COURSE CODE: FIS504

COURSE TITLE: Advance Fish Nutrition

NUMBER OF UNITS: 2 Units

COURSE DURATION: Two hours per week

COURSE DETAILS:

Course Coordinator: Dr. S.O. Obasa

Email: samoluobasa@yahoo.com

Office Location: Room D211, COLERM

Other Lecturers: Dr. (Mrs.) F.O.A. George

COURSE CONTENT:

Advanced principles of fish nutrition; requirements for energy, protein, vitamins and minerals and non nutrients components; feed computation and formulation methods; Various fish products development, their economic value and implication. The fish feed industry; feed types, fish food habits; feed pelleting, feed evaluation, practical considerations in fish feed. Feed formulation, mixing and manufacture of feed on commercial scale.

COURSE REQUIREMENTS:

This is a compulsory course for all students in Department of Aquaculture & Fisheries Management. In view of this, students are expected to participate in all the course activities and have minimum of 75% attendance to be eligible to write the final examination.
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READING LIST:

LECTURE NOTES

1. Advanced principles of fish nutrition;
i. Requirement for energy.
*Sources of energy in fish feeds.
*Differences in energy need between fish and other farm animals.
*The implications of feeding fish with feed that has excess or deficient energy.

ii. Protein requirement.
*Functions of protein in fish.
*Sources of protein in fish feeds.
*Factors affecting protein requirement in fish.
iii. Vitamins and minerals.
*Introduction (Definition and brief explanation of vitamins).
*Classification of vitamins i.e. water soluble and oil soluble; macro and micro vitamins.
*Functions of different vitamins in fish.
*Functions of various in fish and livestock.
iv. **Non nutrients feed components**;
*Introduction (Definition and brief explanation of non nutrient feed component).
* Sources and effects of non nutrient feed components on fish.
2. Feed formulation.
i. Definition. Calculation of different ingredients to be mixed together to form a balance ration.
ii. Requirements of feed formulation.
iii. Different methods of feed formulation.
Pearson's square
Least cost and
Algebraic.
Example 3
Formulate a ration containing 30% CP using fish meal (72%CP), soybean meal (43%CP) in the ratio 1:2. Use maize (10%CP) as energy source..
(Ratios are assigned when using more than one source of nutrient). Fixed ingredients are: vegetable oil =5%, vitamin premix = 1%, di-calcium phosphate (DCP) = 0.5% and salt = 0.5%. Calculate the amount contributed by each ingredient by weight and protein.
Fish meal 72% CP Ratio 1 1x72 = 72
Soybean meal 43%CP Ratio 2 2 x 43 = 86

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3 158/3 = 52.67
The target protein in the centre of the square will change due to the addition of the fixed ingredients.
= 100-5.0+1.0+0.5+0.5 = 93
= (30x100)/93 = 32.23
52.67 22.23/42.67 x 93 = 48.45
32.23
10 20.44/42.67 x 93 = 44.55
Protein sources contribution by weight = 48.45
Individual protein ingredient = 48.45/3 = 16.15
Fish meal = 16.15 x 1 = 16.15
Soybean meal = 16.15 x 2 = 32.30.
Maize = 44.55
Protein contribution
Fish meal = 16.15/100 x 72 = 11.63%
Soybean meal = 32.30/100 x 72 = 13.89%
Maize = 44.55/100 x 10 = 4.46%
Total = 11.63+13.89+4.46 = 29.98 or 30%