



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

COURSE SPECIFICATION

ZOO 320: Ichthyology

Zoology Department College of Science
King Saud University



Course Specifications

Institution	King Saud University	Date of Report
College/Department	College of Science / Zoology Department	

A. Course Identification and General Information

1. Course title and code:	Ichthyology (ZOO 320)		
2. Credit hours	2.0 (1+1)		
3. Program(s) in which the course is offered. Bachelor degree in Zoology program (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course	Prof. Dr. Hmoud Fraes Alkahem Al-Balawi		
5. Level/year at which this course is offered	Fifth level		
6. Pre-requisites for this course (if any)	General Zoology (ZOO 103)		
7. Co-requisites for this course (if any)	None		
8. Location if not on main campus	(Main Campus)		
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	80% <input type="text"/>
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. Correspondence	<input checked="" type="checkbox"/>	What percentage?	15% <input type="text"/>
f. Other	<input checked="" type="checkbox"/>	What percentage?	5% <input type="text"/>
Comments:	<p>(1). Group Discussion (2). Search for recent materials relevant to certain topics from library and internet (3). Answer the unexplained questions</p>		



B Objectives

1. What is the main purpose for this course?
<p>1- Classification of fish.</p> <p>2- Fish Biology, external and internal features including different systems.</p> <p>3- Fish diversity of Saudi Arabia (Marine and Freshwater).</p> <p>4- Fish ecology and Zoogeography.</p>
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)
<ul style="list-style-type: none"> • Annual review of course by departmental course planning committee. • Updating the course with the latest developments in the field and the information available at internet. • Updating practical sessions with new experiments and slides.

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction	1	1
Fishes habitat.	2	2
Different Body Systems.	6	6
Growth and age.	2	2
Specialized organs in fish	2	2
Fish diversity of Saudi Arabia.	2	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	15			15		30
Credit						

3. Additional private study/learning hours expected for students per week.	30
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Fish classification based on taxonomic procedures	<ul style="list-style-type: none"> • Lectures are given using Power Point, presentation and illustrations. • Practical studies. • Reports and Oral presentations. 	<ul style="list-style-type: none"> • Mid-term and final exams • Evaluation of written field reports. • Evaluation of lab reports.
1.2	Biological factors affecting fish ecology and zoogeography in Saudi Arabia.	<ul style="list-style-type: none"> • Lectures are given using Power Point, presentation and illustrations. • Practical studies. • Reports and Oral presentations. 	<ul style="list-style-type: none"> • Mid-term and final exams • Evaluation of written field reports. • Evaluation of lab reports.
1.3	Identify external features of different systems and their functions.	<ul style="list-style-type: none"> • Lectures are given using Power Point, presentation and illustrations. • Practical studies. • Reports and Oral presentations. 	<ul style="list-style-type: none"> • Mid-term and final exams • Evaluation of written field reports. • Evaluation of lab reports.
2.0	Cognitive Skills		
2.1	Classification of different species of fish.	<ul style="list-style-type: none"> • Using illustrations materials • Laboratory 	<ul style="list-style-type: none"> • Mid-term and final exams. • Evaluation of lab reports and



		<p>training.</p> <ul style="list-style-type: none"> • Field activities and lab work. 	<p>examinations.</p> <ul style="list-style-type: none"> • Evaluation of activities and labwork.
2.2	Fish dissection.	<ul style="list-style-type: none"> • Using illustrations materials • Laboratory training. • Field activities and lab work. 	<ul style="list-style-type: none"> • Mid-term and final exams. • Evaluation of lab reports and examinations. • Evaluation of activities and labwork.
2.3	Handling of fish in the lab.	<ul style="list-style-type: none"> • Using illustrations materials • Laboratory training. • Field activities and lab work. 	<ul style="list-style-type: none"> • Mid-term and final exams. • Evaluation of lab reports and examinations. • Evaluation of activities and labwork.
2.4	Practical studies of fish systems.	<ul style="list-style-type: none"> • Using illustrations materials • Laboratory training. • Field activities and lab work. 	<ul style="list-style-type: none"> • Mid-term and final exams. • Evaluation of lab reports and examinations. • Evaluation of activities and labwork.
3.0	Interpersonal Skills & Responsibility		
3.1	To be able to work in a team to dissect fish and recognise internal system.	<ul style="list-style-type: none"> • Practical studies • Illustrations • Reports and oral presentations 	<ul style="list-style-type: none"> • Assessment of group work. • Assessment of Individual work.
3.2	To be able to discuss results of work in groups.	<ul style="list-style-type: none"> • Practical studies • Illustrations • Reports and oral presentations 	<ul style="list-style-type: none"> • Assessment of group work. • Assessment of Individual work.



4.0	Communication, Information Technology, Numerical		
4.1	Ability to work in a team	<ul style="list-style-type: none"> • Encouraging students to participate in activities and do assignments • Students are asked to write and present reports. 	<ul style="list-style-type: none"> • Evaluating the practical studies • Evaluating the activities
4.2	Ability to write and present reports.	<ul style="list-style-type: none"> • Encouraging students to participate in activities and do assignments • Students to write and present reports. 	<ul style="list-style-type: none"> • Evaluating the practical studies • Evaluating the activities
4.3	Ability to use computers and internet to retrieve information on fish biology.	<ul style="list-style-type: none"> • Encouraging students to participate in activities and do assignments • Students are asked to write and present reports. 	<ul style="list-style-type: none"> • Evaluating the practical studies • Evaluating the activities
5.0	Psychomotor		
5.1	Not applicable	Not applicable	Not applicable

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict,



	justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider Maximize Continue Review Ensure Enlarge Understand
Maintain Reflect Examine Strengthen Explore Encourage Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Reports - activities and homework	3-6-9-12	15%
2	Midterm Exam.	9	15%
3	Lab. report	12	5%



4	Lab. Exam.	13	25%
5	Final Exam.	15	40%
6			
7			
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- **The supervision done by the staff member over lab. Sessions.**
- **Office hours (7 h/ week)**

E. Learning Resources

1. List Required Textbooks

- 1- Khanna, S. S. and Singh, H. R. (2013). A text book of fish biology and fisheries. Narendra Publishing House, Delhi, India.
- 2- Al-Balawi, H. F. (2005). Ichthyology. KSU, Saudi Arabia.
- 3- Sumich, J. L. and Morrissey, J. F. (2004). Introduction to the biology of marine life. Jones and Bartlett Publishers international, Barb House, Barb Mews, London W6 7PA, UK.
- 4- Amin, I. M. (1994), Introduction of Ichthyology. College of Science, Qatar University, Qatar.

2. List Essential References Materials (Journals, Reports, etc.)

Bone *et al.*, (1999). Biological of fishes (2nd edition). Stanley Thornes (Publisher).

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Websites on the internet that are relevant to the topics of the course

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Microsoft office package



F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) <ul style="list-style-type: none">• Modern lecture rooms equipped with all materials.• Modern laboratories.
2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Microscopes – fish tissue sections – incubators – autoclaves –water baths – Water quality measurements- fish aquaria safety facilities.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching <ul style="list-style-type: none">• Course evaluation by students.• Interview of some new students.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor <ul style="list-style-type: none">• Peer consultation by departmental course committee.• Self-evaluation of the programme.
3 Processes for Improvement of Teaching <ul style="list-style-type: none">• Acquiring advanced microscopes.• Implementation of the suggestions made by the departmental course committee.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) <ul style="list-style-type: none">• When required, reviewing assessments by a special committee from the department.



5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Comparison of the present course with equivalent courses given in Zoology departments at some university.**
- **Reviewing course topics annually by the departmental course committee.**
- **Updating courses with new topics in the field.**
- **Improving the teaching methods for the course using evaluation made by students.**

Faculty or Teaching Staff: _____

Signature: _____ Date Report Completed: _____

Received by: _____ Dean/Department Head

Signature: _____ Date: _____