DEREE COLLEGE SYLLABUS FOR: BMS 4510 ALLERGY AND IMMUNITY	3/0/3
UK LEVEL: 6 **UK CREDITS: 15** (Previously: BMS 4410 Allergy and Immunity) (Updated: Fall 2024)	
PREREQUISITES:	BI 1000 Introduction to Biology I BI 1101 Introduction to Biology II BI 2222 Cell Biology BI 3336 Molecular Biology BI 3240 Human Anatomy and Physiology
CATALOG DESCRIPTION:	The course provides a detailed review of molecular and cellular immunology and an integrated exploration of physiologic and pathologic aspects of the immune system. Autoimmunity is explored together with various treatment strategies for allergic and immune disorders.
RATIONALE:	Allergy and Immunity is a subject that is becoming increasingly important in clinical practice. Concept questions prompt recall of basic facts, while cases, research questions, and bioethics questions challenge the student to apply key concepts to real situations. An in-depth approach to understanding the molecular basis of immune mechanisms, the pathophysiology of the immune system and the role of immune cells during infection and auto-immunity.
LEARNING OUTCOMES:	*As a result of taking this course, the student should be able to:* 1. Demonstrate knowledge of the processes and principles of modern immunology. 2. Evaluate the differences between acquired and innate immunity, cell-based and humoral immune responses. 3. Analyze aspects of both laboratory and experimentally derived data related to immunology. 4. Demonstrate understanding of the mechanisms that lead to allergy and autoimmunity. 5. Discuss critically current understanding of the molecular and cellular basis of the immune system in health and disease, using scientific reports and case studies.
METHOD OF TEACHING AND LEARNING:	In congruence with the teaching and learning strategy of the college, the following tools are used: • Lectures and class discussions. • Homework assignments. • Office hours held by the instructor to provide further assistance to students. • Master lectures by esteemed professors and other experts in the field. • Tutorials of an interactive format to establish understanding of topic areas primarily through case studies and experimentally derived data. • Use of library facilities for further study and preparation for the exams • Use of the Blackboard course management platform to further support communication, by posting lecture notes, assignment instruction, timely announcements, formative quizzes and online submission of assignments.
ASSESSMENT:	Summative: 1st assessment: In-class midterm examination (2-hour), Multiple choice, problems, essays, combination — 40%

	<table><tr><td>2nd assessment: Portfolio: questions aiming to prepare students for their first and final assessments in terms of content, context and time management</td><td>10%</td></tr><tr><td>Final assessment: In-class final examination (2-hour), Case study analysis, comprehensive</td><td>50%</td></tr></table> **Formative:** <table><tr><td>Multiple “diagnostic on-line" tests Multiple choice, short answers, essays</td><td>**0**</td></tr></table> The formative MC (on-line) and written essays aim to prepare students for the summative assessments. The 1st assessment tests Learning Outcomes 1-3. The 2nd assessment tests all Learning Outcomes. The final assessment tests all Learning Outcomes and is comprehensive. *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.*
INDICATIVE READING:	**REQUIRED READING:** Murphy, Weaver and Berg, Janeway's Immunobiology, 10th edition, Norton **RECOMMENDED READING:** Abbas, Lichtman and Pillai, Cellular and Molecular Immunology, 2022, Elsevier Other sources, including journal articles, research papers etc. recommended by the instructor throughout the semester.
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
INDICATIVE CONTENT:	• Overview of the immune system • Structural anatomy and cell types involved (eosinophils, dendritic cells, lymphocyte, mast cells, monocytes) • Lymphocyte maturation • Receptors and MHC molecules • Cytokines and cytokine regulation of the immune response and inflammation • Effector T-cells and inducible and natural regulatory T-cells (Th1, Th2, Th17) • Regulatory mechanisms (effector and suppressor T cells, pro- and anti-inflammatory cytokines) • Structure and diversity of immunoglobulins (IgA, IgE, IgG, IgM) and their laboratory investigation

	• Complement structure and function • Hypersensitivity • Allergic diseases and immunotherapy • Laboratory investigation of allergy • Immunological tolerance • Immunodeficiency • Acquired and innate immunity • Inflammation and autoimmunity • Cytokine and anti-cytokine therapy • Current and experimental immunotherapy • Vaccines and vaccine development