

## Module catalogue master's course Chemical Biotechnology

Semester 1	Semester 2	Semester 3	Semester 4
Applied Microbiology and Metabolic Engineering (5 CP)	Summerschool: Advanced scientific planning based on current research (5 CP)	Research internship (15 CP)	Master's Thesis (30 CP)
Enzymatic Biotransformations (5 CP)	Artificial Intelligence for Biotechnology (5 CP)		
Conceptual Design of Bioprocesses (5 CP)	Technical Electives (total of 20 CP)	Technical Electives (total of 9 or 10 CP)	
Technical Electives (total of 15 CP)		Interdisciplinary Electives (total of 5 or 6 CP)	
90 CP			30 CP

**Technical Electives Micro & Molecular Biology** Enzyme Engineering, Genetic Engineering and Synthetic Biology, Methods of Synthetic Biology, Regulation of Microbial Metabolism, Plant Biotechnology

**Technical Electives Chemistry** Catalysis, Chemistry of Enzymes, Glycomics, Phytopharmaceuticals and natural products, Surface Chemistry, Sustainable Chemistry

**Technical Electives Process engineering** Advanced Downstream Processing, Biorefinery, Electrolyte thermodynamics, Gas-based bioprocesses, Mechanical process engineering

**Technical Electives Specializations** Electrobiotechnology, Biological materials in nature and technology, Materials science of renewable resources

**Technical Electives Overarching Knowledge** Advanced Analytics for Biotechnology, Advanced Concepts of Bioinformatics

**Interdisciplinary Electives** Applied ethics at regrowing resources, Work Science and Occupational Safety, Consultancy and Communication, Corporate Sustainability Management, English, Leadership Psychology, Medicinal and spice plants, Renewable Resources at Schools, Rhetoric and Dialectic, Social Media Marketing, Spanish

Courses up to one semester can be occupied at another campus (Freising/ Garching) e.g. suitable Technical Electives (e.g. Enzyme Engineering/ Advanced Downstream Processing) and/ or the Research internship. This module plan is only a sample plan.