formats FASTA, GenBank, or result files of BLAST program.

Bibliography of literature	
James D. Tisdall „Beginning Perl for Bioinformatics", 2001, O'Reilly Media, Sebastopol, CA, USA	

The learning outcomes	Knowledge
K_W06 K_U01 K_U05 K_K01 K_K03	K_W06 - Has knowledge in the field of mathematical methods, including statistical ones, applied in biotechnology
	Skills
	K_U01 Has the skills indispensable for lab work; is able to plan conducting an experiment and carry it out, is able to document on his own operations and results; in lab work, under the supervision of the tutor, uses complex techniques and research tools, is able to use lab equipment. K_U05 Collects and interprets empirical data, in data analysis uses statistical methods and informatics tools, draws conclusions on the basis of empirical data
	Social competence
	K_K01 Knows limitations of his/her knowledge, is willing to constantly upgrade and update his/her knowledge and raise qualifications within the field of biotechnology and related scientific areas and disciplines K_K03 Effectively plans his/her work, professional career, organizes his/her work, in particular in the lab or concerning reviews in the field of biotechnology and related scientific areas and disciplines

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