LBIRF2203

2015-2016

Pisciculture

3.0 credits	30.0 h	1q

Teacher(s) :	Rollin Xavier ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	iCampus
Main themes :	Main topics studied during the course: - The situation of fisheries and aquaculture in the World and in Europe. - The situation and the legal context of aquaculture in Wallonia. - The construction and management of ponds and their water features. - Salmonids culture for human consumption or recreational fisheries in freshwater. - Cage mariculture. - The control of reproduction in fish. - Aeration and oxygenation techniques for intensive aquaculture. - Recirculating aquaculture systems. - Family tilapiaculture within tropical regions and integrated cultures. - Fish nutrition and feeding, including feed formulation, manufacturing and distribution on farm. - Benefits and risks related to consumption of seafoods in humans.
Aims :	a. Contribution de l'activité au référentiel AA (AA du programme) M.1.1 ; M.1.2 ; M.1.3 ; M. 2.1 ; M.2.2 ; M.2.3 ; M.7.1, M.7.3 b. Formulation spécifique pour cette activité des AA du programme (maximum 10) At the end of the activity the student should be able to : - inform about the recent revolutionary developments of the culture of aquatic organisms in freshwater as well as in saltwater. - demonstrate the ecological, energetic, economical and dietetic interests of aquaculture products and their potential of integration with other agricultural speculations. - identify the specific biological, physiological and ecological features of fish compared to monogastric terrestrial animals and their consequences on their culture. - identify the most appropriate species, technologies and sites fish farming in a given region. - explain and apply the rules of construction and management of ponds and artificial tanks or pools in open-through or recirculating systems. - describe the good management practices of an industrial or artisanal fish farm rearing fish for human consumption or recreational fisheries. - design an aeration/oxygenation system for intensive fish farming. - demonstrate the important role of fish nutrition and feeding on the environmental et economical impact of fish farms and on the value of aquaculture products for human health. - solve a simple system of equations and inequations for least costs fish feed formulation from diverse ingredients. - criticize the dependence of aquaculture to fisheries products and identify practical and sustainable solutions. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	Closed-book written exam with theoretical questions + MCQ + case resolutions.
Teaching methods :	- « Classroom » lectures with many questions asked in direct to students in order to favour interactions and student attention. - Tutorial illustrating least costs fish feed formulation.
Content :	Lectures: After first providing an overview of the situation of the world, European and Belgian fisheries and aquaculture sectors (Chapter 1), the course elucidates the factors responsible of the revolutionary development of aquaculture in the world and in Europe and, with a SWOT analysis, the paradoxical bad situation of this sector in Belgium (Chapter 2). Chapter 3 shows the technical and scientific basis of fish farm site selection, of construction and management of ponds, sea cages and artificial tanks as well as their specific features. Chapter 4 is related with rearing techniques of fish for human consumption and recreational fisheries, in freshwater or in sea cages, in open-trough or recirculating systems. Salmonids culture serves as an example. In particular, the

	control of reproduction of fish and water oxygenation are considered. Chapter 5 considers fish nutrition as a necessary basis for (1) the formulation of balanced and economic feeds, (2) the calculations of rations, (3) the prediction of the environmental impacts of fish farms and for (4) the prediction of the quality of aquaculture products for human consumption. A comparison with other animal speculations in temperate and tropical regions will help the student to develop a critical mind about the objectives and the terms of aquaculture at the present time. Exercises do consist to design and develop a fish farm project in a temperate region. All technical aspects of the course are illustrated by visiting the facilities of the 'plateforme technologique et didactique en biologie aquicole Huet' of UCLouvain, based in Louvain-la-Neuve.
Bibliography :	- Copy of slides - Reference materials : 1. Huet, M., 1970. Traité de Pisciculture. De Wyngaerd Ed., Bruxelles, 4e Ed., 718 p. 2. Guillaume, M., Kaushik , S., Bergot, P., Metailler, R., 1999. Nutrition et Alimentation des poissons et des crustacés. INRA Editions, Paris Cedex, 497 p.
Other infos :	
Faculty or entity in charge:	AGRO

Programmes / formations proposant cette unité d'enseignement (UE)

Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Forests and Natural Areas Engineering	BIRF2M	3	-	
Master [120] in Agricultural Bioengineering	BIRA2M	3	-	