Course Unit Descriptor

Study Programme: Animal science

Course Unit Title: FISH PRODUCTION

Course Unit Code: 19.ANM023

Name of Lecturer(s): Ass. Prof. Miroslav I. Urosevic, PhD

Type and Level of Studies: Undergraduate academic studies, BSc.

Course Status (compulsory/elective): compulsory

Semester (winter/summer): winter

Language of instruction: English, German

Mode of course unit delivery (face-to-face/distance learning): face-to-face

Number of ECTS Allocated: 6

Prerequisites: Passed exams Basis of animal nutrition and Non ruminant nutrition

Course Aims:

The course enables the student to acquire knowledge related to fish production in cyprinid and salmonids ponds. Adjustment of production in fisheries in accordance with market requirements in Serbia and abroad. Introduction to the basics of current regulations R. Serbia and the European Union related to fish production.

Learning Outcomes:

After completing this course, the student should be competent to assess the conditions for an adequate location and construction of ponds. The student should be able for independent management of fish production in various aquatic ecosystems, efficient and competent management of fish production and solving technological problems related to water quality and safety of fish products.

Syllabus:

Theory

Importance of fishing and aquaculture in Serbia and the world; Aquatic environment for fish; Climate change and environmental factors in fisheries and aquaculture; Morphological and physiological characteristics of the most important fish species; Fish anatomy and physiology; Aquatic systems; Location and construction of warm water fish ponds; Fish farming in warm water cyprinids ponds; Selection and breeding of fish broodstock; Fish farming technology;

Specifics of fish nutrition; Fish farming in cold-water salmonids ponds; Special forms of fish farming; Health status and fish diseases; The legislation of R. Serbia and the European Union regarding fish farming and fish product placement on the market; Protection and welfare of fish; Fish in geothermal aquaculture and Aquaristics; The management of fish farming; Economy, market and trade in fish production; Fish as food for humans and animal feed; Fish processing.

Practice

a) Laboratory exercises: Morphological characteristics of fish; Measurement of basic physical and chemical parameters of water quality; Measuring the number and quantity of basic biological communities in water; Biological analysis of water with sampling and microscopy; Anatomical characteristics of fish; Unwanted fish species in ponds; Dissection and examination of fish;

b) Field exercises: Visit to fishponds, hatcheries and fish processing facilities where students are introduced to the specific construction of fishponds in the intensive and semi-intensive system, fish nutrition and procedures to control fish growth and health status. Emphasis is also placed on fish selection and preparation of broodstock for spawning procedures. The construction of fish ponds; Technological process of fish production.

Required Reading:

1. Cultured Aquatic Species (2022): "FAO" (Food and Agriculture Organization of the United Nations) https://www.fao.org/fishery/en/culturedspecies/search
2. Hasan M. and New M. (2013): On-farm feeding and feed management in aquaculture, "FAO" (Food and Agriculture Organization of the United Nations) https://www.fao.org/3/i3481e/i3481e.pdf
3. Bregnballe J. (2015): A Guide to Recirculation Aquaculture An introduction to the new environmentally friendly and highly productive closed fish farming systems, "FAO" (Food and Agriculture Organization of the United Nations) https://www.fao.org/3/i4626e/i4626e.pdf
4. Tesarčík J., Svobodová Z. (2022): Fish diseases (Contd.), Prevention and Therapy of Fish Diseases, "FAO" (Food and Agriculture Organization of the United Nations) https://www.fao.org/fishery/docs/CDrom/aquaculture/a0845t/volume2/docrep/field/003/ac160e/AC160E04.htm
5. Anonymous (2022): Fish disease prevention and treatment, "FAO" (Food and Agriculture Organization of the United Nations) https://www.fao.org/fishery/static/FAO_Training/FAO_Training/General/x6709e/x6709e15.htm
6. Anonymous (2022): Preliminary processing of freshwater fish, "FAO" (Food and Agriculture Organization of the United Nations) https://www.fao.org/3/W0495E/w0495E03.htm
7. Einarsson A. and Óladóttir A.D. (2020): Fisheries and Aquaculture, 1st Edition, The Food Security of the Future; Academic Press, Cambridge, MA, USA.

Weekly Contact Hours: 3+2	**Lectures:** 45/ semester	**Practical work:** 30/ semester

Teaching Methods: Lectures and Practical classes, Consultations on disposale

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation	5	written exam	15
Practical work	5	oral exam	50
Preliminary exam(s)	15		
Seminar(s)	5		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.