

Modul BA-INF 117	Introduction to Shape Acquisition and Analysis					
Workload 180 h	Umfang 6 LP	Dauer 1 Semester	Turnus jährlich			
Modulverantwortlicher	Prof. Dr. Reinhard Klein					
Dozenten	Prof. Dr. Reinhard Klein					
Zuordnung	Studiengang B. Sc. Informatik	Modus Wahlpflicht	Studiensemester 5.			
Lernziele: fachliche Kompetenzen	The students will get an overview of methods, technologies and acquisition devices for recording/acquiring three dimensional digital data with a focus on three dimensional image data. They will achieve knowledge about object recognition and virtual object reconstruction from three dimensional image data, about the set up of virtual environments and rapid prototyping and will get an overview over the basic principles of morphometric analysis					
Lernziele: Schlüsselkompetenzen	Understanding and speaking technical English (as a preparation for the master program), analytical problem description, creativity, self-dependent solution of practical problems in the area of shape acquisition and analysis, presentation of solution strategies and implementations, self-dependent literature research, collaboration abilities, self-management					
Inhalte	Topics of the lecture are „data representation“, „data acquisition“, „data segmentation and three dimensional reconstruction“, „visualization and interaction“, „virtual fossil reconstruction“, „principles of rapid prototyping“ and „Morphometric Analysis“. In the exercises the students will implement some of the most important algorithms and apply them to virtual reconstructions and morphometric analysis of different biological and paleontological species.					
Teilnahmevoraussetzungen	Empfohlen: BA-INF 031 – Angewandte Mathematik					
Veranstaltungen	Lehrform		Gruppengröße	SWS	Workload[h]	LP
	Vorlesung		40	2	30 P / 45 S	2,5
	Übungen		20	2	30 P / 75 S	3,5
	P = Präsenzstudium, S = Selbststudium					
Prüfungsleistungen	Mündliche Prüfung (benotet)					
Studienleistungen	Erfolgreiche Übungsteilnahme (unbenotet)					
Medieneinsatz						
Literatur	<ul style="list-style-type: none"><li>• L. Dryden, K.V. Mardia: Statistical Shape Analysis, John Wiley &amp; Sons, 1998</li><li>• C.P.E. Zollikofer, M.S. Ponce de Leon: Virtual Reconstruction, John Wiley &amp; Sons, 2005</li></ul>					