

DEREE COLLEGE SYLLABUS FOR: BMS 4410 ALLERGY AND IMMUNITY**UK LEVEL: 6
UK CREDITS: 15
US CREDITS: 3/0/3**

(Updated Fall 2022)

PREREQUISITES:

BI 1000 Introduction to Biology I
 BI 1101 Introduction to Biology II
 BI 3235 Cell and Molecular Biology
 BI 3240 Human Anatomy and Physiology

CATALOG DESCRIPTION:

The course provides a detailed review of allergy and immunology and an integrated exploration of molecular, cellular, physiologic and pathologic aspects of the immune system. The pathophysiology of the immune system as it contributes to diseases; 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 very real situations. The point is that knowledge in allergy and Immunity is an in-depth approach to understanding the mechanisms of the pathophysiology of the immune system and the role of the immune system during infection and auto-immunity. It helps students integrate molecular, cellular, physiologic and contributing to diseases. Furthermore, students will be helped to develop a critical and analytical approach to explaining specific case histories, explain the interaction of environmental and stress factors on the pathogenesis of human diseases but also develop a critical and analytical approach to explaining specific case histories. Biomedical sciences students will be in the position to discuss existing and experimental treatment strategies for allergic and immune disorders.

LEARNING OUTCOMES:

As a result of taking the course students should be able to:

1. Apply the detailed knowledge of the processes and principles of modern immunology to relate understanding of basic processes and principles by which the immune system works to what may lead to inappropriate responses, such as allergy and auto-immunity.
2. Evaluate the differences between acquired and innate immunity, allergy and intolerance, inflammation and neuro-inflammation.
3. Discuss critically current understanding of the molecular and cellular basis of the immune system in health and disease, using scientific reports or case studies.
4. Familiarize with and interpret aspects of both laboratory and experimentally derived data.
5. Conduct appropriate literature-based research/evaluation of relevant topics.

METHOD OF TEACHING AND LEARNING:

In congruence with the learning and teaching 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.
- Exercises and primary source documents are assigned as homework, the solutions of which are reviewed in class
- Master lectures by retired professors and other experts in the field.
- Lectures on the principles and understanding of the subject matter, including original data from primary research papers and other sources.
- Tutorials of an interactive format to establish understanding of topic areas primarily through case studies and experimentally derived data.
- 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

	<p>over lecture/lab material.</p> <ul style="list-style-type: none"> ➤ Use of a blackboard site, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources. 								
ASSESSMENT:	<p>Summative:</p> <table border="1"> <tr> <td>First Assessment In-class midterm examination (2-hour) 40% Multiple choice, problems, essays, combination</td> <td>40</td> </tr> <tr> <td>Second Assessment Final examination, Case Study (2-hour), comprehensive 60% Final Exam/Case study Analysis</td> <td>50</td> </tr> <tr> <td>Third assessment Portfolio Essay questions aiming to prepare students for their first and second assessments in terms of content, context and time management</td> <td>10</td> </tr> </table> <p>Formative:</p> <table border="1"> <tr> <td>Multiple "diagnostic on-line" tests Multiple choice, short answers, essays</td> <td>0</td> </tr> </table> <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 1st summative assessment tests Learning Outcomes 1, 2 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>	First Assessment In-class midterm examination (2-hour) 40% Multiple choice, problems, essays, combination	40	Second Assessment Final examination, Case Study (2-hour), comprehensive 60% Final Exam/Case study Analysis	50	Third assessment Portfolio Essay questions aiming to prepare students for their first and second assessments in terms of content, context and time management	10	Multiple "diagnostic on-line" tests Multiple choice, short answers, essays	0
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INDICATIVE READING:	<p>REQUIRED READING: Cellular and Molecular Immunology International Edition Edition 9, Editors: By Abul K. Abbas, MBBS, Andrew H. H. Lichtman, MD, PhD and Shiv Pillai, MBBS, PhD ISBN: 9780323523240, Publication Date : May 12, 2017</p> <p>RECOMMENDED READING: N/A</p>								
INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)	<p>REQUIRED MATERIAL: N/A</p> <p>RECOMMENDED MATERIAL: N/A</p>								
COMMUNICATION REQUIREMENTS:	N/A								
SOFTWARE REQUIREMENTS:	Microsoft Word, Microsoft PowerPoint, Blackboard CMS								
WWW RESOURCES:	<p>https://www.immunopaedia.org.za/</p> <p>https://www.immunology.org/</p>								

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**INDICATIVE
CONTENT (LEC):**

- 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