

DEREE COLLEGE SYLLABUS FOR: BI 1000 INTRODUCTION TO BIOLOGY I

UK LEVEL: 4

**UK CREDITS: 20
US CREDITS:3/2/4**

(Updated Fall 2022)

PREREQUISITES:

None

CATALOG DESCRIPTION:

An integrated exploration of the fundamentals of biology as a science, the nature of life, biological chemistry, cell biology, metabolism and human body anatomy and function.

RATIONALE:

The typical first half of the introductory biology 4cr. course with labs, suitable for science-oriented programs which provides a good understanding of what biology is and why it has assumed such an important role in society today. Many aspects of human activity are specialized examples of more universal biological principles, making knowledge and understanding imperative to the educated individual. Besides the direct relationship of biology to one's own existence and to certain fields of study, such as life sciences and medicine, it is also closely associated with environmental science and psychology. The course is also closely connected with the disciplines of technology, philosophy and sociology, where some knowledge of ethical and social and technology related issues is essential. Biological concepts are indirectly considered in many professional activities such as writing poetry, legislating and engaging in commerce.

LEARNING OUTCOMES:

- As a result of taking this course, the student should be able to:
1. Demonstrate good knowledge of the scientific method, core biology concepts and principles.
 2. Demonstrate good knowledge on the nature and origin of life, biological chemistry, cell biology, enzymatic function and the biological processes of photosynthesis and respiration
 3. Evaluate biological principles and biological issues as they apply to students, their environment, society and health, and be able to demonstrate how to use their knowledge responsibly.
 4. Demonstrate detailed understanding of fetal pig and human anatomy and of major organ systems structure and function.
 5. Develop the necessary analytical skills to understand the nature of scientific inquiry by practicing inquiry in the laboratory and by addressing the right questions and applying the appropriate methodology.

METHOD OF TEACHING AND LEARNING:

- In congruence with the teaching and learning strategy of the college, the following tools are used:
- Class lectures, interactive learning (class discussions, group work) video presentations, and practical problems solved in class.
 - Use of the online Learning Center: <http://www.mhhe.com/maderinquiry14>
 - 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).
 - CD-ROMS (The Dynamic Human, Explorations in Human Biology. Virtual Biology Laboratory, Explorations in Cell Biology & Genetics).
 - 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:

Summative:	
First assessment	40%
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)	
	Second assessment a) In-class lab final (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 final examination (2-hour, comprehensive), 50% (Multiple choice, short answers, matching, essay questions combination, problem solving)	60%
	Formative:	
	Multiple "diagnostic on-line" tests	0
	Multiple choice, short answers	
	essay questions	0
	<p>The formative MC (on-line) and written essays aim to prepare students for the examination. Students are expected to submit feedback on their performance. The two lab exams test the practical component of all learning outcomes of the course as stated in learning outcome 6. The midterm examination tests Learning Outcomes 1-4</p> <p>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>	
INDICATIVE READING:	REQUIRED READING: Required Textbook: Mader, S. S. <i>Latest Edition. Inquiry Into Life.</i> McGraw-Hill Higher Education. Required Lab Manual: Mader, S. S. <i>Latest Edition. Inquiry Into Life, Lab Manual.</i> McGraw-Hill Higher Education. RECOMMENDED READING: N/A	
INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)	REQUIRED MATERIAL: N/A RECOMMENDED MATERIAL: N/A	
COMMUNICATION REQUIREMENTS:	N/A	
SOFTWARE REQUIREMENTS:	Microsoft Word, Microsoft PowerPoint, Blackboard CMS	
WWW RESOURCES:	http://www.mhhe.com/maderinquiry14 http://www.dnalc.org 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
INDICATIVE CONTENT (LEC):	<ol style="list-style-type: none"> 1. Introduction <ol style="list-style-type: none"> 1.1. A brief history of science and biology 1.2. The scientific method 1.3. The framework of biology (levels of organization) 2. The cell theory <ol style="list-style-type: none"> 2.1. Organization and structure of the cell 2.2. Plant tissues and structure 2.3. Animal tissues 3. Molecular aspects of biology (major elements and compounds) 4. Cell metabolism <ol style="list-style-type: none"> 4.1. Anabolism and catabolism 4.2. Movement of materials 4.3. Photosynthesis and synthesis of cell components 4.4. Cellular respiration 5. Maintenance and integration of the organism (plant and animal, with emphasis on man) <ol style="list-style-type: none"> 5.1. Intake, digestion, assimilation and nutrition 5.2. Respiration 5.3. Transportation, circulation and immunity 5.4. Secretion and excretion 5.5. Senses, nervous system, chemical coordination and nervous coordination 6. Reproduction` <ol style="list-style-type: none"> 6.1. General (asexual and sexual) 6.2. Human reproduction (anatomy and physiology)
INDICATIVE CONTENT (LAB):	<ol style="list-style-type: none"> 1. Laboratory Safety. Rules and Regulations. Use of the Microscope and the Cell 2. Movements of Materials- Electron Micrographs 3. Plant Tissues 4. Animal Tissues 5. Metabolism: Photosynthesis 6. Metabolism: Respiration 7. External Anatomy and Neck Region (Fetal Pig and Human Anatomy) 8. Digestive System (Fetal Pig and Human Anatomy) 9. Circulatory System: Arteries and Veins (Fetal Pig and Human Anatomy) 10. Circulatory System: Heart, Respiratory System (Fetal Pig and Human Anatomy) 11. Urogenital System (Fetal Pig and Human Anatomy, Sexually Transmitted Diseases) 12. Senses and Nervous System (Fetal Pig and Human Anatomy)