

Module title	MScNano ABT Applied Biotechnology
Module type	Required elective module
Educational outcomes, competencies, qualification objectives	<p>Students</p> <ul style="list-style-type: none"> ... get a basic understanding of biotechnology ... get an overview of different biotechnological fields and their applications. ... are introduced to the scientific thinking and theoretical approach of molecular biology. ... learn strategies for independent work with textbooks and bioinformatics tools are developed <p>Integrated key competencies:</p> <p>Students</p> <ul style="list-style-type: none"> ... understand the interdisciplinarity and significance of different fields by the wide applications of biotechnology, research literature and retrieve information from databases (interdisciplinary studies) ... develop strategies for synergistic work in teams and to structure their own work (communication, organisational) ... learn strategies suitable for the independent work with textbooks (organisational) ... utilizing online tools and retrieving data from online databases (methodic)
Types of courses, contact hours	VL 1 SWS; S 1 SWS
Contents	<p>Applied Biotechnology (VL):</p> <ul style="list-style-type: none"> - Introduction to biotechnology - Industrial biotechnology - Medical biotechnology - Plant and animal biotechnology - Environment Biotechnology - Aquatic biotechnology - Biotechnology in analysis <p>Bioinformatic methods of biotechnology (S):</p> <ul style="list-style-type: none"> - Databases for genes and proteins - Homology models and evaluation - Structure-based alignment - Virtual cloning - Protein purification
Course titles	(a) Applied Biotechnology (VL); Bioinformatic methods of biotechnology (S)
Teaching methods	Lecture, seminar
Applicability	B.Sc. Biologie M.Sc. Biologie M. Sc. Nanoscience
Duration	one semester
Frequency	annually, block seminar each winter semester after arrangement and availability
Language	English
Recommended Skills	Good basic knowledge in biochemistry and genetic
Prerequisites for participation	none
Students workload	Contact hours 2 h x 15 = 30 h, , independent studies, 60 h, sum = 90 h
Course projects / nongraded learning assignments	none
Prerequisites for admission to examination	none
Examination	Either an oral examination on the lectures (30 min) or preparation of a report on the application of the seminar topics on a concrete example, followed by a 10-minute discussion. The form of examination will be announced at the beginning of the course.
Number of Credits	3 C
Responsible coordinator	Dr. D. Bertinetti
Lecturer(s)	Dr. Ioannis Pavlidis and coworkers
Media	Projector, laboratory experiments, electronic learning platform, protocols
Literature	Current references were named from the respective lecturers. In general, the latest edition of the following textbooks is recommended:

	<ul style="list-style-type: none">- R. Renneberg „Biotechnologie für Einsteiger“, Spektrum akademischer Verlag- W.J. Thieman, „Biotechnologie“, Pearson Studium- Clark & Pazdernik, „Molekulare Biotechnologie“, Spektrum akademischer Verlag
Special information	none