

Suggested research topics

Winter semester of the academic year 2019/2020

Course name in Arabic: **تغذية الحيوانات المائية**

Course name in English: **Nutrition of Aquatic Animals**

Professor Dr.: **Malik Mohamed Elsayed Khalafalla**

Level: **Third**

Department: **Aquaculture and Fish processing and Biotechnology**

No.	Research title	Research items
1	<i>What is Nutrition?</i>	1- <i>History of Nutrition</i> 2- <i>Nutrition Today</i> 3- <i>Nutrient Essentiality</i> 4- <i>Aquatics vs. Terrestrials</i> 5- <i>Feeding Habits of Fish</i>
2	<i>Natural food for fish</i>	1- <i>Selecting fish foods</i> 2- <i>Pond natural food web</i> 3- <i>Natural foods for fish</i> 4- <i>Which natural food do fish prefer</i>
3	<i>Protein</i>	1- <i>Proteins, Composition, Structure</i> 2- <i>Classification,</i> 3- <i>Protein function</i> 4- <i>Protein requirements</i> 5- <i>Optimum dietary protein level</i> 6- <i>Evaluation of protein quality</i>
4	<i>Amino acids</i>	1- <i>Amino acid function</i> 2- <i>Amino acid requirements.</i> 3- <i>Optimum dietary essential amino acid levels</i> 4- <i>Utilization of free amino acids</i> 5- <i>Amino acid composition</i>
5	<i>Lipids</i>	1- <i>Lipids definition, Classification</i> 2- <i>General lipid function</i> 3- <i>Fats and oils, Composition</i> 4- <i>Fatty acid structure and classification</i> 5- <i>Essential Fatty Acids requirement</i> 6- <i>Phospholipids</i>
6	<i>Carbohydrate</i>	1- <i>Definition and</i> 2- <i>Classification</i> 3- <i>Carbohydrate function</i> 4- <i>Dietary carbohydrate utilization</i>

Course Instructor:

Name: Professor Dr.: Malik Mohamed Elsayed Khalafalla

Signature: *Malik M. Khalafalla*

No.	Research title	Research items
7	<i>Vitamins</i>	<ol style="list-style-type: none"> 1- <i>Definition and classification</i> 2- <i>Water-soluble vitamins</i> 3- <i>Fat-soluble vitamins</i> 4- <i>Dietary vitamin requirements</i> 5- <i>Vitamin pathology</i>
8	<i>Minerals</i>	<ol style="list-style-type: none"> 1- <i>Definition and classification</i> 2- <i>General function</i> 3- <i>Macroelements</i> 4- <i>Microelements</i> 5- <i>Mineral pathology</i>
9	<i>Energy</i>	<ol style="list-style-type: none"> 1- <i>Energy and work</i> 2- <i>Energy is required to do?</i> 3- <i>Dietary energy sources</i> 4- <i>Energy metabolism</i> 5- <i>Energy balance and dietary requirement</i>
10	<i>Feed Additives</i>	<ol style="list-style-type: none"> 1- <i>Feeding stimulant, Antioxidants</i> 2- <i>Prebiotics and probiotics</i> 3- <i>Pigmentation</i> 4- <i>Immunostimulants</i> 5- <i>Hormones, Binders</i>
11	<i>Feeds and feeding the fish (1)</i>	<ol style="list-style-type: none"> 1- <i>Feed Quality</i> 2- <i>Feeding fish correctly means</i> 3- <i>Selecting a Feed</i> 4- <i>Estimating the Correct Amount to Feed</i> 5- <i>Feeding Rate</i> 6- <i>Methods of Feeding Fish</i>
12	<i>Feeds and feeding the fish (2)</i>	<ol style="list-style-type: none"> 1- <i>Methods of Feeding Fish</i> 2- <i>Feeding Response</i> 3- <i>When Not to Feed Fish</i> 4- <i>Evaluating Feed Performance</i> 5- <i>Golden Rules in Feeding Fish</i>

Course Instructor:

Name: Professor Dr.: Malik Mohamed Elsayed Khalafalla

Signature: *Malik M. Khalafalla*