



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Research Project [S2Bioinf2>PBP]

### Course

Field of study  
Bioinformatics

Year/Semester  
1/2

Area of study (specialization)  
–

Profile of study  
general academic

Level of study  
second-cycle

Course offered in  
Polish

Form of study  
full-time

Requirements  
compulsory

### Number of hours

Lecture  
0

Laboratory classes  
0

Other (e.g. online)  
0

Tutorials  
0

Projects/seminars  
45

### Number of credit points

3,00

### Coordinators

dr hab. inż. Marek Wojciechowski prof. PP  
marek.wojciechowski@put.poznan.pl

### Lecturers

### Prerequisites

Students starting this course should have basic knowledge related to the selected topic of the Master's thesis in bioinformatics. They should have essential competencies acquired during the earlier years of studies, which allow them to realize the Master's thesis. When it comes to social competencies, the students must present honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, and respect for other people.

### Course objective

1. Participation of students in scientific research conducted by the faculty and providing students with basic knowledge on research methods used to solve selected bioinformatics problems. 2. Developing students' ability to conduct scientific research, including: acquiring information from scientific sources, selecting appropriate analytical, simulation, and experimental methods, presenting research results. 3. Developing students' social competences necessary in research activity, teamwork skills, defining and taking various roles in research teams, organization of work, and time management.

### Course-related learning outcomes

Knowledge:

Knows and understands the methods, techniques and tools used in the process of solving complex bioinformatics tasks, mainly of an engineering nature.

Knows and understands the life cycle of information systems.

Knows and understands the principles of bioinformatics research planning, including those based on systems approaches.

Knows and understands the development trends in bioinformatics.

Knows and understands the social, economic and legal conditions of his/her activities and the need to take them into account in practice, including issues of intellectual and industrial property protection, as well as threats to society and ethical dilemmas.

#### Skills:

Can fluently use and integrate information obtained from literature and electronic sources, in Polish and English, evaluate, critically analyze, synthesize and creatively interpret them.

Is able to draw conclusions, clearly formulate and fully justify his/her opinions on the basis of data from various sources.

Is able to, under the guidance of a tutor, plan and carry out research tasks, including those of an engineering nature, using analytical, simulation and experimental methods.

Is able to prepare a presentation of research results in Polish and English and discuss them, as well as lead a debate on these issues, in scientific and other communities.

Is able to evaluate the usefulness and applicability of new developments in bioinformatics and biochemistry.

Is able to learn independently and plan his/her own career, as well as guide others in this area.

#### Social competences:

Is ready to be a lifelong learner, inspire and organize the learning of others, including seeking expert opinions, critically evaluating the collected content.

Is ready to perform professional roles responsibly, taking into account maintaining the ethos of the profession, and to comply with the principles of professional ethics and work to ensure compliance with these principles.

Is ready to set priorities to achieve a task defined by him/her or by others and to take action to implement tasks in an enterprising manner.

Is ready to demonstrate a creative attitude in professional and social life and to fulfill the social role of a university graduate, including caring for the public interest.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

- Continuous assessment, through the students' reports on the progress in realization of tasks;
- assessment of the increase in the ability to use the learned principles and methods;
- evaluation of ability to manage time in the design and implementation of research work;
- summative assessment of completed tasks.

### Programme content

The course is dedicated to familiarizing students with the methodology of research work and introducing them into scientific work related to bioinformatics conducted at the faculty. Its goal is to prepare students for the realization of a master's thesis, and it includes preliminary work related to a selected research topic. The student's work during the course is supervised by the thesis supervisor and/or another supportive supervisor.

### Course topics

Depending on the chosen research topic.

### Teaching methods

Consultations, discussions, project work.

### Bibliography

Basic:

Selected individually, depending on the chosen research topic.

Additional:

Selected individually, depending on the chosen research topic.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00