



Module	<i>Biophotonics</i>
Code	71502
Instruction language	German or English
ECTS credits	6
Credit hours	6
Duration	1 semester
Cycle	Summer semester
Coordinator	Prof. Alwin Kienle
Lecturer	Prof. Alwin Kienle
Allocation to study programs	Physics M.Sc., elective module, 1 st or 2 nd semester
Formal prerequisites	None
Recommended prerequisites	Principles of Electrodynamics and Optics
Learning objectives	<p>Students who successfully passed this module</p> <ul style="list-style-type: none">• understand the basics of Tissue Optics• know the medical applications of optical methods• are able to solve numerically differential equations with the Monte-Carlo method• are able to solve analytically differential equations in scattering problems with integral transforms
Syllabus	<ul style="list-style-type: none">• Description of light propagation in scattering media based on Maxwell's equations, radiative transport theory and diffusion theory• Determination of the optical properties of scattering media• Light scattering from particles of different shapes• Colour origin in scattering media
Literature	
Teaching and learning methods	Lecture (3 hours per week) Laboratory course
Workload	45 hours lecture (attendance time) 15 hours exercise (attendance time) 30 hours laboratory course (attendance time) 90 hours self-study and exam preparation Total: 180 hours
Assessment	Written or oral examination. A prerequisite for the participation in the examination is an ungraded course achievement (usually the successful participation in the laboratory course, which includes the writing of a protocol for the 5 topics). Form and scope of the examination and of the



	course achievement are determined and notified by the lecturer at the beginning of the course.
Examination	12112 Biophotonics (precourse) 12102 Biophotonics
Grading procedure	The module grade is the examination grade.
Basis for	Research in the field of Biophysics
