Republic of Yemen
Minster of Higher Education
and Scientific Research
Sana'a University
Faculty of Pharmacy
Quality Assurance Unit

الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة - صنعاء
كلية اصيدلة
وحدة ضمان الجودة

Course Specification of Physiology II

I. General information about the course :

1.	Course Title:	Physiology II				
2.	Course Code and Number :	Ph444				
3.	Credit Hours :	Lecture	Seminar/Tutorial	Practical	Training	Total
		2	-----	-	----	2
4.	Study Level and Semester:	2nd level, 2nd semester				
5.	Pre-requisites (if any):	Physiology I				
6.	Co-requisites (if any) :	NA				
7.	Program in which the course is offered	Bachelor of Pharmacy				
8.	Teaching Language:	English				
9.	Location of teaching the course:	Faculty of Pharmacy				
10.	Prepared by :	Dr. sadeq abdulmogny				
11.	Approval date :					
12.	Approved by:					

II. Course Description:

Physiology II is a continuation of Physiology. This course examines the function relationships of the cardiovascular system, lymph and lymphatic system, introduction to respiratory system, functional anatomy of the kidneys, functions of kidneys, introduction to reproductive system, menstrual cycle, introduction to central nervous system, physiology of pain.

III. Course Aims

الموصف	نائب العميد لشؤون الجودة	رئيس القسم	عميد الكلية	عميدة مركز التطوير وضمان الجودة	رئيس الجامعة د .صادق
عبدالمغني	ا.د. محمود البريهي		د.خالد الشوبة	ا.م.د. هدى العماد	ا.د. القاسم محمد عباس

Upon successful completion of this course, the student will be able to:

1- Describe and identify the major functions of the cardiovascular system and the physiological mechanism of ECG. 2- Describe the function of each organ of the respiratory system and explain how oxygen and carbon dioxide are transported to and from the tissues of the body.

3- Identify the major organs of the urinary system and how the products of kidney are secreted and excreted and how water and electrolyte balance is maintained.

4- Describe and identify the major glands of the endocrine system.

5- Describe the general functions of the male and female reproductive systems and the hormones that control oogenesis and spermatogenesis.

6- Describe the central nervous system, physiology of pain.

IV. Intended learning outcomes (ILOs) of the course:

At the end of this course, the students will be able to:

1. Describe the functions of the different organelles in the human cell, and describe the transport system across the cell membranes.
2. Describe basal metabolism, metabolic rate and factors affecting it, and homeostasis.
3. Distinguish between physiological and pathological performance of body cells.
4. Integrate physiology with other sciences..
5. Discuss the general body composition and function.
6. Choose and classify data obtained from physiological experiments.
7. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day
8. Communicate effectively with students by discussing the obtained results.

VI. Course Intended Learning Outcomes (CILOs) :

Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	**After completing this course, students would be able to:**
A1. Recognize the principles of physical, chemical, clinical, social, behavioral, health and Pharmaceutical sciences.	a1- Describe the functions of the different organelles in the human cell, and describe the transport system across the cell membranes.

A2. Describe the general cellular, biochemical and physiological aspects of human body and recognize the pharmacokinetics ,pharmacodynamics, disease pathophysiology, and pharmacogenetic of therapeutic agents to provide pharmaceutical care and facilitate management of patient's medication, rationalize drug use and overall health needs.	a2- Describe basal metabolism, metabolic rate and factors affecting it, and homeostasis.

Intellectual Skills :	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Intellectual Skills PILOs	**Intellectual Skills CILOs**
After completing this program, students would be able to:	**After completing this course, students would be able to:**
B1. Consolidate the chemical, biochemical and physiological principles to construct the pharmacophores of the structure and their effect on the stability, pharmacokinetic and pharmacodynamic profiles of the drug.	b1- Distinguish between physiological and pathological performance of body cells.
B2. Design different types of safe and effective pharmaceutical dosage forms and develop novel methods of qualitative and quantitative analytical and biological analysis for pharmaceutical and biopharmaceutical products that support pharmaceutical research.	b2- Integrate physiology with other sciences..

Professional and Practical Skills	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Professional and Practical Skills PILOs	**Professional and Practical Skills CILOs**
After completing this program, students would be able to:	**After completing this course, students would be able to:**

C1. Handle and dispose chemicals and pharmaceutical preparations including radiopharmaceuticals safely and effectively.	c1- Discuss the general body composition and function.
C2. Extract, isolate, purify, identify and formulate the natural products and assure their rational use.	c2- Choose and classify data obtained from physiological experiments.

Transferable (General) Skills :	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	**Transferable (General) Skills CILOs**
After completing this program, students would be able to:	**After completing this course, students would be able to:**
D1. Practice independent learning needed for continuous professional development	d1- Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day
D2. Employ proper documentation and filing systems in different pharmaceutical fields	d2- Communicate effectively with students by discussing the obtained results.

VII. Alignment of CILOs to Teaching and Assessment Strategies

First: Alignment of Knowledge and Understanding CILOs

Knowledge and Understanding CILOs	Teaching Strategies	Assessment Strategies
a1- Describe the functions of the different organelles in the human cell, and describe the transport system across the cell membranes.	Lectures Presentation	Quizzes
a2- Describe basal metabolism, metabolic rate and factors affecting it, and homeostasis.	Lectures	Quizzes

Second: Alignment of Intellectual Skills CILOs		
Intellectual Skills CILOs	**Teaching Strategies**	**Assessment Strategies**

b1- Distinguish between physiological and pathological performance of body cells.	Lectures Assignments	Oral examinations Quizzes
b2- Integrate physiology with other sciences..	Lectures Brainstorming session	Quizzes Written examinations

Third: Alignment of Professional and Practical Skills CILOs		
Professional and Practical Skills CILOs	**Teaching Strategies**	**Assessment Strategies**
c1- discuss the general body composition and function.	Brainstorming session	Micro-reports
c2 - Choose and classify data obtained from physiological experiments	Lectures Activation	Problem solving

Fourth: Alignment of Transferable (General) Skills CILOs		
Transferable (General) Skills CILOs	**Teaching Strategies**	**Assessment Strategies**
d1- Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day	Lectures Activation	Micro-reports
d2- Communicate effectively with students by discussing the obtained.	Presentation Activation	Micro-reports

V. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs

Topics/Units of Course Contents					
First: Theoretical Aspects					
No.	**Course Topics/Units**	**Sub-topics**	**No. of Weeks**	**Contact Hours**	**CILOs**

1	Introduction to cardiovascular system Heart and its properties Blood pressure	- Physiological anatomy, pulmonary and systemic circulation - Properties of cardiac muscle, introduction to ECG. - Heart sounds, cardiac cycle and cardiac output. - Blood pressure and factor determining and maintaining it.	2	4	a1, a2
2	Lymph system	Lymph and lymphatic: formation and functions.	1	2	a1, b1,b2
3	Introduction to respiratory system.	- Mechanism of respiration and lung compliance. - Exchange and transport of gases, regulation of respiration and hypoxia.	2	4	a1, a2 b1,b2
4	Midterm	———	1	2	all
5	The kidney and its units	Functional anatomy of the kidneys. Mechanisms of urine formation. Renal clearance and glomerular filtration rate (GFR). Regulation of acid-base balance by the kidneys.	2	4	a1, a2, b1,b2, c1, c2
6	Endocrine system	Introduction to endocrine system: endocrine glands and their functions.	2	4	a1, a2, b1,b2, c1, c2, d2
7	Reproductive system	Introduction to reproductive: male and female reproductive system. Menstrual cycle	2	4	a1, a2, b1,c1, c2, d1
	Central nervous system	Introduction to central nervous system. Physiology of pain.	1	2	a1, a2, b1,b2, c1, d1
8	Review		2	4	all

9	Final exam		1	2	all
Total number of weeks and hours			16	32	

VI. Learning Assessment:					
No.	**Assessment Tasks**	**Week due**	**Mark**	**Proportion of Final Assessment**	**Aligned CILOs**
1	**Homework/Tasks/Assignments**	3, 6, 8, 11	5	5%	a1, a2, b1, b2, d1, d2
2	**Quiz**	4	5	5%	a1, a2
3	**Midterm Exam**	7	20	20%	a1, a2, b1, b2,
5	**Final Exam**		70	70%	a1, a2, b1, b2
Total			100	100%	

V. Teaching Strategies
1- Lectures and presentation
2- Activation
3- micro-report
4- micro- assignments

I. Learning Resources :
(Author, (Year), Book Title, Edition, Publisher, Country of publishing)
Textbooks-not more than 2

1. Guyton and Hall, (2006), Text book of medical physiology, 11th Ed Mississippi Medical Center, Jackson, Mississippi, USA
2. Laurie Kelly, (2005), Essentials of Human Physiology for Pharmacy, 1st Ed. CRC Press, Pharmacy Education series

Essential References-not less than 4

1- Stuart Ira Fox, (2011), Textbook: Human Physiology, 13th Ed.
2- Thibodeah & patton (1999), Anatomy & Physiology, 5th Ed, Thieme Stuttgart, New York.
3- Barbara J. Bain and Rajeev Gupta, (2003), A–Z of Haematology 1st Ed. Blackwell Publishing Ltd. London.
4- Fox, (2010), Human Physiology, 10th Ed, McGraw-Hill companies
5- Human Physiology, the basis of medicine, (2006), 3rd Ed, Oxford university press.

Electronic Materials and Web Sites

1. www.csun.edu/science/biology/anatomy/anatomy.html
2. www.cliffsnotes.com
3. www.innerbody.com
4. www.anatomyandphysiology.com/
5. www.mhhe.com/biosci2/anatomyrevealed
6. www.le.ac.uk/pa/teach/va/anatomy

I. Facilities Required:

1 - Accommodation:	- Well-equipped lecture halls with data show facilities, whiteboards, net connection, etc. - Well-equipped laboratories with all required equipment and reagents.
2 - Computing resources:	- Computer laboratory with internet facilities.

II. Course Improvement Processes:

1- Strategies for obtaining student feedback on effectiveness of teaching

- Student-based assessment of the effectiveness of teaching using a questionnaire designed by the Quality Assurance Unit at the end of the semester.
- Meeting with students and faculty (once per semester).

2- Other strategies for evaluation of teaching by the instructor or by the department.

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	▪ Assessment of the course syllabus and contents by the teachers using a questionnaire designed by the Quality Assurance Unit of the university at the end of the semester. ▪ Regular meeting and discussion of the course content between the Head of Department and the teaching staff of the course (for theory and practice).
3- Processes for improvement of teaching.	
	▪ Revision of the course specification and its teaching strategies every three academic years after consideration of all issues raised by the teachers and/or students during regular meetings and discussions. ▪ Exploring any possible defects in the course that might be encountered by the teaching staff and their mitigation in subsequent improved versions of course specification.
4- Processes for verifying standards of students' achievement	
	▪ Checking of a sample of students' work by an independent faculty member. ▪ Periodic exchange and check marking of a sample of students' assignments with a faculty member from another institution. ▪ Adoption of scoring rubrics to assess the students' achievement (both for ongoing or summative assessments). ▪ Regular follow-up of laboratory logbooks to assess the practical achievement of students.
5- Procedures for periodically reviewing of course effectiveness and planning for improvement	
	▪ Student rating and feedback ▪ Peer rating and feedback ▪ Regular meeting of the Curriculum Committee of the faculty.
6- Course development plans	
	▪ Conducting regular workshops for the staff for improving their course specification skills. ▪ Regular revision of course specification and syllabus items.

VIII. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to ----------	
1	**Class Attendance:** ▪ Attendance of all lectures and practical sessions is required. Unexcused absence exceeding 25% of the lectures or practical sessions will disqualify the student from entering the final exam.

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2	**Tardy:** - Roll will be called in the very beginning of each lecture and practical class. Retardation for more than three weeks without a reasonable excursion, the student involved shall not be allowed to attend the class any longer and consequently shall be considered to be absent.
3	**Exam Attendance/Punctuality:** ▪ Exam attendance is obligatory unless being excused by the department and faculty. ▪ Absence from assignments or exams will be dealt with according to the general policy of the university.
4	**Assignments & Projects:** ▪ Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator. ▪ Projects: Not applicable.
5	**Cheating**: ▪ Punishment of cheating will be according to the general policy of the university in this respect.
6	**Plagiarism**: ▪ Plagiarism in written essays, reports, etc. is not accepted, and students who plagiarize the works of others will be punished according to the general policy of the university.
7	**Other policies:** ▪ General policies of the Students' Affairs of the University and the Quality Assurance Unit.

Course Plan of Physiology II

II. General information about the course instructor :							
Name	Dr Sadeq Saad Abdulomgny	Office Hours (2 Hours Weekly)					
Location & phone number	773609090	Sat	Sun	Mon	Tue	Wed	Thu
Email	asdhod@yahoo.com						

III. General information about the course :						
1.	Course Title:	Physiology II				
2.	Course Code and Number :	Ph444				
3.	Credit Hours :	Lecture	Seminar/Tutorial	Practical	Training	Total
		2	-----	-	----	2

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4.	**Study Level and Semester:**	**2nd level, 2nd semester**
5.	**Pre-requisites (if any):**	**Physiology I**
6.	**Co-requisites (if any)** :	**NA**
7.	**Program in which the course is offered**	**Bachelor of Pharmacy**
8.	**Teaching Language:**	**English**
9.	**System of Study:**	Semesters
10.	**Mode of delivery:**	Regular
11.	**Location of teaching the course:**	Faculty of Pharmacy- Sana`a university

IV. Course Description:

Physiology II is a continuation of Physiology. This course examines the function relationships of the cardiovascular system, lymph and lymphatic system, introduction to respiratory system, functional anatomy of the kidneys, functions of kidneys, introduction to reproductive system, menstrual cycle, introduction to central nervous system, physiology of pain.

V. Course Aims

Upon successful completion of this course, the student will be able to:

1- Describe and identify the major functions of the cardiovascular system and the physiological mechanism of ECG. 2- Describe the function of each organ of the respiratory system and explain how oxygen and carbon dioxide are transported to and from the tissues of the body.

3- Identify the major organs of the urinary system and how the products of kidney are secreted and excreted and how water and electrolyte balance is maintained.

4- Describe and identify the major glands of the endocrine system.

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6- Describe the central nervous system, physiology of pain.

VI. Intended learning outcomes (ILOs) of the course:

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3. Distinguish between physiological and pathological performance of body cells.
4. Integrate physiology with other sciences..
5. Discuss the general body composition and function.
6. Choose and classify data obtained from physiological experiments.
7. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day
8. Communicate effectively with students by discussing the obtained results.

VII. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs

Topics/Units of Course Contents

First: Theoretical Aspects

No.	Course Topics/Units	Sub-topics	Week Due	Contact Hours	CILOs
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2	Lymph system	Lymph and lymphatic: formation and functions.	3	2	a1, b1,b2

3	Introduction to respiratory system.	- Mechanism of respiration and lung compliance. - Exchange and transport of gases, regulation of respiration and hypoxia.	4,5	4	a1, a2 b1,b2
4	Midterm	———	6	2	all
5	The kidney and its units	Functional anatomy of the kidneys. Mechanisms of urine formation. Renal clearance and glomerular filtration rate (GFR). Regulation of acid-base balance by the kidneys.	7,8	4	a1, a2, b1,b2, c1, c2
6	Endocrine system	Introduction to endocrine system: endocrine glands and their functions.	9,10	4	a1, a2, b1,b2, c1, c2, d2
7	Reproductive system	Introduction to reproductive: male and female reproductive system. Menstrual cycle	11,12	4	a1, a2, b1,c1, c2, d1
	Central nervous system	Introduction to central nervous system. Physiology of pain.	13	2	a1, a2, b1,b2, c1, d1
8	Review		14	2	all
9	Final exam		15,16	4	all
Total number of weeks and hours			16	32	

VIII. Learning Assessment:

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VI. Teaching Strategies

- Lectures and presentation
- Activation
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- micro- assignments

IX. Learning Resources :

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4	**Assignments & Projects:** ▪ Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator. ▪ Projects: Not applicable.
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