

Titel des Moduls: Computational Biology Modulcode: MINF-IS-ComBio		Leistungspunkte: 6.0
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Modulbeschreibung		

Qualifikationsziele
<p>The module conveys the necessary background knowledge in molecular and cell biology for students to conduct research in the area of computational structural biology. Special emphasis is given to topics in the intersection of computer science and molecular biology. The course introduces relevant algorithms and concepts from computational biology, computer science, robotics, optimization, etc.</p> <p>The course is principally designed to impart technical skills 40% , method skills 40% system skills 10% social skills 10%</p>

Inhalte
<p>Cellular biology, molecular biology, genomics, proteomics, DNA, RNA, protein structure prediction, protein folding, protein motion, protein docking, protein design, bioinformatics, search and optimization, robotics motion planning, dynamic programming, statistics, probabilistic models.</p>

Modulbestandteile				
LV-Titel	SWS	LP	PF / WA / WP	Turnus
Integrierte Veranstaltung: Computational Biology	4.0	6.0	PF	Jedes Wintersemester

zugeordnete Studiengänge				
Abschluss	Studiengang	PO	Bereich	
Master	Informatik	2010	20300	Schwerpunktthema: Intelligente Systeme
Master	Technische Informatik	2010	30500	Informationssysteme
Master	Technische Informatik	2012	30140	Informationssysteme
Master	Technische Informatik	2012	30150	Kognitive Systeme

Lehr- und Lernformen
Course consists of lecture and applied programming exercises.

Voraussetzungen für die Teilnahme
Good C++ programming skills are required! No prior knowledge of biology is needed.

Verwendbarkeit
<p>Master students in Computer Science / Focus Intelligent Systems Master students in Computer Engineering / Focus Information Systems Master students in Computer Engineering StO/PO 2012: Focus Cognitive Systems and Robotics, Computer Science Focus Information Systems, Computer Science</p>

Arbeitsaufwand und Leistungspunkte

Course type	Calculation factor	Hours
Presence in lectures	4*15	60
Pre- and postpreparation of classes	2*15	30
Assignments	4*15	60
Exam preparation		30
Sum		180

Leistungspunkte: 6.0

Prüfung und Benotung des Moduls

Exam-equivalent study effort consisting of programming exercises, written exercises, and a written exam at the end of the module; the grade of the module is determined based on the grade of the exercises (50%) and the exam (50%).

Moduldauer

The module can be completed in 1 semester.

Teilnehmer(innen)zahl

Registration required due to limited number of participants, see <http://www.robotics.tu-berlin.de/menue/lehre/>

Anmeldeformalitäten

See <http://www.robotics.tu-berlin.de/menue/lehre/>
Registration for the exam in compliance with regulations; further information is provided in the lecture.

Literaturhinweise

Lecture notes available in paper form? no
Lecture notes in paper form are sometimes made available during class.
Lecture notes available in electronic form? yes
If yes, please specify web address: announced in the course

Recommended Reading:

Announced in the course

Sonstiges

The language of the module is English. Computational Biology: Current Topics (0433 L 412) can only be taken in conjunction with this lecture.