

<b>Module Name</b>	<b>Module Code</b>
Applied Bioinformatics for Nutrition and Food Science Farming	eIAEF560-01a
<b>Module Coordinator</b>	
Prof. Dr. Silvio Waschina	
<b>Organizer</b>	
Institut für Humanernährung und Lebensmittelkunde - Nutriinformatik	
<b>Faculty</b>	
Faculty of Agricultural and Nutritional Sciences	
<b>Examination Office</b>	
Faculty of Agricultural and Nutritional Sciences - Examination Office	

<b>ECTS Credits</b>	6
<b>Evaluation</b>	Graded
<b>Duration</b>	1 Semester
<b>Frequency</b>	Only takes place during winter semesters
<b>Workload per ECTS Credit</b>	30 hours
<b>Total Workload</b>	180 hours
<b>Contact Time</b>	60 hours
<b>Independent Study</b>	120 hours
<b>Teaching Language</b>	English / German

<b>Entry Requirements as Stated in the Examination Regulations</b>			
Successful completion of modules from propaedeutics			
<b>Module Courses</b>			
<b>Course Type</b>	<b>Course Name</b>	<b>Compulsory/Optional</b>	<b>SWS</b>
Lecture	Applied Bioinformatics for Nutrition and Food Science	Compulsory	2
Practical exercise	Applied Bioinformatics for Nutrition and Food Science - Computer exercises	Compulsory	2

<b>Examination(s)</b>				
<b>Examination Name</b>	<b>Type of Examination</b>	<b>Evaluation</b>	<b>Compulsory / Optional</b>	<b>Weighting</b>
Oral Examination: Applied Bioinformatics for Nutrition and Food Science Farming	Oral Examination	Graded	Compulsory	100
<b>Further Information on the Examination(s)</b>				
1.+2. period in winter semester 1. period in summer semester Examiner: Jun.-Prof. Silvio Waschina QIS: Konto 36900 PNr. 36910				

<b>Course Content</b>
<p>With the advances of „omic“-technologies in molecular biology, also nutrition- and food science became data-rich disciplines. The analysis of data generated in experimental studies require bioinformatic tools that allow to evaluate data quality, to extract relevant features, and to analyze information in a systems biological context. In this way, bioinformatics can help to broaden our understanding how organisms interact with their environment through nutrition on a molecular level. Specific course contents are:</p> <ul style="list-style-type: none"> <li>- Introduction to databases: Structure, content, features</li> <li>- Data search strategies in databases relevant in nutrition and food sciences</li> <li>- Sequence analysis (Protein/Nucleotide): processing, alignments, annotation</li> <li>- Basics of metabolomic data analysis</li> <li>- Scientific conventions in annotating, storing, and transferring biological information</li> <li>- Bioinformatic tools relevant in nutrition and food sciences</li> <li>- Metabolic pathway analysis</li> </ul>
<b>Learning Outcome</b>
<p>Students have a broad overview of publicly accessible online databases for biological information and their analysis tools. Students have acquired skills to search, retrieve, analyze, and interpret publicly available data. They know how to access online bioinformatic resources. The students are able to apply bioinformatic tools to solve practical problems in nutrition and food sciences (e.g. BSc / MSc thesis projects).</p>
<b>Reading List</b>
<ol style="list-style-type: none"> <li>1. Xiong J. Essential Bioinformatics. Cambridge, UK: Cambridge University Press, 2006.</li> <li>2. Lesk, A. Introduction to Bioinformatics. 4th edn. Oxford University Press, 2013.</li> </ol>
<b>Additional Information</b>
<p>Maximum number of participants: 20            Enrollment by OLAT within workdays Monday through Friday in the 1st week of the 2. audit period of the preceding semester. Following information is necessary:            matriculation number            last name            first name            striven degree            study program            Propädeutika passed - yes/no            stu-Email</p> <p>The allocation of the places takes place in the 2nd week of the 2. audit period of the preceding semester. Acceptance of the place by students only through participation at the first day of the course. Students without a place can get a place at the first day of the course by move-up procedure.</p>

<b>Use</b>	<b>Compulsory / Optional</b>	<b>Semester</b>
Bachelor, 1-Subject, Agricultural Sciences, Specialisation Agricultural Economics and Agribusiness, (Version 2013)	Optional	-
Bachelor, 1-Subject, Agricultural Sciences, Specialisation Crop Sciences, (Version 2013)	Optional	-
Bachelor, 1-Subject, Agricultural Sciences, Specialisation Animal Sciences, (Version 2013)	Optional	-
Bachelor, 1-Subject, Agricultural Sciences, Specialisation Environmental Sciences, (Version 2013)	Optional	-
Bachelor, 1-Subject, Nutritional Sciences and Household Economics, Specialisation Nutritional and Health Economics, (Version 2013)	Optional	-
Bachelor, 1-Subject, Nutritional Sciences and Household Economics, Specialisation Nutritional and Food Science, (Version 2013)	Optional	-