

**COURSES IN THE ACADEMIC YEAR 2021/2022**

STUDY PROGRAMME AT UP FAMNIT: **BIOINFORMATICS** (1st bologna cycle), in **English**

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Last change: 4 February 2022

**COMPULSORY COURSES**

**1st YEAR (10 compulsory courses)**

Numb.	Course	Year	Semester	Language
1	Algebra I - Matrix Calculus	1st	Autumn	English
2	Analysis I - Foundations of Analysis	1st	Autumn	English
3	Programming I	1st	Autumn	English
4	Computer Practicum	1st	Autumn	English
5	Theoretical Computer Science I	1st	Autumn	English
6	Data Programming	1st	Spring	English
7	Organic Chemistry and Biochemistry	1st	Spring	English
8	Analysis II - Infinitesimal Calculus	1st	Spring	English
9	Genetics	1st	Spring	English
10	Algebra II - Linear Algebra	1st	Spring	English

**2nd YEAR (10 compulsory, 1 elective course)**

Numb.	Course	Year	Semester	Language
1	Data Structures and Algorithms	2nd	Autumn	English
2	Introduction to Database Systems	2nd	Autumn	English
3	Analysis III - Functions of Many Variables	2nd	Autumn	English
4	Foundations of Physics with Biophysics	2nd	Autumn	English
5	Introduction to Machine Learning and Data Mining	2nd	Autumn	English
6	Introduction to Bioinformatics	2nd	Autumn	English
7	Statistics	2nd	Spring	English
8	Programming II - Concepts of Programming Languages	2nd	Spring	English
9	Algorithms in Bioinformatics	2nd	Spring - 3rd quarter	English
10	Nucleotide Sequence Analysis	2nd	Spring - 4th quarter	English
11	Internal elective course	2nd		

**3rd YEAR (8 compulsory, 4 elective courses and Seminar - Final project paper)**

Numb.	Course	Year	Semester	Language
1	Structures of Biological Molecules	3rd	Autumn - 1rd quarter	English
2	Biotechnology	3rd	Autumn - 2nd quarter	English
3	Evolutionary and Population Genetics	3rd	Autumn	English
4	Systems III - Information Systems	3rd	Autumn	English
5	Evolutionary Biology	3rd	Autumn	English
6	Functional Genomics	3rd	Spring - 3rd quarter	English
7	Mathematical Modelling in Bioinformatics	3rd	Spring	English
8	Seminar - Final Project Paper	3rd	Spring	English
9	Internal elective course <sup>4</sup>	2nd		
10	Internal elective course	3rd		
11	External elective course	3rd		
12	External elective course	3rd		

**ELECTIVE COURSES**

Numb.	Course	ECTS-credits	Course will be available on the course schedule for the year of study	Internal/external elective course	Course leader	Language	Semester
1	Mathematical Chemistry	6	2nd, 3rd	internal or external	Nino Bašič	English	Spring
2	Biomolecular Modeling	6	2nd, 3rd	internal or external	Jure Pražnikar	English	Spring
2	Systems Biology Approach in Human Disease Study	6	2nd, 3rd	internal or external	Anže Županič	English	Spring

**SUBSEQUENT CHANGES OF OFFERED COURSES:**

Possible subsequent changes of the offered courses will be published in this document.