

DEREE COLLEGE SYLLABUS FOR: BIO 4545 CAPSTONE IN BIOINFORMATICS		3/1.5/3
(Created: Fall 2024)		UK LEVEL: 6 UK CREDITS: 20
PREREQUISITES:	BI 1000 Introduction to Biology I BI 1101 Introduction to Biology II BI 3336 Molecular Biology BMA 2021 Applied Statistics BIO 4141 Advanced Topics in Bioinformatics	
CATALOG DESCRIPTION:	This course is the culmination of the work in Bioinformatics. It involves an independent research project and is designed to provide students with research opportunities in bioinformatics and/or computational biology.	
RATIONALE:	This course is required for all bioinformatics majors and allows students to expose themselves to a real biological question that can be studied using computational approaches. Students are expected to integrate all their acquired knowledge and skills in the course of this program and apply them in a specific setting. The project topics are selected from a broad spectrum of Bioinformatics areas.	
LEARNING OUTCOMES:	<i>As a result of taking this course, the student should be able to:</i> 1. Demonstrate in-depth knowledge and understanding of a specific biological, biomedical and health sciences related topic. 2. Identify key aspects of the topic under study and apply appropriate knowledge and skills towards a solution. 3. Apply a range of lab and computer-based methods to tackle the questions at hand. 4. Analyze data and information on a particular topic in a critical manner. 5. Demonstrate ability in integrating knowledge, communicating scientific information and engaging in independent study and self-evaluation. 6 . Present their results in the form of a written essay by making use of their acquired skills in scientific writing.	
METHOD OF TEACHING AND LEARNING:	In congruence with the teaching and learning strategy of the college, the following tools are used: • Regular meetings with the supervisor at different stages of the research project, where students present and receive feedback on their work. Each student is assigned a capstone supervisor depending on the topic selected. Students select the topic and make the proposal for their capstone project during the course BIO 4141 Advanced Topics in Bioinformatics. • Use of a Blackboard site, where the supervisor posts information about the course, notes providing a theoretical background on scientific writing, as well as general guidelines for conducting the project. • Independent research: literature review, collection of data and information, critical evaluation, analysis and synthesis.	

ASSESSMENT:	Summative: <table border="1" data-bbox="643 181 1441 331"> <tr> <td>Final assessment: Research project (6,500 - 7,000 words)</td><td>100%</td></tr> <tr> <td> - Project paper 85% - Oral defense 15% </td><td></td></tr> </table> Formative: <table border="1" data-bbox="643 405 1441 517"> <tr> <td>Regular meetings with the supervisor, where students receive feedback on their work.</td><td>0</td></tr> <tr> <td></td><td></td></tr> </table> The final assessment tests all learning outcomes.	Final assessment: Research project (6,500 - 7,000 words)	100%	- Project paper 85% - Oral defense 15%		Regular meetings with the supervisor, where students receive feedback on their work.	0		
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- Project paper 85% - Oral defense 15%									
Regular meetings with the supervisor, where students receive feedback on their work.	0								
INDICATIVE READING:	REQUIRED READING: N/A RECOMMENDED READING: Recommended readings will depend on the topic chosen by each student.								
INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)	REQUIRED MATERIAL: N/A RECOMMENDED MATERIAL: N/A								
COMMUNICATION REQUIREMENTS:	Verbal and written skills using academic/professional English								
SOFTWARE REQUIREMENTS:	MS Office and Blackboard CMS								
WWW RESOURCES:	As needed for the selected topic.								
INDICATIVE CONTENT:	N/A								