Computational Biology					
Identification number	Workload	Credit points	Term of studying	Frequency of occurence	Duration
MN-B-C 1	180 h	6 CP	1st or higher term of studying	Winter term	15 weeks

1	Type of lessons Lectures	Contact times 42 h	Self-study times 138 h	Intended group size* approx. 50-70

2 Aims of the module and acquired skills

Students who successfully completed this module …

- have acquired detailed knowledge about the fundamentals of bioinformatics/computational biology (BICB).
- have acquired in-depth knowledge of important concepts and algorithms in BICB.
- know the kind of biological problems that can be solved with bioinformatic tools.
- are able to contextualize quantitative approaches and methods with other fields of biology.

3 Contents of the module

- Basic algorithms
- BICB algorithms
- DNA and RNA sequence analysis
- Genomes, transcriptomes, proteomes
- Gene expression analysis
- Prediction of protein architecture
- Databases of biological sequences
- Specialized biological databases
- Mathematical and statistical modelling

4 Teaching/Learning methods

- Lectures

5 Requirements for participation

Enrollment in the Master´s degree course “Biological Sciences”

Additional academic requirements

Good quantitative/mathematical skills are required.

6 Type of module examinations

Two hours written examination about topics of the lectures (100 % of the total module mark)

7 Requisites for the allocation of credits

Written examination at least “sufficient”

8 Compatibility with other Curricula*

None

9 Significance of the module mark for the overall grade

7.5 % of the overall grade

10	Module coordinator Prof. Dr. Thomas Wiehe, phone 470 1588, e-mail: twiehe@uni-koeln.de
11	Additional information Participating faculty: Prof. Dr. A. Beyer, Prof. Dr. K. Hofmann, Prof. Dr. T. Wiehe Literature: • Information about textbooks and other reading material will be given on the ILIAS representation of the course (https://www.ilias.uni-koeln.de/ilias/goto_uk_crs_3516840.html) General time schedule: Weeks 1-14: Mon. and Wed. from 9:00 to 9:45 a.m. as well as Fri. from 11:00 to 11:45 a.m.; Week 15 (Mon.-Fri.): Preparation for the written examination Introduction to the module: November 02, 2020 at 9:00 a.m. online (further information/link will be sent to your Smail-Account), for preparation to the module before this introduction see ILIAS link under literature. Written examination: February 12, 2021, second/supplementary examination March 12, 2021; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.

* Depending on how many students from other subject areas (and if indicated also from other master´s degree courses, see 5) choose this module.