Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب
Section Concerning the Student

1. Course Code:	**BIOLS 472**	**1. رمز المقرر:**
2. Course Title	Human Nutrition and Metabolism	**2. اسم المقرر:**
3. College:	Science	**3. الكلية:**
4. Department:	Biology	**4. القسم:**
5. Academic Program:	Bachelor of Science in Biology	**5. البرنامج الأكاديمي:**
6. Course Credits:	3-0-3	**6. عدد الساعات المعتمدة:**
7. Course NQF Level:	8	**7. مستوى المقرر وفقا للإطار الوطني للمؤهلات:**
8. Notional Hours:	140	**8. عدد الساعات الافتراضية:**
9. NQF Credits:	14	**9. عدد الساعات المعتمدة للمقرر وفقا للإطار الوطني للمؤهلات:**
10. Prerequisite:	BIOLS 315 & BIOLS 372	**10. المتطلب السابق للمقرر:**
11. Lectures Timing & Location:		**11. وقت المحاضرة ومكانها:**
12. General Mode of Teaching and Learning	Tranditional تقليدي	**12. النمط العام للتعليم والتعلّم:**

13. Course Coordinator:		**13. منسّق المقرر:**
14. Course Instructor:		**14. مدرّس المقرر:**
15. Office Hours and Location:		**15. الساعات المكتبية ومكانها:**
16. Instructor's Email:		**16. البريد الإلكتروني لمدرّس المقرر:**
17. Academic Year:		**17. السنة الأكاديمية:**
18. Semester:		**18. الفصل الدراسي:**

19. Textbook(s):	**19. الكتب الدراسية للمقرر:**
Bender, D.A., & Cunningham, S.M.C. 2021. Introduction to Nutrition and Metabolism, 6th Edition. CRC Press.	
20. References:	**20. المراجع:**
Any human nutrition and metabolism books available in library **Recent Published literature reviews in nutrition metabolism and chronic diseases**	
21. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.):	**21. مصادر التعلّم الأخرى (مثال: التعلّم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ....)**
UOB official platforms (Microsoft Teams & Blackboard)	
22. Course Description (as published in the College Catalogue):	**22. توصيف المقرر (حسب ما ورد في دليل الكلية):**
Investigates the biochemical and physiological foundations of human dietary needs. Uses a comprehensive approach to nutritional digestion and metabolism of nutrients (carbohydrates, proteins, lipids, vitamins, and minerals). Throughout the semester, metabolic and chronic disorders associated with diet are reviewed.	
23. Course Intended Learning Outcomes (3 to 5 CILOs):	**23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعلّمية):**
1. Explain the physiological processes of digestion and absorption, the metabolic pathways for the different macronutrients and their role in energy production, synthesis, and regulation of bodily functions.	
2. Identify the metabolism of micronutrients, their functions, deficiencies, toxicities, needs and significance for human health and disease.	
3. Apply metabolism principles on health promotion and disease prevention.	
4. Critically analyze contemporary research in human nutrition and metabolism.	
24. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain):	**24. أساليب التقييم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):**

Assessment التقييم	Type النوع	Percentage النسبة	Assessment Date تاريخ التقييم
Test 1	Individual فردي	15%	
Test 2	Individual فردي	15%	
Oral presentation	Pair ثنائي	10%	
Term paper	Pair ثنائي	10%	
Quiz 1	Individual فردي	5%	
Quiz 2	Individual فردي	5%	
Final Exam	Individual فردي	40	
Total	**100%**		

25. Description of Topics Covered	**25. وصف الموضوعات التي ينبغي تناولها:**
Topic Title (e.g. chapter/experiment title) الموضوع	**Description التفصيل**
Why Eat	*The need for water, energy, metabolic fuels, hunger and appetite, and eating disorders.*
Enzymes and Metabolic Pathways	*Chemical reactions, Enzymes, factor affecting enzyme activity, coenzymes and prosthetic groups, classification of enzyme and naming of enzymes, metabolic pathways, and enzyme in clinical chemistry and medicine.*
The Role of ATP in Metabolism	*Adenine nucleotide, functions of ATP, Phosphorylation of ADP to ATP.*
Digestion and Absorption	*The gastrointestinal tract, digestion and absorption of carbohydrates, fats, and proteins. Absorption of vitamins and minerals.*
The metabolism of Carbohydrate and Fats	*Estimation of energy expenditure, energy balance and changes in body weight* *metabolic fuels in the fed and fasting states, energy- yielding metabolism,* *metabolism of fats, tissue reserves of metabolic fuels, and gluconeogenesis.*
Protein Nutrition and Metabolism	*Nitrogen balance and protein requirements, essential amino acids, protein synthesis, metabolism of amino acids.*
The Integration and Control of Metabolism	*Patterns of metabolic regulation, intercellular regulation of enzyme activity, response to fast-acting*

	hormones by covalent modification of enzyme of proteins, response to slow-acting signals by changes in enzyme synthesis, hormonal control in fed and fasting states, selection of fuels for muscle activity, a failure of regulation of blood glucose concentration in diabetes mellites.
Vitamins	*Determination of requirements and reference intakes, metabolism, absorption, functions, deficiencies, and toxicities of vitamin A, D, E, K, Thiamine, Riboflavin, Niacin, vitamin B6, Vitamin B12, Folic Acid and Folate, Biotin, Pantothenic Acid, and Vitamin C.*
Minerals	*Calcium, Calcium homeostasis, osteoporosis, minerals that function as prosthetic groups in enzymes (Cobalt, Copper, Iron, Molybdenum, Selenium, and Zinc), minerals that have a regulatory role (in neurotransmission, as enzyme activators or in hormones) (calcium, chromium, iodine, magnesium, manganese, sodium and potassium), minerals known to be essential, but whose function is not known (silicon, vanadium, nickel and tin), minerals that have effects in the body, but whose essentiality is not established (fluoride and lithium), and nutritional anemias.*
Nutrition and Chronic Noncommunicable Diseases	*chronic noncommunicable diseases, types of evidence linking diet and chronic diseases, Guidelines of a prudent diet, nutritional genomics, free radicals, oxidative damage and antioxidant nutrients, homocysteine in cardiovascular diseases.*
Overweight and Obesity	*Desirable body weight, problems of overweight and obesity, obesity and metabolic syndrome, causes and treatment of obesity, energy expenditure, availability of foods, control of appetite, and obesity management.*

Protein- Energy Malnutrition: Problems of Undernutrition	*Problems of deficiency, protein-energy malnutrition, marasmus, cachexia, and kwashiorkor.*

26. Weekly Schedule (Theory)	**26. الجدول الأسبوعي**

Week **الأسبوع**	**Date** **التاريخ**	**Topics Covered** **الموضوعات المتناولة**	**CILOs** **مخرجات التعلم للمقرر (CILOs)**	**Teaching/Assessment Mode and Method** **منهجية ونمط التدريس/التقييم**
1		*Why Eat*	1	Lectures **Quiz 1** **Test 1** **Final Exam**
2		*Enzymes and Metabolic Pathways*	1	Lectures **Quiz 1** **Test 1** **Final Exam**
3		*The Role of ATP in Metabolism*	1	Lectures **Test 1** **Final Exam**
4		*Digestion and Absorption*	*1 &2*	Lectures **Test 1** **Final Exam**
5		*The metabolism of Carbohydrate and Fats*	*1*	Lectures **Quiz 2** **Test 2** **Final Exam**
6		*Protein Nutrition and Metabolism*	*1*	Lectures **Quiz 2** **Test 2** **Final Exam**
7		*The Integration and Control of Metabolism.*	*1 &2*	Lectures **Test 2** **Final Exam**
8		*Vitamins*	*2*	Lectures **Test 2** **Final Exam**
9		*Vitamins*	*2*	Lectures **Test 2** **Final Exam**
10		*Minerals*	*2*	Lectures **Final Exam**
11		*Nutrition and Chronic Noncommunicable Diseases*	*1 &3*	Lectures **Final Exam**
12		*Nutrition and Chronic Noncommunicable Disease*	*1 &3*	Lectures **Final Exam**
13		*Overweight and Obesity*	*1&3*	lectures **Final Exam**

14		*Protein- Energy Malnutrition: Problems of Undernutrition*	*1&3*	lectures **Final Exam**
15			*4*	**Oral Presentation**
16				

27. Academic Integrity Statement	**27. بيان النزاهة الأكاديمية**
Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, Anti-plagiarism Policies, and Students' Rights and Responsibilities Handbook. The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations.	يتعيّن على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقًا للوائح سلوك الطلاب والنزاهة الأكاديمية، سياسات مكافحة الانتحال، ودليل حقوق الطلبة وواجباتهم، المعمول بها في جامعة البحرين. يمكن لعواقب الغش والسرقة الأدبية والتعاون غير المصرح به وغيرها من أشكال عدم الأمانة الأكاديمية أن تكون خطيرة للغاية وسيتم التعامل معها وفقًا للسياسات واللوائح المذكورة آنفا.
28. Attendance and Absence Regulations	**28. نظام الحضور والغياب**
Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33) of Regulations of Study and Examination at the University of Bahrain.	يجب على الطلبة الالتزام بالحضور المنتظم للمحاضرات الصفية والعملية، حسبما تحدده طبيعة المقرر الدراسي، ووفقا للمادة (33) من نظام الدراسة والامتحانات في جامعة البحرين.