Module Name
Lecture Computational Biology

Type of Module	**Module Code**
o Basic Module	Computational Lecture

Identification Number	**Workload**	**Credit Points**	**Term**	**Offered Every**	**Start**	**Duration**
MN-B-C 1	180 h	6 CP	1st term of studying	Winter term	Winter term only	1 term

1	**Course Types**	**Contact Time**	**Private Study**	**Planned Group Size***
	Lecture	49 h	131 h	Approx. 50-70 students

2 Module Objectives and Skills to be Acquired

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 Module Content

- 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 Methods

- Lecture

5 Prerequisites (for the Module)

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

Additional academic requirements

Good quantitative/mathematical skills are required.

6 Type of Examination

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

7	**Credits Awarded** Written examination at least “sufficient”
8	**Compatibility with other Curricula*** None
9	**Proportion of Final Grade** 7.5 %
10	**Module Coordinator** Prof. Dr. Thomas Wiehe, phone 470 1588, e-mail: twiehe@uni-koeln.de
11	**Further 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 (see https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html) **General time schedule:** Weeks 1-14: Mon. and Wed. from 8:30 to 9:30 a.m. as well as Fri. from 10:00 to 11:30 a.m.; Week 15 (Mon.-Fri.): Preparation for the written examination **Introduction to the module:** October 10, 2022 at 8:30 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 03, 2023, second/supplementary examination March 03, 2023; 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.