

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

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by:

Prof. Dr. Kay Nieselt (program coordinator, Bioinformatics)

Prof. Dr. Daniel Huson (chair of the board of examiners, Bioinformatics)

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:

Sequence Bioinformatics required elective module – compulsory, 9 ECTS

Structure Bioinformatics required elective module – compulsory, 9 ECTS

Bioinformatics seminar (BIO-SEM) – compulsory, 3 ECTS

**Practical Bioinformatics required elective modules (BIO-PRAK) – 2 courses with
3 ECTS each**

Bioinformatics required elective modules (BIO-BIO) – 15 ECTS in total

Practical Computer Science required elective modules (INFO-PRAK) – 6 ECTS

Theoretical Computer Science required elective modules (INFO-THEO) – 6 ECTS

**Advanced Computer Science (INFO-INFO) – 18 ECTS in total (ECTS can also
be obtained by attending
Bachelor courses)**

Life Sciences elective required modules (BIO-LIFE) – 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.

Please read also the regulations for the *research project* of the BIO-BIO module in https://uni-tuebingen.de/index.php?eID=tx_securedownloads&p=74351&u=253&g=2%2C107%2C892%2C893&t=1536831567&hash=d62152f4c420a6361b6ab51c55341d49d8133c7c&file=/fileadmin/Uni_Tuebingen/Fakultaeten/InfoKogni/WSI/Dokumente/Studium/Download/Formblaetter/Template-Anmeldung-Forschungsprojekt.pdf.

Recommended course plan MSc Bioinformatics Variant A; start: WS2018/19

<i>1st semester (winter semester 2018/2019)</i>		
lecture + tutorials	Sequence Bioinformatics , required elective module, Huson, Mon (F122) and Wed (A104), separate dates for the tutorials	9 ECTS
lecture + tutorials	Theoretical Computer Science, required elective modules (INFO-THEO)	6 ECTS
lecture + tutorials	Practical Computer Science, required elective modules (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

<i>2nd semester (summer semester 2019)</i>		
lecture + tutorials	Structure Bioinformatics , required elective module	9 ECTS
lecture / seminar/	Life Sciences, required elective modules (BIO-LIFE , Biology / Chemistry / Pharmacy MSc courses)	6 ECTS
lecture / seminar	Advanced Computer Science, required elective modules (INFO-INFO)	6 ECTS
lecture / seminar	Bioinformatics, required elective modules (BIO-BIO)	6 ECTS
practical course	Practical Bioinformatics, required elective modules (during the lecture-free period after the semester)	3 ECTS
	Total	30 ECTS

<i>3rd semester (winter semester 2019/2020)</i>		
lecture / seminar/	Life Sciences, required elective modules (BIO-LIFE , Biology / Chemistry / Pharmacy MSc courses)	6 ECTS
seminar	Bioinformatics, seminar (BIO-SEM)	3 ECTS
lecture + tutorials	Advanced Computer Science, required elective modules (INFO-INFO)	6 ECTS
lecture + tutorials	Advanced Computer Science, required elective modules (INFO-INFO)	6 ECTS
lecture / seminar/	Bioinformatics required, elective modules (BIO-BIO)	6+3 or 9 ECTS
	Total	30 ECTS

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

**Notes regarding the courses offered during the winter semester 2018/2019:
Here some recommended Computer Science, Bioinformatics and Life Sciences courses:**

„Theoretical Computer Science “ (INFO-THEO):

- INF4XXX Statistical Network Analysis, Lecture+Tutorial, 6 ECTS

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

- INF4192 Machine Learning and Artificial Neural Networks in Biomedical Applications, seminar, 3 ECTS
- MEDZ4110 Advanced Medical Informatics, 9 ECTS

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

<https://campus.verwaltung.uni-tuebingen.de/lfsfserver/rds?state=wtree&search=1&trex=step&root120182=99213%7C102844%7C100551%7C99876%7C100716&P.vx=kurz>

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**).

- Concepts of Molecular Cell Biology, Nordheim et al., 3+3 ECTS, lecture and seminar, English
- Introduction to Computational Neuroscience, Mallot, 3+3 ECTS, lecture and seminar, English
- Current Topics in Proteome Research, Macek, seminar, (grades will be awarded upon request only), English
- Frontiers in Applied Drug Design, (Pharmacy), Böckler et al., Practical Course, 9 ECTS