

Study programme: BIOINFORMATICS AND COMPUTATIONAL BIOLOGY

ANNOTATION

Doctoral degree program (DSP) Bioinformatics and Computational Biology is a combined study program between the Faculty of Medicine and Dentistry, Palacký University in Olomouc and Faculty of Electrical Engineering and Computer Science, VŠB -Technical University of Ostrava. This interdisciplinary study program covers three fields, namely informatics, biology and general medicine and dentistry. The aim of the study is to educate experts with interdisciplinary domain knowledge of natural and medical sciences and informatics with an emphasis on practical experience and skills necessary for bioinformatics analysis of different types of large and small datasets, extraction of knowledge from data and database systems.

ADMISSION PROCEDURE 2020/21

Contact details of the training department:

Department of Immunology, Faculty of Medicine and Dentistry, Palacký University Olomouc, Hněvotínská 3, Olomouc, phone: +420 585 632 752

Consultation and teaching of selected subjects takes place at the cooperating university:

Faculty of Electrical Engineering and Computer Science, VŠB -Technical University of Ostrava, 17. listopadu 2172/15, Ostrava, phone: +420 597 326 013

Dissertation topics of the training department:

1. Analysis and evaluations of structural variants in B-cell malignancies at single-molecule level using optical mapping

1 position in the full-time form of study

Supervisor: doc. Dr. Eva Kriegová

2. Analysis and evaluations of methylation profiles using optical mapping and next-generation sequencing

1 position in the full-time form of study

Supervisor: doc. Dr. Eva Kriegová

3. Contribution of –omics and standard clinical methods for determination of risk of aseptic loosening and infections in total knee and hip arthroplasty

1 position in the full-time form of study

Supervisor: prof. MUDr. Jiří Gallo, Ph.D.

4. New approaches of computational cytometry for the analysis of complex immune cell profiles in hemato-oncology

1 position in the full-time form of study

Supervisor: prof. MUDr. Tomáš Papajík, CSc.

5. Functional genomics and proteomics and bioinformatics processing of data

1 position in the full-time form of study
Supervisor: doc. Dr. Eva Kriegová

6. Processing and compression of data obtained by high-throughput methods for nucleic acid analysis

1 position in the full-time form of study
Supervisor: doc. Ing. Petr Gajdoš, Ph.D.

7. Algorithms and data structures for parallel processing of genetic data

1 position in the full-time form of study
Supervisor: doc. Ing. Petr Gajdoš, Ph.D.

8. Applications of multivariate network analysis for stratification of risk patients

1 position in the full-time form of study
Supervisor: doc. Mgr. Miloš Kudělka, Ph.D.

9. Analysis of biomedical data based on networks

1 position in the full-time form of study
Supervisor: doc. Mgr. Miloš Kudělka, Ph.D.

Application deadline: **12 May 2020**

Date and location of entrance examination: **12 June 2020 at 10:00**

Seminar Room of the Department of Immunology, Faculty of Medicine and Dentistry,
Palacký University Olomouc

Alternative date of entrance examination: **19 June 2020 at 10:00**

Seminar Room of the Department of Immunology, Faculty of Medicine and Dentistry,
Palacký University Olomouc

Anticipated maximum number of admitted students:

Full-time study: **9** students
Distance form: **0** students

Contents of the entrance examination:

The interview will focus on assessing the candidate's orientation in biology, genetics, immunology and related fields and / or computer science, statistics and applied mathematics in the range of master's programs in natural sciences, biomedical and / or computer sciences. The topic of diploma (master) work will be also discussed together with candidate prerequisites for work in experimental informatics, bioinformatics, computational biology and motivation to study.

Graduates of Natural sciences programs, Computer science programmes, Applied Mathematics, General Medicine or Dentistry programmes are welcomed.

Based on the submitted CV evaluation, candidates will be invited for an interview.

Evaluation criteria:

The condition for the admission to the study in a doctoral degree program is the proper completion of studies in a master or following master study program of technical, natural science or medical directions and a positive opinion of the guarantor of the field and the dean. An applicant who duly submitted the application and delivered all the required documents as previous study results, CV, the list of published and unpublished works and previous professional experience will be assessed individually on the basis of the submitted documents. The supervisor's comments will be taken into account.

The annual tuition fee for the post-graduate study program conducted in English is set at EUR 3,000.