|  |  |
| --- | --- |
| **Course Title:** | **Aquatic ecology** |
| **Course Code:** | **ZOO 374** |
| **Program:** | **Bachelor degree in Zoology** |
| **Department:** | **Zoology** |
| **College:** | **Science** |
| **Institution:** | **King Saud University** |

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# A. Course Identification

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1. Credit hours:** | | | | **2 (1+0+2)** | | | | | | | | | | | | |
| **2. Course type** | | | | | | | | | | | | | | | | |
| **a.** | University | |  | | College | | |  | Department | | | | **√** | Others |  |  |
| **b.** | | Required | | | |  | Elective | | |  |  | | | | | |
| **3. Level/year at which this course is offered:** | | | | | | | | | | | | **Third level** | | | | |
| **4. Pre-requisites for this course** (if any)**: Sixth Level** | | | | | | | | | | | | | | | | |
| **5. Co-requisites for this course** (if any)**: None** | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |

## 6. Mode of Instruction (mark all that apply)

| **No** | **Mode of Instruction** | **Contact Hours** | **Percentage** |
| --- | --- | --- | --- |
| **1** | **Traditional classroom** | **√** |  |
| **2** | **Blended** |  |  |
| **3** | **E-learning** |  |  |
| **4** | **Correspondence** | **√** |  |
| **5** | **Other** | **√** |  |

**7. Actual Learning Hours** (based on academic semester)

|  |  |  |
| --- | --- | --- |
| **No** | **Activity** | **Learning Hours** |
| **Contact Hours** | | |
| **1** | **Lecture** | 28 |
| **2** | **Laboratory/Studio** | 14 |
| **3** | **Tutorial** |  |
| **4** | **Others** (specify) |  |
|  | **Total** | 42 |
| **Other Learning Hours\*** | | |
| **1** | **Study** |  |
| **2** | **Assignments** |  |
| **3** | **Library** |  |
| **4** | **Projects/Research Essays/Theses** |  |
| **5** | **Others** (specify) |  |
|  | **Total** |  |

**\*** The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

# B. Course Objectives and Learning Outcomes

|  |
| --- |
| 1. Course Description |
|  |
| 2. Course Main Objective |
| **Physical and chemical characteristics of fresh and marine ecosystem.**  **Aquatic animals and their environments**  **Aquatic ecosystem**  **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.**  **Updating course resources using internet materials.**  **Comparison of course topics with those equivalent courses given in local and international universities** |

## 3. Course Learning Outcomes

| **CLOs** | | **Aligned****PLOs** |
| --- | --- | --- |
| 1 | **Knowledge:** |  |
| 1.1 | **The student would gain knowledge concerning:**  **Properties of aquatic ecology** |  |
| 1.2 | **Chemical characteristics of water (dissolved oxygen, other dissolved gasses, pH & hardness)**  **Aquatic animals and plants** |  |
| 1.3 | **Physical characteristics of water (temperature, salinity, turbidity)** |  |
| 1... |  |  |
| **2** | **Skills :** |  |
| 2.1 | **Investigate the aquatic ecology and variation in different water sources** |  |
| 2.2 | **Measure physical and chemical characteristics of the water and their applications.**  **Classify aquatic animals.** |  |
| 2.3 |  |  |
| 2... |  |  |
| **3** | **Competence:** |  |
| 3.1 | **Ability to work in a team to conduct a specific duty.** |  |
| 3.2 | **Ability to work independently to characterize physical and chemical characteristic of water in different aquatic environment.** |  |
| 3.3 |  |  |
| 3... |  |  |

# C. Course Content

|  |  |  |
| --- | --- | --- |
| **No** | **List of Topics** | **Contact Hours** |
| 1 | **Introduction and definitions of aquatic terms** | **1** |
| 2 | **The physical and chemical characteristics of the water** | **2** |
| 3 | **Freshwater ecosystem (Lentic, Lotic and wetland)** | **3** |
| 4 | **Marine ecosystem: some characteristic of marine environments (Sea Shore, Open sea, estuaries, marshes, Lagoons)** | **3** |
| 5 | **The relationship between aquatic animals and aquatic plants** | **2** |
| 6 | **Adaptation of animals to aquatic life** | **1** |
|  | **Relationship between aquatic animals and physical and chemical properties of the aquatic environment** | **1** |
|  | **The characteristics of some aquatic animals** | **2** |
| **Total** | | 15 |

# D. Teaching and Assessment

## 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| **Code** | **Course Learning Outcomes** | **Teaching Strategies** | **Assessment Methods** |
| --- | --- | --- | --- |
| **1.0** | **Knowledge** | | |
| 1.1 | **The student would gain knowledge concerning:**  **Properties of aquatic ecology** | **In-class lectures are delivered using PowerPoint presentations and illustrations**  **Laboratory practice and microscopic examinations. (Conducting experiments and writing reports).**  **Activities and assignments.** | **Midterm and final exams**  **Estimating writing skill**  **Evaluation of lab reports and examinations** |
| 1.2 | **Chemical characteristics of water (dissolved oxygen, other dissolved gasses, pH & hardness)**  **Aquatic animals and plants** | **In-class lectures are delivered using PowerPoint presentations and illustrations**  **Laboratory practice and microscopic examinations. (Conducting experiments and writing reports).**  **Activities and assignments.** | **Midterm and final exams**  **Estimating writing skill**  **Evaluation of lab**  **reports and**  **examinations** |
| 1.3 | **Physical characteristics of water (temperature, salinity, turbidity)** | **In-class lectures are delivered using PowerPoint presentations and illustrations**  **Laboratory practice and microscopic examinations. (Conducting experiments and writing reports).**  **Activities and assignments** | **Midterm and final exams**  **Estimating writing skill**  **Evaluation of lab reports and examinations** |
| **2.0** | **Skills** | | |
| 2.1 | **Investigate the aquatic ecology and variation in different water sources** | **Using illustrations materials and power point presentation**  **Laboratory training on different methods for fish handling**  **Writing reports**. | **Mid-term and final exams**  **Evaluation of lab reports about practical session** |
| 2.2 | **Measure physical and chemical characteristics of the water and their applications.**  **Classify aquatic animals.** | **Using illustrations materials and power point presentation**  **Laboratory training on different methods for fish handling**  **Writing reports**. | **Mid-term and final exams**  **Evaluation of lab reports about practical session** |
| … |  |  |  |
| **3.0** | **Competence** | | |
| 3.1 | **Ability to work in a team to conduct a specific duty.** | **Close monitoring while performing practical work**  **Using power point presentation and illustration** | **Student cooperation in lab sessions**  **Evaluation of the obtained results** |
| 3.2 | **Ability to work independently to characterize physical and chemical characteristic of water in different aquatic environment.** | **Close monitoring while performing practical work**  **Using power point presentation and illustration** | **Student cooperation in lab sessions**  **Evaluation of the obtained results** |
| … |  |  |  |

## 2. Assessment Tasks for Students

| **#** | **Assessment task\*** | **Week Due** | **Percentage of Total Assessment Score** |
| --- | --- | --- | --- |
| **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** |  |  |  |

**\*Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

# E. Student Academic Counseling and Support

|  |
| --- |
| **Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :** |
| **Direct supervision by staff member over lab. Sessions.**  **Office hours 6 hr/ week** |

# F. Learning Resources and Facilities

## 1.Learning Resources

|  |  |
| --- | --- |
| **Required Textbooks** |  |
| **Essential References Materials** |  |
| **Electronic Materials** |  |
| **Other Learning Materials** |  |

## 2. Facilities Required

| **Item** | **Resources** |
| --- | --- |
| **Accommodation**  (Classrooms, laboratories, demonstration rooms/labs, etc.) | حسين علي السعدي وآخرون (2008) البيئة المائية، دار اليازوري العلمية  بوران, وابو دية, محمد (2000) علم البيئة – دار الشروق للنشر والتوزيع, عمان , الاردن  الجهني وآخرون (1422هـ) الدليل العلمي ي البيئة الحيوانية، جامعة الملك سعود |
| **Technology Resources**  (AV, data show, Smart Board, software, etc.) | Barnes, A. S. Al Mann (edit). 1991). Fundamental of aquatic ecology. Black well scientific publication, United Kingdom. |
| **Other Resources**  (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | **Microsoft office package** |

# G. Course Quality Evaluation

| **Evaluation**  **Areas/Issues** | **Evaluators** | **Evaluation Methods** |
| --- | --- | --- |
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|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

**Assessment Methods** (Direct, Indirect)

# H. Specification Approval Data

|  |  |
| --- | --- |
| **Council / Committee** |  |
| **Reference No.** |  |
| **Date** |  |