

From gene to in silico structure– the use of protein data bases (ISS)					Stand: 14.11.2014	
ECTS-Punkte	Arbeitsaufwand [h]	Dauer	Turnus		Semester	
5	150	3 Wochen	WiSe Präsenz SS online			
Lehrveranstaltungen		Typ	Umfang [SWS]	Präsenz [h]	Eigenstud. [h]	Gruppengröße
Protein Data Bases		V	2	30	40	24
From gene to in-silico structure		Ü	3	45	35	24
Modulverantwortlicher		Dr. S. Smits				
Beteiligte Dozenten		S. Smits				
Sprache		Englisch				
Verwendbarkeit des Moduls	Studiengang				Modus	
	M.Sc. Biochemie M.Sc. Biochemistry International M.Sc. Biologie M.Sc. Biology International M.Sc. Chemie				Pflicht	
Lernziele und Kompetenzen						
The participants are able to judge the outcome of web based analysis and also to highlight the advantages and the disadvantages of the programs used; to understand the possibilities of using internet programmes to identify DNA sequences in genomes, analyses of the proteins encoded, and the function of these proteins based on <i>in silico</i> predictions.						
Inhalte						
Lecture: DNA Sequencing , Identification of open reading frames, sequence alignments and Databases (How do these databases work, what are the advantages and disadvantages), FASTA and BLAST searches, Database for primary secondary and tertiary structure prediction using protein sequences Literature search using pubmed, Usage of databases to predict the function, diversity, homology, topology, modification of protein families and single proteins. Protein structure prediction as well as homology modeling and molecular simulations Exercise: From DNA sequence to a homology model of the encoded protein encoded; presentation of the results						
Teilnahmevoraussetzungen		keine				
Prüfungsvoraussetzungen		prediction of structure and function of a protein based on the gene sequence				
Prüfung und Bewertung		Prüfungsform		Dauer [min]	Gewichtung in Modulnote	
		oral presentation of results		20	unbenotet	
Gewichtung in Gesamtnote						
Webseite		http://www.chemie.uni-duesseldorf.de/Faecher/Biochemie/Lehre				
Literatur		Aktuelle Reviews und Originalpublikationen nach Mitteilung und eigene Literaturrecherche				