Medical Biotechnology MSc 2011									
Moduls/course (min.-max. credits)	**Hrs/wk L/S/P**	**L**	**S-P**	**Semesters and credits**				**Examination**	**Co-ordinators**
	Total credits	**Credit**	**Credit**	**I**	**II**	**III**	**IV**		
A. CORE MATERIAL									
A.1. Foundation modul (25-40)									
Basic science courses (20-30)									
Biochemistry	4	2	2	4				Examination + progress grade	Balázs Sümegi
Introduction to molecular and cell biology	4	1	3	4				Examination + progress grade	József Szeberényi
Human Physiology	4	2	2	4				Examination + progress grade	László Lénárd
Genetics	4	2	2	4				Examination + progress grade	Béla Melegh
Biophysics	4	2	2	4				Examination + progress grade	Miklós Nyitrai
Informatics	4	1	3	4				Examination + progress grade	Gábor Pauler
Basic economics and ethics courses (5-15)									
Introduction to Economics	2	1	1	2				Examination	Attila Varga
Management	2	1	1	2				Examination	Ákos Jarjabka
Business law	1	1		1				Examination	Tibor Nochta
Ethics in Biotechnology	1	1		1				Examination	János Kállai
Foundation modul	**30**	14	16						

Medical Biotechnology MSc 2011									
Moduls/course (min.-max. credits)	**Hrs/wk L/S/P**	**L**	**S-P**	**Semesters and credits**				**Examination**	**Co-ordinators**
	Total credits	**Credit**	**Credit**	**I**	**II**	**III**	**IV**		
A. CORE MATERIAL									
A.2. Specialized core material (20-40)									
Nucleic acid manipulation and vector design	4	1	3		4			Examination + progress grade	Judit Pongrácz
Proteins and protein networks	4	1	3		4			Examination + progress grade	Ferenc Kilár
Signal transduction	4	2	2		4			Examination + progress grade	Tímea Berki
Immunology	3	1	2		3			Examination + progress grade	Péter Németh
Microbiology	3	1	2		3			Examination + progress grade	Júlia Szekeres-Barthó
Molecular basis of microbial pathogenesis	3	1	2		3			Examination + progress grade	Csaba Fekete
Molecular pathology	2	2			2			Examination + progress grade	László Pajor
Developmental biology	2	2			2			Examination	Péter Balogh
In vivo test systems and transgenic animals	2	1	1		2			Examination	Péter Balogh
Tissue culture techniques	3	1	2		3			Examination + progress grade	Judit Pongrácz
Specialized core material	**30**	13	17						
Total A. Core material	***60***								
B. Specialty courses (30-50)	***40***								
C. Masters thesis (20)	***20***		**20**						
MEDICAL BIOTECHNOLOGIST MSc (120-140)	**120**								

Medical Biotechnology MSc 2011									
Moduls/course (min.-max. credits)	**Hrs/wk L/S/P**	**L**	**S-P**	**Semesters and credits**				**Examination**	**Co-ordinators**
	Total credits	**Credit**	**Credit**	**I**	**II**	**III**	**IV**		
B.1. Specialty in Molecular biotechnology (30-50)									
Molecular and functional genetics, genomics	4	1	3			4		Examination + progress grade	Béla Melegh
Molecular basis of pathogenesis and diseases, and diagnostics	3	1	2			3		Examination + progress grade	Béla Melegh
Molecular targeting	3	1	2			3		Examination	Balázs Sümegi
Molecular toxicology	4	1	3			4		Examination	Pál Perjési
Pharmacologycal testing using in vitro human and in vivo animal systems	4	2	2			4		Examination + progress grade	Lóránd Barthó
Drug research and development	2	2				2		Examination	Erika Pintér
B.1. Credit	**20**	**8**	**12**						
Elective specialty courses (min 10 credit)	10					10			
Elective other (min 10 credit)	10					10			
Total B.1. credit	***40***								
B.2. Specialty in Cell- and Tissue-engineering (30-50)									
Molecular development	4	2	2			4		Examination	Péter Balogh
Transdifferentiation	4	1	3			4		Examination + progress grade	Péter Balogh
Biological therapies	4	2	2			4		Examination	Péter Németh
Three dimensional tissue culture techniques	4	2	2			4		Examination + progress grade	Judit Pongrácz
Autologous tissue transplantation	4	2	2			4		Examination + progress grade	Tamás Illés
B.2. credit	**20**	**9**	**11**						
Elective specialty courses (min 10 credit)	10					10			
Elective other (min 10 credit)	10					10			
Total B.2. credit	***40***								

Medical Biotechnology MSc 2011									
Moduls/course (min.-max. credits)	**Hrs/wk L/S/P**	**L**	**S-P**	**Semesters and credits**				**Examination**	**Co-ordinators**
	Total credits	**Credit**	**Credit**	**I**	**II**	**III**	**IV**		
Elective courses									
Biotechnological methods in forensic medicine	3	1	2			3		Examination + progress grade	Katalin Sipos
Application of biomarkers in public health	3	1	2			3		Examination + progress grade	Zoltán Gyöngyi
Application of high throughput screening methods and biorobotics in biotechnology	3	1	2			3		Examination + progress grade	Péter Németh
Antibody and vaccine production in plants	4	2	2			2	2	Examination +progress grade	Gábor Jakab
Neurobiology	4	2	2			2	2	Examination + progress grade	Róbert Gábriel
Enzime biotechnology	2	2				2		Examination	Tímea Berki
Laboratory diagnostics	2	2					2	Examination	Attila Miseta
Introduction to Gerontology	2	2				2		Examination	Miklós Székely
Molecular gerontology	2	1	1			2		Examination	Judit Pongrácz
Protein expression systems in laboratory and industry	3	1	2			1	2	Examination + progress grade	Péter Németh
Basics and application of fluorescence microscopy	2	1	1			2		Examination + progress grade	Gábor Hild
Modern biophysical research methods	2	1	1			2		Examination + progress grade	Gábor Hild
Nanobiotechnology	3	1	2			1	2	Examination +progress grade	László Grama
The cytoskeletal system	1	1				1		Examination	Miklós Nyitrai
Applied virology	2	1	1			1	1	Examination +progress grade	Ferenc Jakab
Immunpathology 1	2	2				2		Examination	Péter Németh
Immunpathology 2	2	2					2	Examination	Júlia Szekeres-Barthó
Basic principles of electron microscopy in clinical practice and biological research	2	1	1					Examination +progress grade	László Seress
Capillary electrophoresis	2	1	1			1	1	Examination + progress grade	Ferenc Kilár
Statistical analysis	3	1	2			1	2	Examination + progress grade	László Pótó

Medical Biotechnology MSc 2011									
Moduls/course (min.-max. credits)	**Hrs/wk L/S/P**	**L**	**S-P**	**Semesters and credits**				**Examination**	**Co-ordinators**
	Total credits	**Credit**	**Credit**	**I**	**II**	**III**	**IV**		
Elective courses									
Biometrics	1		1				1	Progress grade	László Pótó
Clinicopathology	1	1					1	Examination	László Pajor
Biophysical background and clinical application of isotopdiagnostic and radiotherapeutic	2	1	1			2		Examination + progress grade	Katalin Zámbó
Genetic toxicology	1	1				1		Examination	Csaba Varga
Theoretical and clinical aspects of neuroendocrine experiments	1	1					1	Examination	Valér Csernus
Archeogenetics	1	1					1	Examination	István Ember
Population genetics	1	1					1	Examination	István Ember
Inborn errors of metabolism	2	1	1				2	Examination	Tamás Decsi
Theory and practice of evidence based medicine	1	1					1	Examination	Tamás Decsi
Total credit	60	35	25						
Additional Elective Courses									
Communication in science	2	1	1				2	Progress grade	Péter Balogh
Intellectual property law	3	2	1				3	Examination	Zsolt György Balogh
Marketing in biotechnology	3	2	1			3		Examination	Gábor Pauler
Global business strategies	1	1					1	Progress grade	Péter Németh
Total credit	***12***	8	4						