

Recommended course plan for the MSc degree course Bioinformatics, type A

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by:

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The MSc degree course Bioinformatics type A has been designed for students with a Bachelor's degree in Bioinformatics.

The present course plan is based on the exam regulations effective from 1 October 2016. Its sole function is to explain these regulations and to provide recommendations as to which courses may be taken in each respective semester. In case of further questions, please contact the study advisor, Prof. Nieselt. Detailed information regarding studies and exams can also be found in the exams and study regulations at <https://www.wsi.uni-tuebingen.de/studium>.

The MSc degree course Bioinformatics type A comprises the following modules:

Module Sequence Bioinformatics	compulsory, 9 ECTS
Module Structure and Systems Bioinformatics	compulsory, 9 ECTS
Seminar Bioinformatics (BIO-SEM)	compulsory, 3 ECTS
Study area Practical Bioinformatics (BIO- PRAK)	2 courses à 3 ECTS
Study area Bioinformatics (BIO-BIO)	in total 15 ECTS
Study area Practical Computer Science (INFO-PRAK)	in total 6 ECTS
Study area Theoretical Computer Science (INFO-THEO)	in total 6 ECTS
Study Area Advanced Computer Science (INFO-INFO)	In total 18 ECTS (ECTS can also be obtained by attending Bachelor courses)
Advanced Life Science (BIO-LIFE)	In total 18 ECTS
Master thesis	30 ECTS

The following course plan is a recommendation only – students are not required to follow this plan. We explicitly encourage students to design their own course of study within the provisions of the exam and study regulations.

However, we do recommend to attend the courses of the Sequence Bioinformatics and Structure Bioinformatics modules in the first and second subject-specific semesters, and to write the master thesis at the end of your studies during or after the 4th semester.

Recommended course plan MSc Bioinformatics Variant A; start: WS20/21

<i>1st semester</i>		
lecture + tutorials	Sequence Bioinformatics , required elective module, Huson, lecture and separate tutorials	9 ECTS
lecture + tutorials	Theoretical Computer Science, required elective module (INFO-THEO)	6 ECTS
lecture + tutorials	Practical Computer Science, required elective module (INFO-PRAK)	6 ECTS
practical course	Practical Bioinformatics, required elective module (BIO-PRAK , during the lecture-free period after the semester)	3 ECTS
lecture +/ seminar	Life Sciences, required elective modules (BIO-LIFE , Biology / Chemistry / Pharmacy MSc courses)	6 ECTS
	Total	30 ECTS

Notes regarding the courses offered during the winter semester 2020/21:

Here are a few recommended Computer Science, Bioinformatics and Life Sciences courses (many more are offered, check ALMA for details)

Practical Computer Science (INFO-PRAK) offered in English:

- ML4102 Data Literacy, V+Ü, 6 LP

Advanced Computer Science (INFO-INFO) courses offered in English:

- INF4182 Deep Neural Networks, 6 LP

Advanced Bioinformatics (BIO-BIO), all taught in English:

- BIO4364 Visualisation of Biological Data, V+Ü, 6 LP

Advanced Life Sciences (BIO-LIFE):

Please note that credit points obtained from courses offered by the Biology department that introduce math- or computer science-related topics or similar topics (e.g. Matlab for biologists) do not count towards the number of credits necessary for the Life Sciences required elective modules (**BIO-LIFE**).

- *Introduction to Computational Neuroscience*, Mallot, 3 ECTS Lecture plus 3 ECTS Seminar, english
- *Current Topics in Proteome Research*, Macek, Seminar, English (Ask explicitly for a grade)
- *Introduction to Nanopore Sequencing*, Macek, Block course.
- *Integrative Neurobiology: Systems*, Nieder & Ostwald, Lecture, 3 ECTS
- *Frontiers in Applied Drug Design*, (Pharmacy), Böckler et al., Research practical course, 9 ECTS
- *Concepts of Molecular Cell Biology*, 3 ECTS lecture plus ggf. 3 ECTS Seminar, english, might be difficult to register as bioinformatician, but try it anyway if you are interested in the content of the course.

<i>2nd semester</i>		
lecture + tutorials	Structure and Systems Bioinformatics , required elective module	9 ECTS
lecture / seminar/	Life Sciences, required elective module (BIO-LIFE , Biology / Chemistry / Pharmacy MSc courses)	6 ECTS
lecture / seminar	Advanced Computer Science, required elective module (INFO-INFO)	6 ECTS
lecture / seminar	Bioinformatics, required elective module (BIO-BIO)	6 ECTS
practical course	Practical Bioinformatics, required elective module (during the lecture-free period after the semester)	3 ECTS
	Total	30 ECTS

<i>3rd semester</i>		
lecture / seminar/	Life Sciences, required elective module (BIO-LIFE , Biology / Chemistry / Pharmacy MSc courses)	6 ECTS
seminar	Bioinformatics, seminar (BIO-SEM)	3 ECTS
lecture + tutorials	Advanced Computer Science, required elective module (INFO-INFO)	6 ECTS
lecture + tutorials	Advanced Computer Science, required elective module (INFO-INFO)	6 ECTS
lecture / seminar/	Bioinformatics required, elective module (BIO-BIO)	6+3 or 9 ECTS
	Total	30 ECTS

<i>4th semester (summer semester 2020)</i>		
module	Master thesis	30 ECTS
	Total	30 ECTS