



## Course Specifications

<b>Course Title:</b>	<b>Neurophysiology</b>
<b>Course Code:</b>	<b>ZOO 435 ( Elective course)</b>
<b>Program:</b>	<b>Zoology</b>
<b>Department:</b>	<b>Zoology</b>
<b>College:</b>	<b>Science</b>
<b>Institution:</b>	<b>King Saud University</b>

## Table of Contents

<b>A. Course Identification</b> .....	<b>3</b>
6. Mode of Instruction (mark all that apply) .....	3
<b>B. Course Objectives and Learning Outcomes</b> .....	<b>3</b>
1. Course Description .....	3
2. Course Main Objective.....	3
3. Course Learning Outcomes .....	4
<b>C. Course Content</b> .....	<b>4</b>
<b>D. Teaching and Assessment</b> .....	<b>4</b>
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods .....	4
2. Assessment Tasks for Students .....	5
<b>E. Student Academic Counseling and Support</b> .....	<b>5</b>
<b>F. Learning Resources and Facilities</b> .....	<b>6</b>
1. Learning Resources .....	6
2. Facilities Required.....	6
<b>G. Course Quality Evaluation</b> .....	<b>6</b>
<b>H. Specification Approval Data</b> .....	<b>6</b>

## A. Course Identification

<b>1. Credit hours:</b> 2 (1+0+2)
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> Elective Course
<b>4. Pre-requisites for this course (if any):</b> ZOO 332
<b>5. Co-requisites for this course (if any):</b> None

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

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	√	50
2	Blended	√	50
3	E-learning		
4	Distance learning		
5	Other		

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	28
2	Laboratory/Studio	14x 2 contact hr.
3	Tutorial	
4	Others (specify)	
	<b>Total</b>	<b>42</b>

## B. Course Objectives and Learning Outcomes

<p><b>1. Course Description</b> To acquire students with basic knowledge of properties and structure of nervous system Understand the function of nerve cell and of synapse Know the types of sensory cells and the drug effects. The relation between endocrine and nervous systems.</p>
<p><b>2. Course Main Objective</b>  Annual review of course by departmental studying 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 institutions.</p>

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
1.1	To know the properties of the structure and function of nervous system.	K1
1.2	Recognize the types of sensory cells, and understand the drug effects on nerve cells	K2
1.3	Identify the relation between endocrine and nervous systems.	K3
1.4		
2	<b>Skills :</b>	
2.1	Examine and describe the anatomy of the nervous system	S1
2.2	Prepare slides and samples of nervous tissue, and analyze neurotransmitters substance.	S2
2.3		
3	<b>Values:</b>	
3.1	Ability to work in a team or independent to conduct a specific task.	V1
3.2	Ability to communicate results of work to classmates.	V2
3.3		

### C. Course Content

No	List of Topics	Contact Hours
1	Introduction to nervous system structure.	2 +2 lab
2	The function of the neuron	1+ 2 hr. lab
3	Basic functions of synapses and transmitters substances	2+ 2 hr. lab
4	Action potential and electrical events during nervous excitation	1+ 2 hr. lab
5	The reflex arc and some special characteristics of synaptic transmission	2+ 2 hr. lab
6	Sensory receptors, Sense of vision.	1+ 2 hr. lab
7	Drug effects on nervous system.	1+ 2 hr. lab
8	Interaction between nervous system and endocrine system	2+ 2 hr. lab
9	Exams 1st , 2 <sup>nd</sup> exam + final lab and theory exams	4+ 2 hr. lab
<b>Total</b>		16+ 18 lab

### 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	<b>Knowledge and Understanding</b>		
1.1	To know the properties of the structure and function of nervous system.	In-class lecturing (using Power Point presentation and illustrations) Laboratory practice and microscope examination.	Mid-term and final exams Evaluation of lab reports and examinations Evaluation of student activities and assignments.
1.2	Recognize the types of sensory cells, and understand the drug effects on nerve cells		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.3	Identify the relation between endocrine and nervous systems.	(Conducting experiments and writing reports). Activities and assignments. Use of power point presentation and illustration Laboratory training	Assessment of group projects. Assessment of projects conducted individually.
<b>2.0</b>	<b>Skills</b>		
2.1	Examine and describe the anatomy of the nervous system	Use of slid illustrations Laboratory training. Activities and homework.	Mid-term and final exams Evaluation of lab reports and examinations Evaluation of student activities and assignments. Assessment of group projects. Assessment of projects conducted individually.
2.2	Prepare slides and samples of nervous tissue, and analyze neurotransmitters substance.		
<b>3.0</b>	<b>Values</b>		
3.1	Ability to work in a team or independent to conduct a specific task.	Promoting students to submit activities, homework and writing reports.	Evaluating the laboratory written reports. Evaluating activities and assignments
3.2	Ability to communicate results of work to classmates.		

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Class activates ( Activities and Quizzes)	3-6-8	10%
2	1 <sup>st</sup> Monthly Exam.	9	10%
3	2 <sup>nd</sup> Monthly Exam.	11	10%
4	Lab. Homework	12	5%
5	Lab. Exam.	13	25%
6	Final Exam.	16	40%
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

<b>Required Textbooks</b>	The human central nervous system 4th Ed (2007) by R.Nieuwehuys, J. Voogd and V. Huijzen. Springer Guyton C. & Hall J. (2011) Textbook of medical physiology, 12 <sup>th</sup> edition. SUANDERS, Elsevier, Philadelphia. Guyton, A. C., & Hall, J. E. (2002). Human physiology and mechanisms of disease (6th ed.).Philadelphia: Saunders.
<b>Essential References Materials</b>	<b>The rat nervous system 2nd Ed , Paxinos Ed</b>
<b>Electronic Materials</b>	<a href="http://faculty.ksu.edu.sa/alhazza/default.aspx">http://faculty.ksu.edu.sa/alhazza/default.aspx</a> <a href="http://www.neurophys.com/contents.shtml">http://www.neurophys.com/contents.shtml</a> <a href="http://www.scribd.com/doc/7313965/NeuroPhysiology-Exam-MCQs">http://www.scribd.com/doc/7313965/NeuroPhysiology-Exam-MCQs</a> <a href="http://www.bramjnet.com/vb3/showthread.php?t=540883">http://www.bramjnet.com/vb3/showthread.php?t=540883</a>
<b>Other Learning Materials</b>	<b>Microsoft office package</b>

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	<b>Modern lecture rooms.</b> <b>Equipped laboratories.</b>
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<b>Microscopes – Hormones analysis Kits- incubators – autoclaves – titration equipment –water baths – digital lab. - Safety facilities</b>

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods

**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

<b>Council / Committee</b>	
<b>Reference No.</b>	
<b>Date</b>	