Institute for Education, Martin Luther King Road, Pembroke PBK 1990. Tel: +35625982001 | Email: ife@ilearn.edu.mt

BAGB404 Fish Biology and Health

ECTS Value: 5 ECTS

Overall Objectives and Outcomes

This module will assist participants to master the skills of logical thinking and scientific questioning. Learners will be introduced to the importance of aquaculture to human kind and the husbandry of both ornamental and edible fish. This module on aquatics module covers the following important topics, biology of fishes, anatomy, nutrition, parasites, diseases and disorders, reproduction and genetics.

The unit is applicable to participants who wish to increase the knowledge of fishes in terms of wild, farmed and ornamental keeping. Students will be required to engage in thought that merges sustainability, biology as well as economics and therefore enhance scientific knowledge as applied to a socioeconomic context. On completion of the module, learners will be able to evaluate at a high-level fish health and nutrition as well as be able to make the necessary interventions. Thus, they would have understood the key areas of fish biology and apply scientific reasoning to practical investigation.

By the end of this module, the learner will be able to:

Competences

a. develop an understanding of the relationship between the respiratory and the cardiovascular in a fish's body;
b. relate the fish physiological processes involved in ectothermic mechanisms;
c. critically evaluate nutrition requirements for fish;
d. relate a range of fish health problems with growing conditions;
e. diagnose a range of viral, bacterial, fungal and disorder symptoms on a range of fish;
f. treat a range of viral, bacterial, fungal diseases and non-infectious disorders.

Knowledge

a. explain how gills function and how they are linked with the cardiovascular system;
b. describe a range of homeostatic and neurophysiological processes;
c. describe the mechanisms that lead to locomotion in fish;
d. describe different fish feeds as applied to the different life stages;
e. explain how inadequate growing conditions have an impact on fish health;
f. relate the life-cycles of a range of viruses, bacteria, fungi and non-infectious disorders with diagnostic symptoms on fish;

g. explain the preventive and curative treatments for a range of viral, bacterial, fungal diseases and non-infectious disorders.

Skills

a. relate problems with the locomotion, neurophysiological and homeostatic processes with fish disorders;
b. select the ideal feed according to the respective life stage for a selection of fish;
c. evaluate suitable and unsuitable growing conditions for a range of fish;
d. understand the necessary actions that must be taken to reduce the introduction of pathogens in an aquaculture facility;
e. choose the best medication to treat a particular disease;
f. decide what process is/are not functioning properly in a range of fish locomotion disorders;
g. decide what process is/are not functioning properly in a range of fish homeostatic disorders;
h. evaluate the quality of feed in terms of fish growth and health;
i. decide on the cause of a particular disease/disorder;
j. decide on the preferred treatment for a particular disease/disorder;
k. analyse the use of Integrated Nutrient Management in meeting productivity needs;
l. present the concepts on fish body systems;
m. debate the efficacy of a fish feed;
n. report the results of a fish health assessment, providing justification for any particular treatment;
o. reflect on how a good understanding of fish anatomy and physiology can be utilized to good effect in aquaculture;
p. appraise the worth of a fish nutrition programme;
q. assess the pros and cons of fish treatments;
r. use presentation software to present conclusions of their research;
s. keep records on PC or laptop;
t. use spreadsheet software to process results and producing graphs.

Mode of Delivery

This module adopts a blended approach to teaching and learning. Information related to the structure and delivery of the module may be accessed through the IfE Portal. For further details, kindly refer to the Teaching, Learning and Assessment Policy and Procedures found on the Institute for Education's website.

Institute for Education, Martin Luther King Road, Pembroke PBK 1990. Tel: +35625982001 | Email: ife@ilearn.edu.mt

Institute for Education, Martin Luther King Road, Pembroke PBK 1990. Tel: +35625982001 | Email: ife@ilearn.edu.mt

Assessment Methods

This module will be assessed through: Case-study and Journal.

Suggested Readings

Core Reading List

1. Alderton, D. (2008). Encyclopaedia of Aquarium and Pond fish. DK Publishers.
2. Konemann (1999). The complete aquarium guide: Fish, plants and accessories for your aquarium. UK: Konemann.
3. Pillay, T.V.R. and Kutty, M.N. (2005). Aquaculture principles and practices. (2nd Ed.) UK: Wiley-Blackwell.

Supplementary Reading List

1. Alderton, D. (2008). Encyclopaedia of Aquarium and Pond fish. DK Publishers.
2. Konemann (1999). The complete aquarium guide: Fish, plants and accessories for your aquarium. UK: Konemann.
3. https://www.practicalfishkeeping.co.uk/