Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

Faculty of Food Sciences and Fisheries

Field of study	Aquaculture and Fisheries		
Mode of study	stationary	*Level*	first cycle
Graduate's qualification	inżynier		
Fields of science	agricultural sciences		
Disciplines of science	animal science and fisheries (100%)		
Educational profile	general academic		
Module			
Course unit	**Fishes in estuaries**		
Code	WNOZIR/AQF/S1/		
Field of specialisation			
Administering faculty	Department of Aquatic Bioengineering and Aquaculture		
ECTS	6.0	*ECTS (forms)*	6.0
Form of course credit	examination	*Language*	english
Electives	5	*Elective group*	

Form of instruction	*Cod*	*Semester*	*Hours*	*ECTS*	*Weight*	*Credit*
laboratory course	L	2	30	3.0	0.50	credits
lecture	W	2	30	3.0	0.50	examination

Leading teacher	Tórz Agnieszka (Agnieszka.Torz@zut.edu.pl)
Other teachers	

Prerequisites	
W-1	Basic knowledge of chemistry, ecology and working at laboratory
W-2	Basic knowlege of chemistry, ecology and working at laboratory

Module/course unit objectives	
C-1	Acquire knowlege of estimation of environmental conditions of estuary

Course content divided into various forms of instruction		*Number of hours*
T-L-1	Estimation of environmetal conditions of the Odra river estuary	4
T-L-2	Estimation of chosen hydrochemical factors (oxygen conditions, nitrogen, phosphorus, organic matter) in waters of the Odra river estuary	4
T-L-3	Estimation of fish species in the Odra river estuary	6
T-L-4	Preparation of particular paper of environmetal conditions of the Odra river estuary	5
T-L-5	Preparation of particular paper of environmental conditions of the Odra river estuary	11
T-W-1	Habitat use by fishes in estuaries and other brackish areas	6
T-W-2	Recruitment and production of commercial species in estaries	6
T-W-3	Links between fish and other trophic levels	2
T-W-4	Environmental quality of estaries	4
T-W-5	Field methods	2
T-W-6	Recruitment and production of commercial species in estuaries	6
T-W-7	Environmental quality of estuaries	4

Student workload - forms of activity		*Number of hours*
A-L-1	participation at laboratories	45
A-L-2	preparation of papers	30
A-L-3	study of bibliography	15
A-W-1	paritcipation at lectures	45
A-W-2	Self-study	30
A-W-3	Preparation for exam	15

Teaching methods / tools	
M-1	lectures with multimedial instruments
M-2	working at the chemical laboratory
M-3	preparation of the paper

Evaluation methods (F - progressive, P - final)		
S-1	F	observation of activity during laboratories
S-2	F	observation of working in cooperation
S-3	P	estimation of paper
S-4	F	observation of students activity during laboratories
S-5	F	observation of students working in cooperation

Designed learning outcomes	Reference to the learning outcomes designed for the fields of study	Reference to Learning Outcomes for qualifications at PQF 6, 7 or 8	Reference to learning outcomes for qualifications at level 6 or 7 that enable acquiring engineering competences	Course objectives	Course content	Teaching methods	Evaluation methods
Knowledge							
AQF_1A_C05a_W01 Student will acquire knowledge about fish communities and its dinamics in estuaries	AQF_1A_W02	P6S_WG	P6S_WG	C-1	T-L-1 T-L-2 T-L-3 T-L-5 T-W-1 T-W-3 T-W-5 T-W-6 T-W-7	M-1 M-3	S-3
Skills							
AQF_1A_C05a_U01 Student will have ability to identify fish species existing in estuaries	AQF_1A_U01 AQF_1A_U09	P6S_UW	P6S_UW	C-1	T-L-1 T-L-2 T-L-3 T-L-5 T-W-1 T-W-3 T-W-5 T-W-6 T-W-7	M-2	S-5
Social competences							
AQF_1A_C05a_K01 Student will obtain competences to perform experiments and identify species in estuaries	AQF_1A_K05	P6S_KK P6S_KR		C-1	T-L-1 T-L-2 T-L-3 T-L-5 T-W-1 T-W-3 T-W-5 T-W-6 T-W-7	M-2	S-5

Outcomes	Grade	Evaluation criterion
Knowledge		
AQF_1A_C05a_W01	*2,0*	
	3,0	Basic knowledge about fish communities in estuaries
	3,5	
	4,0	
	4,5	
	5,0	
Skills		
AQF_1A_C05a_U01	*2,0*	
	3,0	Basic knowledge on fish species identification
	3,5	
	4,0	
	4,5	
	5,0	
Other social competences		
AQF_1A_C05a_K01	*2,0*	
	3,0	Basic ability to design experiments and identify fish species
	3,5	
	4,0	
	4,5	
	5,0	

Required reading

1. Elliot M., Hemingway K.L, Fishes in estuaries, Blacwell Science, USA, 2002

2. Elliot M., Hemingway K.L., Fishes in estuaries, Blacwell Science, USA, 2002

3. Scott D.B., Frail-Gauthier J., Mudie P.J., Coastal wetlands of the world, Cambridge University Press, Cambridge, 2014

Supplementary reading

1. Stretch D.D., Taylor R.H., Ecology and conservation of estuarine ecosystems, Cambrige University Press, Cambrige, 2013

2. Stretch D.D., Taylor R.H., Ecology and conservation of estuarine ecosystems, Cambridge University Press, Cambrige, 2013

3. Tórz A., Ionic transformations at the waters of the Odra river estuary and its impact on fishes (in polish), Wyd. Nauk. AR, Szczecin, 2007

4. Tórz A., Ionic tranforamtions at the waters if the Odra river estuary and its impact on fishes (in polish), Wyd. Nauk. AR, Szczecin, 2007