



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

COURSE SPECIFICATION

ZOO 374: Aquatic Ecology

Zoology Department College of Science
King Saud University



Course Specifications

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

A. Course Identification and General Information

1. Course title and code:	Aquatic Ecology (ZOO 374)
2. Credit hours	2.0 (1+1)
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	Bachelor degree in Zoology program
4. Name of faculty member responsible for the course	Prof. Dr. Hmoud Fares Alkahem Al-Balawi
5. Level/year at which this course is offered	Sixth 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? 50% <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:	(1). Group Discussion (2). Search for recent materials relevant to certain topics from library and internet (3). Answer the unexplained questions



B Objectives

<p>1. What is the main purpose for this course?</p> <p>1 The student would be able to learn about:</p> <ul style="list-style-type: none"> • Physical and chemical characteristics of fresh and marine ecosystem. • Aquatic animals and their environments
<p>Aquatic ecosystem</p>
<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)</p> <ul style="list-style-type: none"> • Annual review of course by departmental course planning committee. • Updating the course with latest developments in the field. • Annual review and updating practical sessions with new experiments, slides and new preparations. • Designing of practical sessions based on new technology and researches in the field. • Updating course resources using internet materials. <p>Comparison of course topics with those equivalent courses given at the local and international universities</p>

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 and definitions of aquatic terms	1	1
The physical and chemical characteristics of the water	2	2
Freshwater ecosystem (Lentic, Lotic and wetland)	3	3



Marine ecosystem: some characteristic of marine environments (Sea Shore, Open sea, estuaries, marshes, Lagoons)	3	3
The relationship between aquatic animals and aquatic plants	2	2
Adaptation of animals to aquatic life	1	1
Relationship between aquatic animals and physical and chemical properties of the aquatic environment	1	1
The characteristics of some aquatic animals	2	2
Total	15	15



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

2. Additional private study/learning hours expected for students per week.	30	
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<p>3. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy</p> <ul style="list-style-type: none"> • 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; <p>The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.</p>
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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	Description of the knowledge to be acquired The student would gain knowledge concerning: <ul style="list-style-type: none"> • Properties of aquatic ecology 	<ul style="list-style-type: none"> • In-class lectures are delivered using PowerPoint presentations and illustrations • Laboratory practice and microscopic examinations. (Conducting experiments and writing reports). Activities and assignments. 	<ul style="list-style-type: none"> • Midterm and final exams • Estimating writing skill • Evaluation of lab reports and examinations
1.2	<ul style="list-style-type: none"> • Chemical characteristics of water (dissolved oxygen, other dissolved gasses, pH & hardness) Aquatic animals and plants	<ul style="list-style-type: none"> • In-class lectures are delivered using PowerPoint presentations and illustrations • Laboratory practice and microscopic examinations. (Conducting experiments and writing reports). Activities and assignments. 	<ul style="list-style-type: none"> • Midterm and final exams • Estimating writing skill • Evaluation of lab reports and examinations
1.3	<ul style="list-style-type: none"> • Physical characteristics of water (temperature, salinity, turbidity) 	<ul style="list-style-type: none"> • In-class lectures are delivered using PowerPoint presentations and illustrations • Laboratory practice and 	<ul style="list-style-type: none"> • Midterm and final exams • Estimating writing skill • Evaluation of lab reports and examinations



		microscopic examinations. (Conducting experiments and writing reports). Activities and assignments	
2.0	Cognitive Skills		
2.1	(i) Cognitive skills to be developed <ul style="list-style-type: none"> Investigate the aquatic ecology and variation in different water sources 	<ul style="list-style-type: none"> Using illustrations materials and power point presentation Laboratory training on different methods for fish handling Writing reports. 	<ul style="list-style-type: none"> Mid-term and final exams Evaluation of lab reports about practical session
2.2	<ul style="list-style-type: none"> Measure physical and chemical characteristics of the water and their applications. Classify aquatic animals.	<ul style="list-style-type: none"> Using illustrations materials and power point presentation Laboratory training on different methods for fish handling Writing reports. 	<ul style="list-style-type: none"> Mid-term and final exams Evaluation of lab reports about practical session
3.0	Interpersonal Skills & Responsibility		
3.1	(i) Description of the interpersonal skills and capacity to carry responsibility to be developed <ul style="list-style-type: none"> Ability to work in a team to conduct a specific duty. 	<ul style="list-style-type: none"> Close monitoring while performing practical work Using power point presentation and illustration 	<ul style="list-style-type: none"> Student cooperation in lab sessions Evaluation of the obtained results
3.2	<ul style="list-style-type: none"> Ability to work independently to characterize physical and chemical characteristic of water in different 	<ul style="list-style-type: none"> Close monitoring while 	<ul style="list-style-type: none"> Student cooperation in lab sessions



	aquatic environment.	performing practical work	• Evaluation of the obtained results
		• Using power point presentation and illustration	
4.0	Communication, Information Technology, Numerical		
4.1	Description of the skills to be developed in this domain. • Ability to work in a team to obtain results of practical work.	• Promoting students to submit lab work and write reports • Promoting students for oral presentation.	• Evaluating of practical studies • Evaluating activities and contribution in general discussion
4.2	• Ability to be involved in general discussion and suggest solution for problems faced.	• Promoting students to write reports • Promoting students to oral presentation.	• Evaluating activities and contribution in general discussion
4.3	• Ability to use computers and internet to searches for aquatic information	• Promoting students to write reports	• Evaluating activities and contribution in internet search
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	First midterm exam	6	15%
2	Second midterm exam	12	15%
3	Lab exam	13	30%



4	Final Exam	15	40%
5			
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)

- **Direct supervision by staff member during lab Sessions.**
- **Office hours (6 h / week)**

E. Learning Resources

1. List Required Textbooks

- 1 بوران، علياء و ابودية، محمد (2000) علم البيئة. دار الشرق، عمان، الاردن.
- 2 الجهني وآخرون (1422هـ) الدليل العلمي ي البيئة الحيوانية , جامعة الملك سعود
- 3 مسعد، ابراهيم (2012). علم البيئة. دار الخريجي للنشر و التوزيع، الرياض، المملكة العربية السعودية.
- 4 Barnes, A. S. Al Mann (edit). 1991). Fundamental of aquatic ecology. Black well scientific publication, United Kingdom.

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

As mentioned above

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

As mentioned above

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



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.)*

- **Optically and electronically facilitated lecture rooms.**
- **Microscopically equipped laboratories.**

2. Computing resources (AV, data show, Smart Board, software, etc.)

Computers

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- **Course evaluation by students.**
- **Interview of some new students.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- **Distribution of questionnaires for course evaluation by students.**
- **Students- faculty meetings.**



3 Processes for Improvement of Teaching

- **Installation of digital labs and fish culture.**
- **Implementation of the suggestions recommended by specialised 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)

- **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 course and equivalent courses giving in Zoology departments at local and international universities.**
- **Reviewing course topics annually by the departmental specialized 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: _____