

Changes with respect to the school year 2010/2011 are in light grey colour

1st Semester: Regular Courses			
Course Code	Course Title	Course Structure * L+S+E+LE	ECTS
PMP500	Cell biophysics (I. Weber, I. M. Tolić-Norrelykke, D. Juretić)	24+4+0+0	6
PMP501	Modelling of Biomacromolecules and their Complexes (Sanja Tomić, Ante Graovac)	20+4+8+4	6
	Elective Course I**		6
	Elective Course II and/or Student's Research in Biophysics***		6
	Student's research in Biophysics		6
TOTAL:			30
<p>*L=Lectures, S=Seminar, E=Exercises, LE=Laboratory Exercises. Exercises (E) are auditory exercises, while laboratory exercises (LE) are practical work with instruments in a laboratory or computer modelling/simulations.</p> <p>**Only students with an excellent background and with adviser's recommendation can apply to Study Committee to take Student's Research in Biophysics as the Elective Course I.</p> <p>***Student can take counsel with his advisers and with the Study Committee whether to take one additional elective instead of starting his/her research work during the first semester. That elective course can also be from our selection of first semester elective courses. It can be from course offering of other interdisciplinary doctoral studies and/or it can serve as supplementary course to help student in acquiring necessary basic knowledge (Appendix I). The Study Committee can decide to grant these 6 ECTS credits to a student who already acquired education in some well known laboratory from the field of biophysics, structural bioinformatics, system biology, functional genomics, proteomics, ..</p>			

1st Semester: Elective Courses			
Course Code	Course Title	Course Structure * L+S+E+LE	ECTS

PMP510	Bioinformatics, Biophysics and Bioenergetics of Membrane Proteins (D. Juretić)	20+4+6+4	6
PMP511	Molecular Structure and Dynamics, Spectroscopy and Simulations (F. Sokolić)	20+0+10+5	6
PMP512	Nonequilibrium Thermodynamics (P. Županović)	30+0+15+0	6
PMP513	Multivariate Statistical Methods (D. Eterović)	12+0+0+16	6
PMP514	Physics of DNA, chromatin and viruses (R. Podgornik)	20+0+20+0	6
PMP515	Molecular Genetics (J. Terzić)	24+10+0+12	6
PMP516	Environmental Microbiology (N. Krstulović)	15+0+0+30	6
PMP517	Models and Methods in Structural Bioinformatics (B. Lučić)	15+5+15+0	6
PMP518	Methods in Molecular Biology and Medicine (A. Ambriović-Ristov)	0+0+0+30	6
PMP519	Laboratory Exercises in Molecular Biology (J. Puizina)	0+0+0+30	6
PMP520	New Methods for Determining Biopolymers Structure by Using the Mass Spectroscopy (J. Peter-Katalinić)	15+0+15+0	6
	Student's Research in Biophysics	0+6+0+20	6
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2nd Semester: Regular Courses			
Course Code	Course Title	Course Structure * L+S+E+LE	ECTS
PMP502	Experimental Methods of Physics in Biophysics (A. Bilušić, V. Svetličić, B. Rakvin, G. Baranović, D. Vikić-Topić, I. Weber)	26+4+0+30	10
PMP503	Selected research topics at ICAST („Interdisciplinary Center for Advanced Science and Technology”) (V. Bonačić-Koutecky)**	10+2+4+2	3
	Elective Course III and/or Student's Research in Biophysics***		6
	Elective Course IV and/or Student's Research in Biophysics***		≥5 and

			≤11
	Participation in a International Summer School ****		≥0 and ≤6
TOTAL:			30

*L=Lectures, S=Seminar, E=Exercises, LE=Laboratory Exercises.

**Multi-institutional initiative in nanobiology, material science, life science and environment with focus on modelling, computational science and simulations embedded in European and Croatian network of experimental laboratories. Research directions: Nanoparticle-Biomolecule hybrid systems for development of Bio-sensors, Unifying concepts in biological and materials aging, Nanostructures for design of new materials, Design of selective peptide antibiotics, Research in environmental protection and renewable energy resources. Prof. dr. Miroslav Radman has also accepted to teach about 10 additional hours dealing with selected research topics at ICAST, but his teaching will be part of the obligatory course: "Seminars and Workshops from Interdisciplinary Life Sciences" during second study year (see Programme 3-rd and 4-th Semester).

***Student can take counsel with his advisers and with the Study Committee whether to take one additional elective instead of more intensive research work during the second semester. That elective course can also be from our selection of first semester elective courses. It can be from course offering of other interdisciplinary doctoral studies and/or it can serve as supplementary course or courses to help student in acquiring necessary basic knowledge (Appendix I). Students with greater need for supplementary courses will not participate in a Summer School during the first year of their study. The Study Committee can decide to grant certain number of ECTS credits to a student who already acquired education in some well known laboratory from the field of biophysics, structural bioinformatics, system biology, functional genomics, proteomics,...

**** ECTS credits for the Elective Course IV and/or Student's Research in Biophysics and for the Participation in a International Summer School should compensate each other so that total number of ECTS credits is eleven.

2nd Semester: Elective Courses			
Course Code	Course Title	Course Structure * L+S+E+LE	ECTS
PMP521	Theory and Experiment in the Study of Protein Folding (B. Žagrović)	20+6+0+10	6
PMP522	Applications of Maximum Entropy Production Principle in Physics and Biology (P. Županović, D. Juretić, ..)	12+4+0+4	6

PMP523	Physics of Medical Diagnostics (D. Eterović)	7+8+0+15	6
PMP524	Mathematical Modeling of Biological Systems; Selected Topics (M. Brumen)	10+5+10+10	6
PMP525	Structure and Interactions in Polyelectrolytes: Basic Theory and Experimental Verification (Silvia Tomić i T. Vuletić)	10+5+0+15	6
PMP526	Biophysical and Biomedical Aspects of Oxidative Stress (N. Žarković)	6+4+0+0	2
PMP527	Basics of systems biomedicine (K. Pavelić, S. Kraljević Pavelić, M. Sedić, K. Hock, M. Baus Lončar)	10+4+0+0	3
PMP528	Biomechanics (M. Dželalija)	20+0+0+10	6
PMP529	Structural, Electronic and Dynamical Aspects of Biophysical Processes (V. Bonačić-Koutecky)		6
PMP530	Planning of Research and Writing Scientific Report (M. Marušić)	10+6+4+0	6
	Student's Research in Biophysics	0+6+0+20	6
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3rd Semester: Regular Courses			
Course Code	Course Title	Course Structure * L+S+E+LE	ECTS
	Research in Biophysics (see proposed thesis topics by corresponding mentors in the Chapter 4.3)		26
PMP505	Seminars and Workshops from Interdisciplinary Life Sciences (international experts, see course description) (D. Juretić, V. Bonačić-Koutecky, organizers)	0+20+0+0	4
TOTAL:			30
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4th Semester: Regular Courses

Course Code	Course Title	Course Structure * L+S+E+LE	ECTS
	Research in Biophysics and Student's Seminars (see proposed thesis topics by corresponding mentors in the Chapter 4.3). Student's seminars on chosen research topics.**		26
PMP505	Seminars and Workshops from Interdisciplinary Life Sciences (international experts, see course description) (V. Bonačić-Koutecky, D. Juretić, organizers)	0+20+0+0	4
TOTAL:			30
<p>*L=Lectures, S=Seminar, E=Exercises, LE=Laboratory Exercises.</p> <p>** Up to 4 ECTS credits can be earned in this semester too for the active participation (with poster or lecture) in some International Summer School/Conference. Then there will be corresponding decrease in the ECTS credits for student's research and seminars.</p>			

5th Semester: Regular Courses			
Course Code	Course Title	Course Structure * L+S+E+LE	ECTS
	Research related to the chosen Ph.D. thesis research topic		27
	Student's research seminars and first seminar about results of student's Ph.D. research.		3
UKUPNO:			30
* L=Lectures, S=Seminar, E=Exercises, LE=Laboratory Exercises.			

6th Semester: Regular Courses			
Course Code	Course Title	Course Structure * L+S+E+LE	ECTS
	Research on chosen Ph.D. thesis research topic		27

	Two student's seminars about research results pertaining to student's Ph.D. research and thesis defense seminar.		3
UKUPNO:			30
* L=Lectures, S=Seminar, E=Exercises, LE=Laboratory Exercises.			

