Module Outline Template

1. Module Identity

Module Code: LSM4222

Module Title: Advanced Immunology

Module Credit: 4MC

2. Module description

This objective of this course is to provide students with a current and up to date view of immunology. Breakthrough areas will certainly vary from year to year, but the broad subject matter will remain. Among the highly competitive areas of immunology research focuses on innate immunity, dendritic cell biology, leukocyte trafficking, lymphocyte development and differentiation, induction of tolerance, mechanism of autoimmunity and allergy, and tumor immunology

3. Eligibility and requirements

Prerequisites (prior knowledge required): LSM3223

Corequisites: NIL

Non-allowed subjects (if any): NIL

4. Intended learning outcomes (ILOs) with regard to knowledge and cognitive development

After taking this module, students will know:

- The different arms of the immune system
- Cellular and molecular constituents and their interactions
- Immune responses against pathogen and non-pathogen
- Dysregulation of the immune system: pathological conditions
- Manipulation of the immune system and therapeutic Applications

The students will also acquire research skills including Immunological techniques and analysis of data

This module will provide good opportunities for practicing the following cognitive skills

a) Remember: Recognize, Recall, and Know

b) Understand: Question, Connect & Explain
c) Analyze: Differentiate, Organize & Attribute
d) Evaluate: Review, Check and Critique

This module will provide average opportunities for practicing the following cognitive skills:

a) Apply: Use, Execute & Implement

5. Intended learning outcomes with regard to generic skills and attributes development

This module will provide good opportunities for learning the following:
a) Analytical & Critical Thinking
b) Quantitative Thinking
c) Interdisciplinary Thinking
d) Collaboration & Teamwork

This module will provide average opportunities for learning the following:
a) Verbal/Oral Communication
b) Adaptability & Learnability
c) Resilience

6. Course content and syllabus

Lectures:
Overview of module/immunity
Innate immunity and PRRs
NK and gamma delta T cells
Dendritic cells and macrophages
Leukocyte trafficking
T cell subsets (Th1, Th2, Th17 and regulatory T cells)
Autoimmunity and tolerance
Tumor Immunology
Cancer immunotherapy
Mucosal Immunology
Microbiome and the immune response
Magic Bullets come of age (antibodies)

7. Instructional methods

The following instructional methods will be employed to deliver content and achieve intended learning outcomes:

a) Lecture

b) Tutorial

8. Learning activities

The following learning activities will be employed to achieve the learning outcomes of knowledge, cognitive, generic skills and/or 'employability' attributes development stated in items 4 and 5 above:

Table for Learning Activities

Case Studies,	
Critical Reading & Critique	
Self-Assessment or Quiz	

a. Students will need to integrate immunology with cellular biology and biochemistry.

b. Students will need to go through reading assignments to develop reading skills.

c. Students will be challenged to critically evaluate what they have learned through quiz so that they can practice "unlearn and relearn", and develop analytical and evaluation thinking skills.

d. Students will work in groups in tutorials so that they can develop communication skills.

e. Students will learn from case study to develop thinking skills in application and analysis.

f. Students will have access to past years' Q&As so that they can practice independent learning.

9. Assessments for evaluating students' performance

The following assessments will be employed to encourage and evaluate formative and summative learning in this module:

a **Formative Quizzes** =4%

b. **CA1** (Take home assignment)=20%

c. **CA2 (journal club presentation)**= 20%

d. **Final examination** = 60%

10. Required and/or recommended readings
Janeway's immunobiology
Abbas's Cellular and Molecular Immunobiology

11. Contact information for Module Coordinator and other instructors

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