DEPARTMENT OF ECOLOGY, AGRONOMY AND AQUACULTURE

CONTACTS:

	NAME AND TITLE	TEL./FAX	E-MAIL ADDRESS
HEAD OF THE DEPARTMENT	Bosiljka Mustać, PhD	+385 (0)23 200 845	bmustac@unizd.hr
VICE-HEAD OF THE DEPARTMENT	Ivan Župan, PhD	+385(0)23 200 839	zupan@unizd.hr
SECRETARY	Petra Meštrov, mag.oec.	+385(0)23 200 824	pfatovic@unizd.hr
ECTS COORDINATOR	Andrija Finka, PhD	+385(0)23 200 830	afinka@unizd.hr

ADDRESS: Trg kneza Višeslava 9, Zadar, Hrvatska

URL: https://www.unizd.hr/poljodjelstvo

ACADEMIC STAFF:

NAME	ACADEMIC TITLE	TEL.	E-MAIL ADDRESS	CONSULTA-TION HOURS
Stewart Schultz, PhD	Full Professor	+385(0)23 400 435	sschultz@unizd.hr	By arrangement via e-mail
Jozo Rogošić, PhD	Full Professor	+385(0)23 302 508	jrogosic@unizd.hr	By arrangement via e-mail
Slaven Zjalić, PhD	Full Professor	+385(0)23 200 614	szjalic@unizd.hr	By arrangement via e-mail
Bosiljka Mustać, PhD	Associate Professor	+385(0)23 200 845	bmustac@unizd.hr	By arrangement via e-mail
Ivan Župan, PhD	Associate Professor	+385(0)23 200 839	zupan@unizd.hr	By arrangement via e-mail
Claudia Kruschel, PhD	Associate Professor	+385(0)23 400 435	ckrusche@unizd.hr	By arrangement via e-mail
Zoran Šikić, PhD	Associate Professor	+385(0)23 200 844	zsikic@unizd.hr	By arrangement via e-mail
Janja Filipi,	Associate Professor	+385(0)23 200 841	jfilipi@unizd.hr	By arrangement via e-mail

PhD				
Tomislav Šarić, PhD	Associate Professor	+385(0)23 200 839	tosaric@unizd.hr	By arrangement via e-mail
Tomislav Kos, PhD	Associate Professor	+385(0)23 200 830	tkos@unizd.hr	By arrangement via e-mail
Lav Bavčević, PhD	Associate Professor	+385(0)23 200 828	lbavcevic@unizd.hr	By arrangement via e-mail
Andrija Finka, PhD	Assistant Professor	+385(0)23 200 830	afinka@unizd.hr	By arrangement via e-mail
Anamarija Frankić, PhD	Assistant Professor	+385(0)23 400 435	afrankic@unizd.hr	By arrangement via e-mail
Kristijan Franin, PhD	Assistant Professor	+385(0)23 200 843	kfranin@unizd.hr	By arrangement via e-mail
Bruna Petani, PhD	Postdoc.	+385(0)23 200 844	bpetani@unizd.hr	By arrangement via e-mail
Ivana Zubak Čižmek, PhD	Postdoc.	+385(0)23 400 436	izubak@unizd.hr	By arrangement via e-mail
Branka Maričić, PhD	Teaching Assistant	+385(0)23 200 841	bmaricic@unizd.hr	By arrangement via e-mail
Jelena Lončar, PhD	Teaching Assistant	+385(0)23 233 323	jloncar@unizd.hr	By arrangement via e-mail
Šimun Kolega, MA	Teaching Assistant	+385(0)23 200 828	skolega@unizd.hr	By arrangement via e-mail

ABOUT US:

The Department of Ecology, Agronomy and Aquaculture started working in 2006 when the first academic staff was employed. Undergraduate study Applied Ecology in Agriculture started in 2010. Agricultural production is observed in a different way from the conventional ones, which includes an integrated and environmentally friendly approach in the Mediterranean environment. Emphasis is placed on the ecological component and on management rather than exploitation. Due to the importance of blue sector development with sustainability and the protection of aquatic ecosystems, the undergraduate study Underwater Science and Technologies was developed through EU project (TEMPUS JEP_41082_2006 Underwater Science and Technologies). In addition, regarding the need for the growth and development of fisheries and aquaculture based on scientific foundations, with sustainability in terms of economic and ecological indicators, the first graduate study, Sustainable Management of Aquatic Ecosystems, belonging to the biotechnical area of science at the University of Zadar started in 2017. The development and launch of a mentioned graduate

study was one of the main goals of the EU project Blue Education for Sustainable Management of Aquatic Resources BLUE SMART, co-financed by the European Maritime and Fisheries Fund.).

STUDY PROGRAMMES

Undergraduate university study programme of Applied ecology in agronomy (single-major)

Duration of the study: 6 semesters (3years)

Admission requirements: Completed four-year high school and passed state graduation exam for full-time students

Competencies acquired upon finishing the study programme: Competencies acquired upon finishing the study program:

- application of the basic knowledge from the fields of biology (botany/zoology/ecology), pedology, chemistry, math, physics, and informatics in solving practical situations in agronomy production
- use of applied research methods and acquired expertise in solving varied situations in the fields of plant production, plant ecology, animal husbandry, especially when applied to Mediterranean climatic zone
- proficiency in the field and laboratory situations and use of skills from the areas of fruit, vegetable and fodder production
- ability to conduct basic lab analysis in the areas of quality control, storage and usage of fruits and vegetables in fresh, pre-processed and processed form
- ability to raise, keep and breed farm animals
- rationally use and manage sustainable grasslands in Mediterranean ecosystems
- offer practical and technical assistance in the fields of plant and animal ecology
- be professional and ethical
- manage farms based on the principles of economy, organizational management and entrepreneurship
- continually improve expertise and stay current in the filed
- besides Croatian, posses active use of English language (courses will be taught both in Croatian and English)
- exchange and manage data and information from the field of agronomy
- be cooperative and team oriented whilst retaining a degree of independence

Professional title acquired upon finishing the study programme: Bachelor (baccalaureus) of applied ecology in agronomy (univ. bacc. ing. agr.)

Course list by semesters:

Course unit code	I SEMESTER	Status	Hours per week			ECTS
			L	S	E	

PEP102	Mathematics	mandatory	30	15	0	5
PEP103	Fundamentals of Chemistry	mandatory	45	15	0	6
PEP104	Agroclimatology	mandatory	30	15	0	4
PEP106	Introduction to scientific methods and biometrics	mandatory	30	15	15	6
PEP107	Fundamentals of Biology	mandatory	30	15	15	5
JEE101	English for Specific Purposes I	mandatory	30	0	30	4
	II SEMESTER					
PEP202	Basic Zoology of the Mediterranean Ecosystems	mandatory	30	15	15	5
PEP101	Fundamentals of Botany	mandatory	45	15	15	6
PEP203	General Pedology and Competence of Mediterranean Soil Types	mandatory	30	15	0	5
PEP201	Mechanization in the Mediterranean Agriculture	mandatory	30	0	15	4
PEP206	Fundamentals of Ecology	mandatory	30	15	0	4
PEP205	Biochemistry	mandatory	45	15	0	6
	III SEMESTER					
PEP409	Fundamentals of Genetics	mandatory	30	15	0	5
PEP304	Systems of Water Management	mandatory	30	15	0	4
PEP308	Laboratory methods in agronomy	mandatory	15	0	45	3
PEP404	Principles of Agronomy	mandatory	30	30	0	6
PEP303	Fundamentals of Plant Physiology and Nutrition	mandatory	45	0	15	6
PEP307	Fundamentals of Anatomy and Physiology of farming animals	mandatory	45	15	15	6
	IV SEMESTER					
PEP201	Microbiology and Mycology	mandatory	30	15	0	4
PEP501	General Fruit Growing	mandatory	45	15	15	6
PEP310	Vegetable Growing	mandatory	30	15	15	5
PEP301	Vegetation of Mediterranean Area	mandatory	45	15	0	5
PEP311	Livestock farming	mandatory	45	15	15	6
PEP408	Apiculture	mandatory	30	0	15	4
	V SEMESTER					
PEP305	Agro-ecology	mandatory	30	15	0	4
PEP307	Farm Management and Agricultural Products Marketing	mandatory	30	0	0	3
PEP306	Plant protection	mandatory	45	15	15	6
PEP605	Nutrition of Domestic Animals	mandatory	30	15	0	4
PEP512	Fisheries	mandatory	30	0	15	4

PEP506	Olive Growing and Production	elective	30	15	15	4
PEP506	Traditional products	elective	45	0	15	5
PZT115	Biomimicry - solutions inspired by nature	elective	30	0	30	5
PEP513	Protection of nature	elective	30	15	0	4
PEP402	Medicinal plants	elective	30	15	0	4
PEP514	Phytopharmacy with ecotoxicology	elective	30	15	15	5
	VI SEMESTER					
PEP606	Field study	mandatory	0	0	180	6
PEP607	Final thesis	mandatory	0	0	90	6
PEP601	Natural Pasture Sustainable Management	elective	30	15	0	4
PZT311	Aquaculture	elective	30	0	15	4
PEP407	Domestic animal health protection	elective	45	15	15	6
PEP608	Integrated plant protection	elective	30	15	0	4
PZT209	Marine ecology	elective	30	15	15	5
PZT110	Introductory oceanography	elective	30	15	30	6
PEP401	Mediterranean Forest Cultures and Agroforestry	elective	30	15	0	4
PEP602	Grape Growing and Wine Production	elective	30	0	15	5
PEP410	Techniques of Plant Breeding	elective	30	15	0	3
PEP504	Zoo-hygiene and DDD	elective	30	0	15	5
PEP610	Floriculture	elective	15	15	0	3

Undergraduate university study programme of Underwater science and technology (single-major)

Duration of the study: 6 semesters (3years)

Admission requirements: Completed four-year high school and passed state graduation exam for full-time students

Competencies acquired upon finishing the study programme: Competencies acquired upon finishing the study program:

- use mathematical modelling
- apply statistical methods
- use computer aided engineering
- recognise main archaeological sites and determine their archaeological potential
- explain problems of research methodology and protection of archaeological sites
- date (approximately) underwater archaeological sites
- determine category of archaeological sites and estimate necessity for their conservation
- solve problems in different areas based on the understanding of main physical processes which govern hydrographic properties and ocean dynamics in the Adriatic
- choose optimal construction materials and optimal building technology of for particular underwater construction
- choose optimal structure and structural elements of for particular offshore and underwater building
- estimate effects of coastal and underwater construction on the environment
- recognize negative influence of freshwater and marine environment on the construction materials and suggest protection methods
- anticipate and categorize possible problems and threats to the environment based on their knowledge on biological processes and organisms.
- propose methods to prevent pollution of freshwater and marine environment and processes of pollution recovery
- classify diversity and various life styles of marine organisms, and describe their adaptations to different environmental conditions
- describe and explain differences of large marine living areas like: open sea, coastal areas, deep sea, coral reefs, and estuaries
- choose culture system according to biological characteristics of cultivated
- predict and resolve coastal management problems
- apply scientific methods to solve practical problems
- perform underwater activities safely, respecting legislations and regulations
- select appropriate support system for underwater operations
- collect, analyse and interpret scientific data
- present scientific results clearly and briefly in written and oral form
- plan project approach to the problems and situations in domestic and international development and economical projects, which take into consideration implementation of methods and tools characteristic for underwater science and technology
- establish and maintain relationship of mutual cooperation, communication and compromise during the project
- independently manage the part of the project assigned to him/her

Professional title acquired upon finishing the study programme: Bachelor (baccalaureus) of Bachelor of science (Bsc) in Underwater science and technologies (univ. bacc. submar. techn.)

Course list by semesters:

Course unit code	I SEMESTER	Status	Hours per week			ECTS
			L	S	E	
PZT101	English language I	mandatory	30	0	30	4
PZT102	Numerical skills of data analysis	mandatory	30	30	0	6
Pzt103	Fundamentals of Physics	mandatory	30	30	0	5
PZT103	Fundamentals of Chemistry	mandatory	30	15	15	5
PZT105	Fundamentals of Biology	mandatory	30	15	15	5
PZT106	Earth Systems	mandatory	45	0	0	5
	II SEMESTER					
PZT108	English language II	mandatory	30	0	30	4
PZT109	Fundamental skills for scientists & technologists	mandatory	30	30	0	5
PZT110	Introductory oceanography	mandatory	30	15	30	6
PZT111	Engineering experience	mandatory	30	15	15	5
PZT112	Marine geology	mandatory	30	15	15	5
PZT113	Diving systems	mandatory	30	30	0	5
	III SEMESTER					
PZT201	Support systems for maritime work	mandatory	30	0	30	4
PZT202	Marine biology	mandatory	30	15	15	5
PZT203	Underwater engineering	mandatory	45	15	15	6
PZT210	Methods in underwater science and technology	mandatory	15	30	30	6
PZT205	Introduction to archaeology	mandatory	30	0	30	5
PZT208	Diving medicine	elective	30	0	30	5
PZT206	English language III	elective	15	0	15	2
PZT207	Diving training I	elective	30	0	75	5
	IV SEMESTER					
PZT116	Sustainability of Coastal Systems: The Protection and Use	mandatory	30	0	30	5
PZT211	Marine ecology	mandatory	30	15	15	5
PZT212	Biomimicry - solutions inspired by nature	mandatory	30	15	15	5
PZT213	Underwater archaeology	mandatory	30	15	30	6
PZT214	Basic seamanship	mandatory	30	0	0	3
PZT215	English language IV	elective	15	0	15	2
PZT216	Diving training II	elective	30	0	75	5
PZT209	Marine meteorology	elective	30	15	15	4
	V SEMESTER					

PZT301	Marine structures	mandatory	30	15	15	5
PZT302	Threats of aquatic ecosystems	mandatory	30	15	15	5
PZT115	Pollution of aquatic systems	mandatory	30	0	30	5
PZT304	Field course Pollution of aquatic systems	mandatory	0	0	120	8
PZT306	English language V	elective	15	0	15	2
PZT208	Diving medicine	elective	30	0	30	5
PZT307	Advanced diving training I	elective	30	0	75	5
	VI SEMESTER					
PZT310	Underwater application of engineering technologies	mandatory	30	0	45	6
PZT311	Aquaculture	mandatory	30	0	15	4
PZT312	Coastal management	mandatory	30	15	15	6
PZT313	Personal research	mandatory	0	0	250	10
PZT314	English language VI	elective	15	0	15	2
PZT315	Advanced diving training II	elective	30	0	75	5

Graduate university study programme of Sustainable Management of Aquatic Ecosystems
(single-major)

Duration of the study: 4 semesters (2 years)

Admission requirements: Professional title acquired upon finishing the study programme: Master of sustainable management of aquatic ecosystems

Competencies acquired upon finishing the study programme: Competencies acquired upon finishing the study program:

- gain an in-depth understanding of aquatic and marine ecosystem function and the services healthy ecosystems provide to human society including the vast future possibilities to benefit from these sustained services in the context of economic blue growth
- be familiar with ways to validate ecosystem services, including the actual monetary value, and know how to recognize and avoid human-induced reductions of such services; be aware of the serious net-negative impacts on global economies and local livelihoods in the case of the loss of such services
- understand the concept of ecosystem health and ecosystem based management in the marine/coastal and aquatic sector and be familiar with the newest strategies to reach and dynamically adapt the associated management goals
- understand the circular economy of nature and the basic principles that maintain life on Earth under the global and local operating conditions and in the context of a dynamic equilibrium
- be prepared to function in a widely set interdisciplinary team including the full diversity of human intelligence, nature, occupation, culture, believes, and interests
- to recognize and respond to market demands in relation to the specifics production and processing of aquatic organisms
- critically and with an interdisciplinary approach to contemplate and consider the historical and traditional importance of the management of aquatic resources and coastal zone in the Mediterranean and broader.

Professional title acquired upon finishing the study programme: magistra održivog upravljanja vodenim ekosustavima (mag. ing. agr.)

Course list by semesters:

Course unit code	I SEMESTER	Status	Hours per week			ECTS
			L	S	E	
OUVE101	Limnology and oceanography	mandatory	30	15	15	6
OUVE102	Physiology of marine and freshwater organisms	mandatory	30		15	6
OUVE103	Scientific methods and statistics	mandatory	30		30	6
OUVE104	Preservations of aquatic ecosystems	mandatory	30		30	6

OUVE105	Fisheries and environment	mandatory	30		30	6
	II SEMESTER					
OUVE106	Integrated coastal area management (ICAM)	mandatory	30	15	15	6
OUVE107	Applied ecology of aquatic ecosystems	mandatory	30	15	15	6
OUVE108	Farming technologies of aquatic organisms	mandatory	30		30	6
OUVE109	Biomimikry	mandatory	15	15	30	6
OUVE110	Introduction to GIS	elective	15		30	3
OUVE207	Local aquatic products	elective	30		15	4
OUVE112	Ocean literacy	elective	15		30	3
OUVE113	Ecology of marine fishes	elective	15		15	3
	III SEMESTER					
OUVE201	Aquaculture and fisheries management	mandatory	30	15	15	6
OUVE202	Sociology of local communities	mandatory	30	30		6
OUVE203	Marine protected area (MPA) management	mandatory	30	15	15	6
OUVE204	Biology of cell stress	elective	30			3
OUVE205	Aquaculture nutrition	elective	30	15		4
OUVE206	Health care and pathology of aquatic organisms	elective	30			3
OUVE111	Freshwater systems ecology	elective	15		15	3
OUVE208	Aquaculture and environment	elective	30			3
	IV SEMESTER					
OUVE209	Internship	mandatory				10
OUVE210	Master thesis	mandatory				20