

DEREE COLLEGE SYLLABUS FOR: BI 1101 INTRODUCTION TO BIOLOGY II		3/2/4						
(Updated: Fall 2024)		UK LEVEL: 4 UK CREDITS: 20						
PREREQUISITES:	BI 1000 INTRODUCTION TO BIOLOGY I							
CATALOG DESCRIPTION:	An integrated exploration of major principles of biology. Emphasis on diversity of life, development, cell division, molecular biology, genetics, evolution, and ecology. Consideration of issues and applications related to society.							
RATIONALE:	The typical second half of the introductory biology course with labs, suitable for science-oriented programs. The course provides a good understanding of biology, supports the importance of biology in society and is closely connected to other disciplines, such as environmental science, psychology, information technology, philosophy and sociology. It covers molecular, developmental, evolutionary and ecological aspects of biology.							
LEARNING OUTCOMES:	<p><i>As a result of taking this course, the student should be able to:</i></p> <ol style="list-style-type: none"> 1. Demonstrate good knowledge of vertebrate development, as well as understanding of basic aspects in molecular and cellular biology. 2. Evaluate Mendel's laws and the chromosomal basis of inheritance. 3. Discuss ethical and social issues related to biotechnology and genomics. 4. Analyze the theories of evolution and evaluate the interactions of organisms in ecosystems. 5. Demonstrate the ability to classify and characterize the major phyla of organisms in the five kingdoms. 6. Develop the necessary analytical skills by practicing inquiry in the laboratory, addressing scientific questions and applying the appropriate methodology. 							
METHOD OF TEACHING AND LEARNING:	<p>In congruence with the teaching and learning strategy of the college, the following tools are used:</p> <ul style="list-style-type: none"> • Class lectures, interactive learning (class discussions, group work), video presentations, and practical problems solved in class. • Use of the online platform Connect McGraw Hill. • Exercises and primary source documents are assigned as homework, the solutions of which are reviewed in class. • Laboratory work (some laboratory reports and drawings may be required). • Office hours: students are encouraged to make full use of the office hours of their instructor, where they can ask questions, see their exam paper, and/or go over lecture/lab material. • Use of a blackboard site, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources. 							
ASSESSMENT:	<table border="1"> <tr> <td colspan="2">Summative:</td> </tr> <tr> <td>1st assessment: a) In-class lab midterm (1/2-hour), 10% (Microscopy slide identification, diagram labelling, organ identification, problem solving, short answers, classification of organisms, chemical reactions of processes etc.) b) In-class midterm examination (2-hour), 30% (Multiple choice, short answers, matching, essay questions combination, problem solving)</td> <td>40 %</td> </tr> <tr> <td>2nd assessment: a) In-class lab final (1/2-hour), 10% (Microscopy slide identification, diagram labelling, organ identification, problem solving, short answers,</td> <td>60%</td> </tr> </table>		Summative:		1 st assessment: a) In-class lab midterm (1/2-hour), 10% (Microscopy slide identification, diagram labelling, organ identification, problem solving, short answers, classification of organisms, chemical reactions of processes etc.) b) In-class midterm examination (2-hour), 30% (Multiple choice, short answers, matching, essay questions combination, problem solving)	40 %	2 nd assessment: a) In-class lab final (1/2-hour), 10% (Microscopy slide identification, diagram labelling, organ identification, problem solving, short answers,	60%
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	<p>classification of organisms, chemical reactions of processes etc.) b) In-class final examination (2-hour, comprehensive), 50% (Multiple choice, short answers, matching, essay questions combination, problem solving)</p>					
	<p>Formative:</p> <table border="1" data-bbox="641 412 1442 510"> <tr> <td data-bbox="641 412 1251 450">Multiple "diagnostic on-line" tests Multiple choice, short answers</td> <td data-bbox="1251 412 1442 450">0</td> </tr> <tr> <td data-bbox="641 450 1251 510">Essay questions</td> <td data-bbox="1251 450 1442 510">0</td> </tr> </table> <p>The formative MC (on-line) and written essays aim to prepare students for the examinations. Students are expected to submit feedback on their performance. The two lab exams test the practical components of the course, as stated in learning outcome 6. The midterm examination tests Learning Outcomes 1-3. The final examination tests all learning outcomes and it is comprehensive.</p> <p><i>The final grade for this module will be determined by averaging all summative assessment grades, based on the predetermined weights for each assessment. If students pass the comprehensive assessment that tests all Learning Outcomes for this module and the average grade for the module is 40 or higher, students are not required to resit any failed assessments.</i></p>		Multiple "diagnostic on-line" tests Multiple choice, short answers	0	Essay questions	0
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<p>INDICATIVE READING:</p>	<p>REQUIRED READING: Required Textbook: Mader, S. S. & Windelspecht, M. Latest Edition. <i>Inquiry Into Life</i>. McGraw-Hill Higher Education. Required Lab Manual: Mader, S. S. Latest Edition. <i>Inquiry Into Life, Lab Manual</i>. McGraw-Hill Higher Education.</p> <p>RECOMMENDED READING: Other sources, including journal and newspapers' articles, research papers etc. recommended by the instructor throughout the semester.</p>					
<p>INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)</p>	<p>REQUIRED MATERIAL: N/A</p> <p>RECOMMENDED MATERIAL: N/A</p>					
<p>COMMUNICATION REQUIREMENTS:</p>	<p>Verbal and written skills using academic / professional English.</p>					
<p>SOFTWARE REQUIREMENTS:</p>	<p>MS Office and Blackboard CMS</p>					
<p>WWW RESOURCES:</p>	<p>http://www.dnalc.orgs http://www.medtropolis.com/VBody.asp http://www.whitman.edu/biology/vpd/ http://www.cellsalive.com/ http://multimedia.mcb.harvard.edu/media.html http://www.mcb.harvard.edu/BioLinks.html http://www.mhhe.com/biosci/esp/2002_general/Esp/default.htm http://nhscience.lonestar.edu/biol/bio1int.htm http://biology.uco.edu/AnimalBiology/Tissues/Tissuhome.html http://www.sciam.com</p>					
<p>INDICATIVE CONTENT:</p>	<p>1. Embryology and Development 1.1. Cleavage, differentiation, and morphogenesis</p>					

	<ol style="list-style-type: none"> 1.2. Embryonic membranes 1.3. Birth and circulation changes, etc. 2. Reproduction: Cellular Aspects (mitosis and meiosis) 3. Genetics and molecular biology <ol style="list-style-type: none"> 3.1. The chromosome theory of heredity 3.2. Genes and their action – Biotechnology 4. The History of Life <ol style="list-style-type: none"> 4.1. Geological time scale and historical record 4.2. The origin of life 4.3. Fossils 5. Evolution <ol style="list-style-type: none"> 5.1. History and Darwin 5.2. Genetics of populations and natural selection 5.3. Variation, species, and speciation 6. The Diversity of Life <ol style="list-style-type: none"> 6.1. Principles of classification 6.2. Monera, viruses, protista and fungi 6.3. Major groups of animals (basic features and relationships) 6.4. Major groups of plants (basic features and relationships) 7. Ecology <ol style="list-style-type: none"> 7.1. Environment (physical and biotic) 7.2. Cycles of materials and transfers of energy 7.3. Interactions between species 7.4. Succession, and limiting and balancing factors 7.5. Biomes 8. The Geography of Life <ol style="list-style-type: none"> 8.1. Terrestrial communities 8.2 Ecological and historical biogeography 9. Population Ecology
<p>INDICATIVE CONTENT (LAB):</p>	<ol style="list-style-type: none"> 1. Laboratory Safety. Rules and Regulations. Early Starfish and Human Development 2. Cellular Details of Reproduction: Mitosis and Meiosis 3. Basic Principles of Heredity 4. Human Genetics 5. DNA Biology and Technology 6. Monera, Protista, Fungi 7. Seedless Plants 8. Seed Plants 9. Sponges, Cnidaria, Flatworms, Roundworms, Annelida 10. Mollusks, Arthropods 11. Echinodermata, Chordata 12. Fossils, Symbiotic Relationships 13. Effects of Pollution on Ecosystems