



Wrocław  
University  
of Science  
and Technology

# Bioinformatics

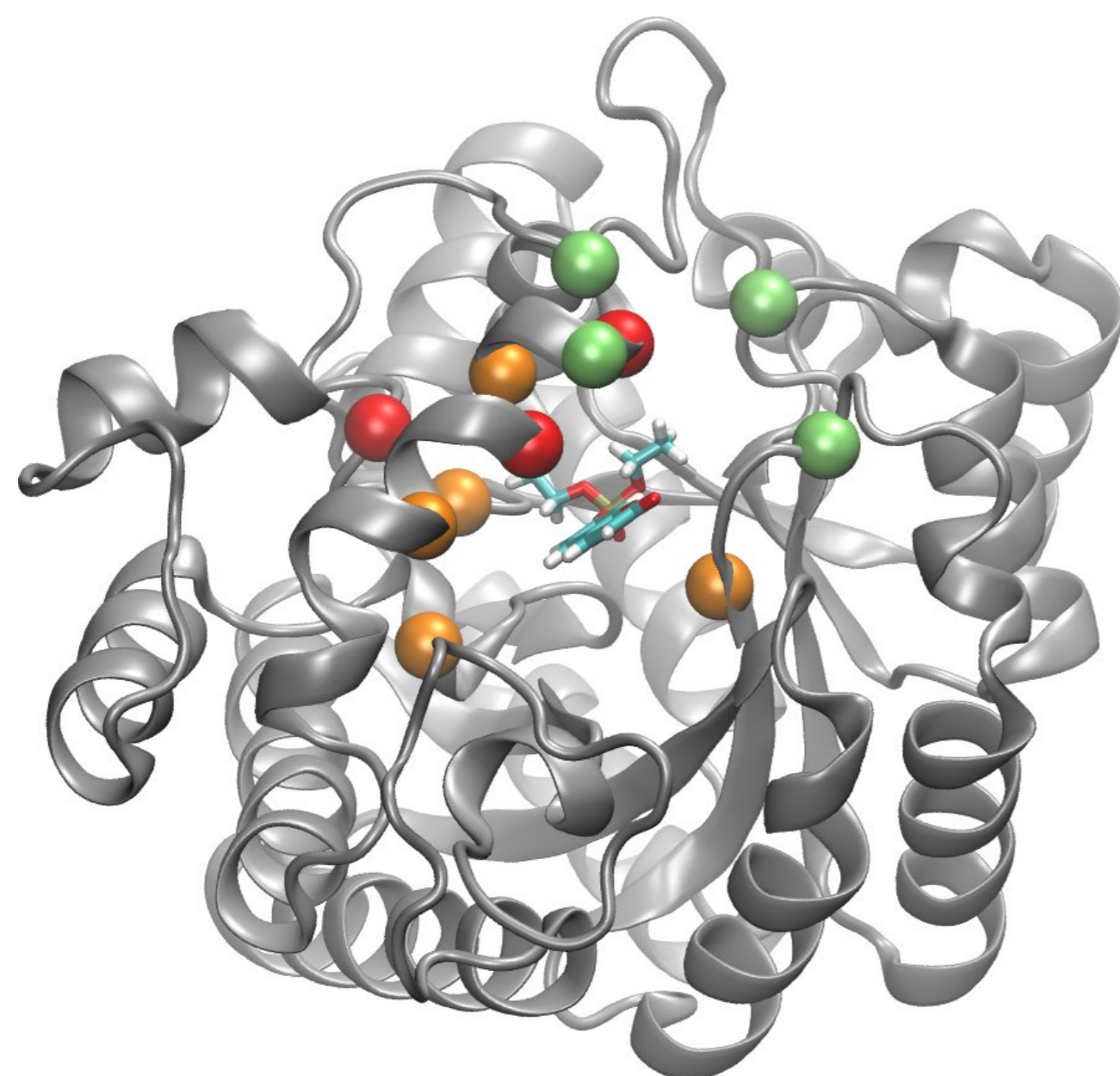
II level study, master of science and engineering programme  
Department of Chemistry, field of study: biotechnology

## Why this curriculum ?

Our MSc and Eng programme in bioinformatics is the first of its kind provided by technical university in Poland. It is highly valued by employers for its **unique interdisciplinary content coupling biotechnological and bioinformatics education**. The program is designed to develop advanced fundamental knowledge and practical computational skills and engage them in solving real-life chemistry and biology problems. Our graduates are forward-thinking people who understand both the biological or chemical and computing aspects of the scientific challenge.

## Who is it for?

Bioinformaticians are highly regarded for their ability to formulate chemically and biologically relevant questions and provide the optimal solution emerging from the analysis and interpretation of vast amounts of biological and chemical data now becoming available. On completion of this program, you will be capable of applying information technology to the development of **novel drugs, biocatalysts, sensors, bioinspired materials and diagnostic tools**. Computational skills acquired throughout entire programme allow for **the design and implementation of the new tools and software plugins** to meet the demands of both the research community and non-academic employers. In addition advanced programming skills are particularly valued at contemporary job market.



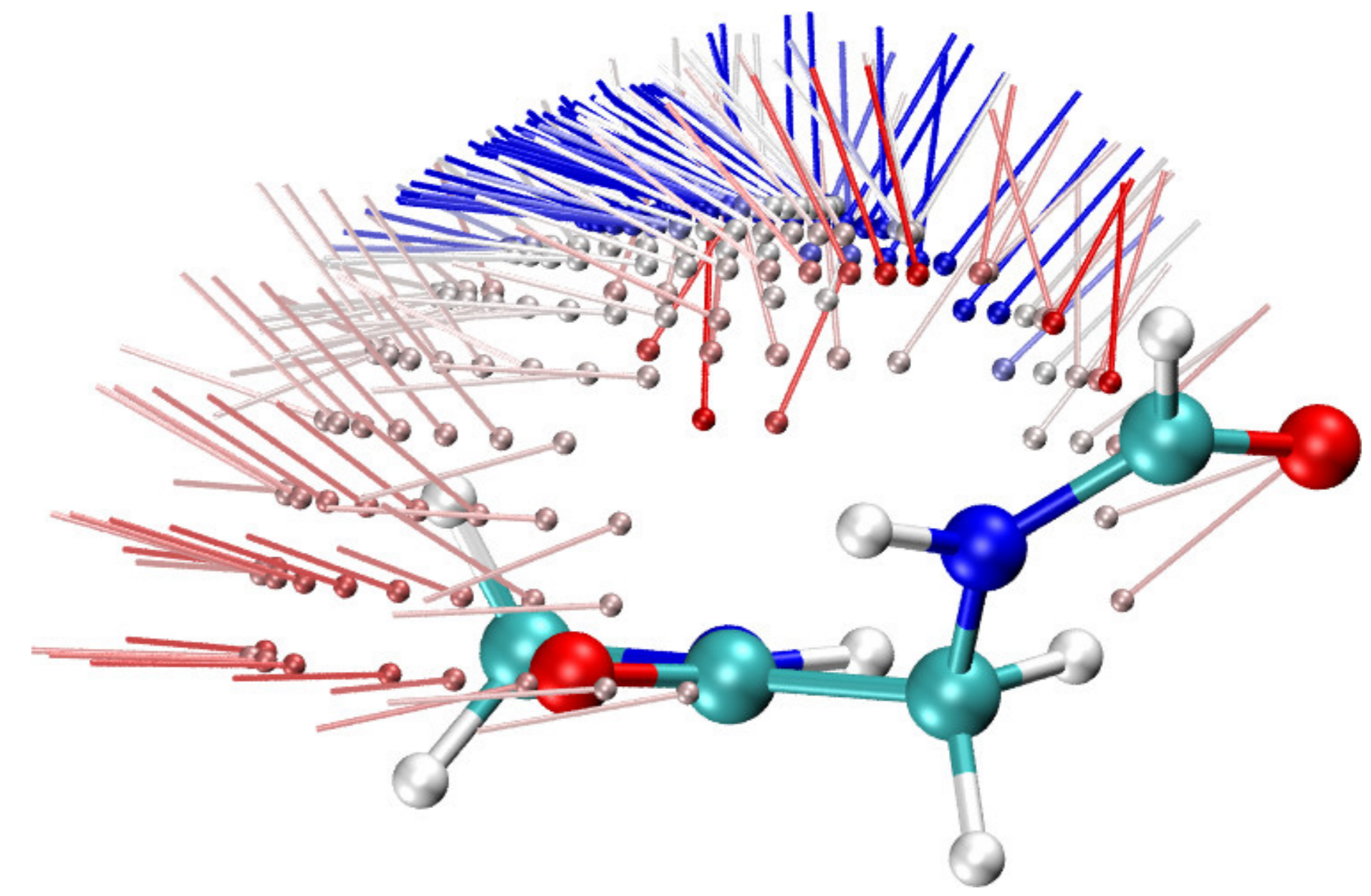
## What will you learn?

This interdisciplinary two-year program equips graduates with **the computational skills and basic background knowledge in diverse disciplines immersed in the field of bioinformatics and biotechnology**. Our students are exposed to the following contents:

- bioinformatics and bionanotechnology
- computational genomics
- genetic engineering in analytics and diagnostics
- advanced programming and numerical methods
- administration of Unix/Linux workstations
- quantum chemistry and molecular dynamics
- molecular modeling and rational drug design
- instrumental drug analysis
- retrieval of scientific information
- multimedia in biotechnology

## Entry requirements

**Bachelor degree** in the field of biotechnology, chemistry or materials science and **proficiency in English** (demonstrated with a language certificate). Candidates with engineering degree will qualify to shorter 3 semester program starting in February.



## Your career

Understanding both the biological or chemical and computing aspects of science coupled with the ability to work in a multidisciplinary environment opens up a variety of job prospects. The advanced programming and data handling skills our graduates are equipped with, accompanied by their exposure to an interdisciplinary research environment, will be very advantageous for employers. Bioinformatics graduates will be presented multiple career options including working in an **academic research group or public research establishments, industrial research, or pursuing a PhD** in Bioinformatics. Due to multidisciplinary nature of this MSc, diverse career paths can be followed both in various **life sciences, chemistry and medical-related facilities (including pharmaceutical, biomedical and biotech companies) or IT and High Performance Computing sector**. Some employers may offer flexible working hours and remote work options.

Our previous graduates have gone on to jobs within prestigious institutions and companies including:

- International Institute of Molecular and Cell Biology, Warsaw, Poland
- Selvita SA and Biocentrum, Krakow, Poland
- Celther, Łódź, Poland
- Netzsch Instrumenty SA, Cracow, Poland
- FQS Fujitsu, Cracow, Poland
- Stratified Medical, Warsaw, Poland
- Vertex Pharmaceuticals, Boston, USA
- Centre of New Technologies, Warsaw, Poland
- Wrocław Supercomputing and Networking Centre, Poland
- Nestle Institute of Health, Friburg, Switzerland
- Korea University, Seoul, South Korea
- Czech Academy of Sciences, Brno, Czech Republic
- University of California, Los Angeles, USA
- University of South California, Los Angeles, USA

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