

Educational Programme	Molecular Modelling in Chemistry and Biochemistry
Degree Awarded	Master in Molecular Modelling in Chemistry and Biochemistry
Standard Length of Studies (Number of ECTS Credits)	2 years – 4 semesters – 120 ECTS
Type of Study	Full-time
Higher Education Institution	Babeş-Bolyai University
Faculty / Department	Department of Chemistry and Chemical Engineering
Contact Person	Assoc. Prof. Radu SILAGHI-DUMITRESCU, PhD
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Profile of the Degree Programme	Chemistry and Biochemistry - Molecular Modelling
Target Group / Addressees	Graduates in Chemistry, Biology, Physics, Environmental Science, Medicine and Pharmacy.
Entrance Conditions	<i>The Final Admission Score</i> is computed as a weighted average score between <i>General Score of the Bachelor Graduation Program</i> (75% weighting factor) and the <i>Bachelor Program Final Examination Score</i> (25% weighting factor). <i>Additional Criterion:</i> Candidates have to present a Linguistic Proficiency Certificate for a foreign language.
Further Education Possibilities	The master's programme aims at providing students with the appropriate tools for further doctoral studies and to become professional experts in the field. Within the same institution as well as throughout the region there are several research groups and companies available for further research-oriented learning.
Description of Study	The master's program in Molecular Modelling in Chemistry and Biochemistry allows students to acquire fundamental knowledge and expertise in a multidisciplinary area using particularly modern tools. These are experiments which are entirely computer-based, with no (bio)chemicals manipulated practically – which means essentially no hazards/costs in health and environment (“green science”). Illustrative for the interests elicited for this field are the two Nobel prizes awarded so far to researchers in this area - 1998 (Kohn and Pople) and 1966 (Mulliken). <i>Core courses:</i> Advanced Physical Chemistry, Advanced Inorganic Chemistry, Advanced Organic Chemistry, Advanced Biochemistry, Materials with molecular/ionic recognition capabilities, Advanced Organometallic and Coordination Chemistry, Modelling Molecular Shape and Interactions, Asymmetric synthesis mediated by organometallic compounds <i>Partner universities:</i> several courses are taught by professors from Strasbourg University, ELTE University in

	Budapest, University of Pecs, Semmelweis Univ. (Hungary), Memorial University of Newfoundland (Canada), University of Georgia (USA), Snakt Petersburg University (Russia)
Purposes of the Programme	The program provides a basic training in theoretical chemistry and biology going as far as nanomaterials, biomaterials, medical applications or fine synthesis, all with sound insight from experimentalists as well.
Specialization / Area of Expertise	The curriculum of this program provides basic training in an area of great potential in research and industry – molecular modeling from chemical and biological points of view.
Extra Peculiarities	-
Practical Training	Throughout the course students are required to undertake one semester of research work at Babeş-Bolyai University or abroad.
Final Examinations	Research master thesis
Gained Abilities and Skills	<ul style="list-style-type: none"> - Knowledge of modern techniques in computer-based modeling in chemistry and biology, including the ability to apply these in independent manner for solving well-defined research problems - Knowledge of recent state-of the art progress in chemistry and biochemistry, including such aspects as synthesis of medically/therapeutically useful compounds, hazards in chemical and biochemical industry, or applications of new materials
Job Placement, Potential Field of Professional Activity	<p>The course is designed to equip students with the basic skills required for a career in academic research or pharmaceutical industry.</p> <p>On condition of promoting The Program of Psycho-Pedagogical Studies 2nd Level, the holder of this certificate can work as a teacher in the educational system.</p>

Date: 27.10.2010

Signature: