

List of required and elective courses and modules with class hours and ECTS credits

1. GENERAL INFORMATION ON THE STUDY PROGRAMME			
1.1. Name of the study programme	Biology and Chemistry Education		
1.2. Provider of the study programme	Faculty of Science, University of Zagreb (hereinafter: PMF)		
1.3. Partner institutions			
1.4. Type of study programme	Vocational study programme <input type="checkbox"/>	University study programme <input checked="" type="checkbox"/>	
1.5. Level of study programme	Undergraduate <input type="checkbox"/>	Graduate <input checked="" type="checkbox"/>	Integrated <input type="checkbox"/>
1.6. Delivery mode	Traditional <input checked="" type="checkbox"/>	Mixed (traditional + online) <input type="checkbox"/>	Online in entirety <input type="checkbox"/>
1.6.1. Is it a?	<input checked="" type="checkbox"/> single major <input type="checkbox"/> double major <input type="checkbox"/> interdisciplinary study programme <input type="checkbox"/> multidisciplinary study programme <input type="checkbox"/> developing programme <input type="checkbox"/> joint study programme		
1.7. Academic/vocational title awarded on completion of the study programme	Master in Biology and Chemistry Education (mag. educ. biol. et chem.)		
1.8. Scientific/artistic field/area of the proposed study programme	Natural science / biology and chemistry		

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LIST OF REQUIRED COURSES									
Year of study: 1. year									
Semester: 1. semester									
MODULE	COURSE	COURSE TEACHER	1. semester	L	S	E	e-learning	ECTS	Required/elective
	Biogeography	A. Previšić, R. Šoštarić		30	15	0	0	4	required
	ELECTIVE COURSES BIOLOGY 1			15	0	15	0	3	required
	Teaching biology	I. Radanović, M. Sertić Perić, D. Sirovina		45	45	30	0	8	required
	ELECTIVE COURSES CHEMISTRY 1*			45-60	45-60	0	0	11-12	required
	Pedagogy	D. Tot, N. Maras, M. Đuranović		30	30	0	0	4	required

* students enrol in 3 of the 5 elective courses offered, Chemistry 1

LIST OF ELECTIVE COURSES – BIOLOGY 1									
Year of study: 1. year									
Semester: 1. semester									
MODULE	COURSE	COURSE TEACHER	2. semester	L	S	E	e-learning	ECTS	Required/elective
	Processing biological data	A. Brigić, D. Lisičić		15	0	15	0	3	
	Biodiversity assessment	A. Brigić, D. Lisičić		15	0	15	0	3	elective

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LIST OF ELECTIVE COURSES – CHEMISTRY 1									
Year of study: 1. year									
Semester: 1. semester									
MODULE	COURSE	COURSE TEACHER	2. semester	L	S	E	e-learning	ECTS	Required/ elective
	Fundamentals of d-block elements chemistry	M. Rubčić		15	15	0	0	4	elective
	Fundamentals of instrumental analytical methods	N. Galić		15	15	0	0	4	elective
	Fundamentals of molecular spectroscopy	J. Požar		15	15	0	0	4	elective
	Practical analytical chemistry	I. Juranović Cindrić		15	30	0	0	3	elective
	Environmental analytical chemistry	N. Galić, P. Novak, S. Rončević		30	15	0	0	3	elective

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LIST OF REQUIRED COURSES										
Year of study: 1. year										
Semester: 2. semester										
MODULE	COURSE	COURSE TEACHER	2. semester	L	S	E	e-learning	ECTS	Required/ elective	
	Ecosystem ecology	I. Ternjej, S. Essert, M. Krajačić		15	15	30	0	3	required	
	Factors of evolution	G. Kovačević		15	15	15	0	3	required	
	Molecular biology	I. Ivančić Baće		30	0	15	0	3	required	
	Field course	I. Ternjej, S. Essert		0	0	120	0	4	required	
	ELECTIVE COURSES CHEMISTRY 2			15-30	0-15	0-15	0	3	required	
	Methodology of teaching chemistry 1	D. Mrvoš-Sermek, N. Judaš		30	15	0	0	5	required	
	Methodology of teaching chemistry - Laboratory 1	D. Mrvoš-Sermek, N. Judaš		0	0	45	0	5	required	
	Didactics	D. Tot, N. Maras, M. Đuranović		30	30	0	0	4	required	

LIST OF ELECTIVE COURSES – CHEMISTRY 2										
Year of study: 1. year										
Semester: 2. semester										
MODULE	COURSE	COURSE TEACHER	2. semester	L	S	E	e-learning	ECTS	Required/ elective	
	Modern biochemical research	A. Maršavelski		30	15	0	0	3	elective	
	Computational modelling in organic chemistry	I. Kodrin		15	15	15	0	3	elective	
	Fundamentals in chemistry of natural organic compounds	Đ. Škalamera		15	15	15	0	3	elective	
	Catalytic properties of compounds containing d-block elements	J. Pisk		30	15	0	0	3	elective	
	Crystals and crystalline materials in teaching and advanced materials	M. Đaković		30	0	15	0	3	elective	
	Physical chemistry in education	J. Požar		30	0	15	0	3	elective	

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LIST OF REQUIRED COURSES									
Year of study: 2. year									
Semester: 3. semester									
MODULE	COURSE	COURSE TEACHER	3. semester	L	S	E	e-learning	ECTS	Required/ elective
	Biology teaching practice	I. Radanović, M. Sertić Perić, D. Sirovina		0	30	90	0	8	required
	Science teaching practice	I. Radanović, M. Sertić Perić, D. Sirovina		0	0	30	0	3	required
	Protection of nature and environment	I. Buj		30	0	0	0	2	required
	Advanced chemistry laboratory	M. Đaković		0	0	45	0	4	required
	Methodology of teaching chemistry 2	D. Mrvoš-Sermek, N. Judaš		30	30	0	0	7	required
	Methodology of teaching chemistry - Laboratory 2	D. Mrvoš-Sermek, N. Judaš		0	0	60	0	6	required

LIST OF REQUIRED COURSES									
Year of study: 2. year									
Semester: 4. semester									
MODULE	COURSE	COURSE TEACHER	4. semester	L	S	E	e-learning	ECTS	Required/ elective
	ELECTIVE COURSES BIOLOGY 2			30	15	0	0	3	required
	Methodology of teaching chemistry – Pedagogical practice	D. Mrvoš-Sermek, N. Judaš		0	30	75	0	8	required
	ELECTIVE COURSES TEACHING AND LEARNING			30	15	0	0	4	required
	Diploma thesis							15	required

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LIST OF ELECTIVE COURSES – BIOLOGY 2									
Year of study: 2. year									
Semester: 4. semester									
MODULE	COURSE	COURSE TEACHER	4. semester	L	S	E	e-learning	ECTS	Required/elective
	Botany in classroom	S. Essert, D. Hruševar		30	15	0	0	3	elective
	Experiential learning of microbiology	S. Černi		30	15	0	0	3	elective
	Plants in phytotherapy	G. Rusak, I. Šola		30	15	0	0	3	elective
	Algae and student projects	M. Gligora Udovič		30	15	0	0	3	elective
	Animal behavior	D. Lisičić		30	15	0	0	3	elective

LIST OF ELECTIVE COURSES – TEACHING AND LEARNING									
Year of study: 2. year									
Semester: 4. semester									
MODULE	COURSE	COURSE TEACHER	4. semester	L	S	E	e-learning	ECTS	Required/elective
	Psychology of education of students with special educational needs	D. Rován		30	15	0	0	4	elective
	Teaching biology outside the classroom	D. Sirovina		30	15	0	0	4	elective
	Culture of (self)evaluation	D. Tot		30	15	0	0	4	elective
	Misconceptions in chemistry	D. Mrvoš-Sermek		30	15	0	0	4	elective
	Construction and evaluation of assessment tools	N. Judaš		30	15	0	0	4	elective