



المركز الوطني للتقويم والاعتماد الأكاديمي  
National Center for Academic Accreditation and Evaluation

## **ATTACHMENT 5.**

# **T6. COURSE SPECIFICATIONS (CS)**

## Course Specifications

Institution: <b>University of Tabuk KSA</b>	Date: <b>19/4/2019</b>
College/Department : <b>Science/Biology</b>	

### A. Course Identification and General Information

1. Course title and code: <b>BIOPHYSICS, BIO310</b>	
2. Credit hours: <b>3</b>	
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) <b>Biology</b>	
4. Name of faculty member responsible for the course: <b>Dr. Farhina Pasha</b>	
5. Level/year at which this course is offered: <b>5</b>	
6. Pre-requisites for this course (if any): <b>NONE</b>	
7. Co-requisites for this course (if any): <b>NONE</b>	
8. Location if not on main campus:	
9. Mode of Instruction (mark all that apply):	
a. traditional classroom	<input checked="" type="checkbox"/> What percentage? <input type="text" value="75"/>
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 type="checkbox"/> What percentage? <input type="text"/>
f. other (Lab work)	<input checked="" type="checkbox"/> What percentage? <input type="text" value="25"/>
Comments: <b>We try to use the best resources of teaching the courses; It will be good if we will have the wireless (for internet) system in the college, to apply the teaching modes effectively.</b>	

## B Objectives

1. What is the main purpose for this course? Upon successful completion of the course, the student should be able to...
<ul style="list-style-type: none"> <li>• To familiarize students with biomechanics; fluid properties; flow of fluids; flow of heat in biological systems and its medical applications.</li> <li>• Function of DNA, RNA and Proteins.</li> <li>• Techniques in biophysics (For example: X-ray; ELISA; Magnetic resonance).</li> <li>• Radiation hazards and radiation protection; physiological biophysics</li> </ul>
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"> <li>• Computer based programs have been utilized to support the lecture course material to demonstrate Biophysics</li> </ul>

## C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:
<ul style="list-style-type: none"> <li>▪ The course includes introduction to biophysics and its concepts, physical basis of life, force and energies at nanometer scales, thermodynamics basis of life, chemical composition of living organisms, Protein; structure and function, nucleic acids and genetic information, bioenergetics, neuron, molecular machines, social aspects of biological organisms, cell membrane, origin of life.</li> </ul>

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
<b>Introduction of the concepts of Biophysics</b>	<b>1</b>	<b>2</b>
<b>Life and its Physical Basis</b>	<b>1</b>	<b>2</b>
<b>Forces and energies at nanometer scales</b>	<b>1</b>	<b>2</b>
<b>Thermodynamics basis of life</b>	<b>1</b>	<b>2</b>
<b>Chemical Composition of living organisms</b>	<b>1</b>	<b>2</b>
<b>Protein: Structure and Function</b>	<b>1</b>	<b>2</b>
<b>Nucleic Acids and genetic information</b>	<b>1</b>	<b>2</b>
<b>Bioenergetics</b>	<b>1</b>	<b>2</b>
<b>Neuron</b>	<b>1</b>	<b>2</b>
<b>Molecular machines</b>	<b>1</b>	<b>2</b>
<b>Social aspects of biological organisms</b>	<b>1</b>	<b>2</b>
<b>Cell membrane</b>	<b>1</b>	<b>2</b>
<b>Origin of life</b>	<b>1</b>	<b>2</b>
<b>Quizzes/Midterm</b>	<b>1</b>	<b>2</b>

<b>Final Exam</b>	<b>1</b>	<b>2</b>
-------------------	----------	----------

2. Course components (total contact hours and credits per semester):							
		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planned	26		26			52
	Actual	26		26			52
Credit	Planned	2		1			3
	Actual	2		1			3

3. Additional private study/learning hours expected for students per week.	8
--	---

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

**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. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Recognize vocabularies associated with basic biochemical techniques.	In-class lecturing where the previous knowledge is linked to the current and future topics.	Grading MCQs quizzes (orally and written).
1.2	Define in detail about the techniques	Able to write Tutorial discussions.	Major and final exams
1.3	Describe the uses of such techniques in biophysics and in clinical biochemistry lab and everyday life if any		
1.4		Able to tell and write their own ideas about the techniques	Home activities on the topics taught.

Be able to do the scientific discussion day-to-day ex

		involved in the biophysics		
<b>2.0</b>	<b>Cognitive Skills</b>			
2.1	Summarize the techniques and ask the students to apply it to on various processes done in the labs.			Students ab explain wha have learned.
2.2	Be able to measure the molarities, Normality of the solutions	Oral Quiz in each lecture.	Major and final exams.	
2.3	Explain the proper usage of the Light Microscope.	Problem solving in the lecture	Checking the problems solved in the lecture.	
2.4	Training the necessary skills of making a tissue samples			Encouraging to discuss, summarize and plan.
2.5				
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>			
3.1	Improve student acceptance skill from other during discussion.			Conducting discussion sk tutorial sessio
3.2	Work independently and as part of a team. Manage resources, time and other members of the group.	Conducting group experiments and writing group reports.		
3.3	Communicate results of work to others, Demonstrate and develop interpersonal skill.			
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>			
4.1	Demonstration and use of internet and specifically MS office/ presenting small reports on various topics.	Incorporating the use and utilization of computer in the course requirements	Evaluating in class short MCQs quizzes (orally and written)	
4.2	e-learning/Report writing/preparing research review etc	Demonstrating more diagrams on various topics	Major and final exams/Evaluating reports written by students	
<b>5.0</b>	<b>Psychomotor</b>			
5.1	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Short Quizzes	3	10%
2	Pre-Final Practical Exam	10	10%
3	Pre-Final Theoretical Exam	10	25%
4	Final-Practical Exam	14	15%
5	Final Theory Exam	15	40%

#### D. Student Academic Counseling and Support

<p>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)</p> <ul style="list-style-type: none"> <li>• <b>Office hours 10 hr/ week</b></li> <li>• <b>help sessions 1hr/ week aided by two faculty &amp; subject Lecturer</b></li> </ul>
--

#### E Learning Resources

<p>1. List Required Textbooks  <b>Biophysics by Roland Glaser, 2004. Springer Publisher</b>  <b>Biophysics by VasanthaPattabhi N. Gautham, 2002, Kluwer Academic Publishers</b></p>
<p>2. List Essential References Materials (Journals, Reports, etc.)  <b>Meyer B. Jackson Molecular and Cellular Biophysics. Cambridge University Press, 2006</b></p>
<p>3. List Recommended Textbooks and Reference Material (Journals, Reports, etc.)  <b>Modern Experimental Biochemistry by R. F. Boyer, second edition, The Benjamin / Cummings Publishing Company, California, 1993</b></p>
<p>4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)  <b>Websites on the internet that are relevant to the topics of the course</b>  <a href="http://www.sciencedirect.com">www.sciencedirect.com</a></p>
<p>5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.  <b>Multi media associated with the text book and the relevant websites</b></p>

## 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.)	<b>Lecture room with at least minimum capacity of 40 seats</b>
2. Technology resources (AV, data show, Smart Board, software, etc.)	<b>Calculators; wireless connection in the building for students and faculties.</b>
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)	<b>Spectrophotometer, various columns demonstrating different types of chromatography, magnetic stirrer , dialysis bags, different types of centrifuges, electrophoresis apparatus etc.</b>

## G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching	<ul style="list-style-type: none"> <li>• <b>Course evaluation by student</b></li> <li>• <b>Students- faculty meetings</b></li> </ul>
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor	<ul style="list-style-type: none"> <li>• <b>Peer consultation on teaching</b></li> <li>• <b>Departmental council discussions</b></li> <li>• <b>Discussions within the group of faculty teaching the course</b></li> </ul>
3 Processes for Improvement of Teaching	<ul style="list-style-type: none"> <li>• <b>Conducting workshops given by experts on the teaching and learning methodologies</b></li> <li>• <b>Periodical departmental revisions of its methods of teaching</b></li> </ul> <p><b>Monitoring of teaching activates by senior faculty members.</b></p>
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"> <li>• <b>Providing samples of all kind of assessment in the departmental course portfolio of each course</b></li> </ul> <p><b>Assigning group of faculty members teaching the same course to grade same questions for various students. Faculty from other institutions are invited to review the accuracy of the grading policy.</b></p>
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.	<ul style="list-style-type: none"> <li>• <b>The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.</b></li> </ul>

**The head of department and faculty take the responsibility of implementing the proposed changes**

Name of Course Instructor: Dr. Farhina Pasha

Signature: *Farhina Pasha*

Date Specification Completed: 19/4/2019

Program Coordinator: **Dr. Omar Salem Obeid Bahattab**

Signature: *Omar Bahattab*

Date Received: 16/8/1440