

MEDI09003 Advanced Clinical Microbiology and Infection

Full Title	Advanced Clinical Microbiology and Infection		
Status	Uploaded to Banner	Start Term	2021
NFQ Level	09	ECTS Credits	10
Module Code	MEDI09003	Duration	Stage - (26 Weeks)
Grading Mode	Numeric	Failed Element	No
Department	Analytical, Bio & Med Sci		
Module Author	Debbie Corcoran		
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Module Description

This module will provide the learner with an in-depth understanding of clinical microbiology and infection. The learner will acquire an advanced knowledge of microbial pathogenesis and control, antimicrobial resistance, emerging trends in microbial diagnostics and the role of the clinical, microbiology, laboratory in patient care.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Comprehensively explain the pathogenesis and clinical manifestations of clinically relevant pathogens.
2. Critically assess the role of the microbiology laboratory in the diagnosis, control and surveillance of infectious disease.
3. Comprehensively explain the significance of antimicrobial chemotherapy, mechanisms of resistance and the detection of resistant pathogens.
4. Critically evaluate current and emerging practices in clinical microbiology.
5. Review microbiological scientific publications and produce work to a professional standard.

Indicative Syllabus

1. Pathogenesis and epidemiology of infectious disease.

Host defences, epidemiology and establishment of infectious disease in the host and the genetic control of virulence.

2. Infection Prevention and Control

Nosocomial infection, infection control and prevention. The role of reference laboratories in the diagnosis and surveillance of clinically important pathogens. The role of national bodies such as the HPSC in monitoring and controlling infectious disease and resistance.

3. Antimicrobial chemotherapy and Antibiotic Resistant Pathogens

Classes of antimicrobial agents. Treatment strategies. Mechanisms of resistance. Resistant pathogens and newly emerging resistant pathogens. The evolution of antimicrobial resistance. The threat and consequences of antimicrobial resistance. Current international standards for susceptibility testing.

4. Diagnostics of infectious Disease

Microbiological identification of clinically relevant pathogens and their products in current practice. Advances and emerging methodologies, including molecular diagnostics and whole genome sequencing, in clinical microbiology diagnostics.

Teaching and Learning Strategy

This is an online module. Teaching and learning strategies include lectures, including guest lectures, tutorials, the provision of reading

material and self-directed study. Lectures will be supported by PowerPoint slides and Technology-enhanced learning tools that will be made available to students via Moodle, the online learning platform. There will be an interactive online forum which will provide the students with a platform to interact with each other and the lecturer.

Assessment Strategy

Ongoing continuous assessment (CA) throughout the module. CA will comprise of case studies (40%), a research led written assignment (30%) and a presentation (30%). CA will be a combination of independent and group work designed around problem-solving exercises and case studies to develop students' research abilities and critical thinking. Students will gain experience in critical analysis, literature searches and presentations. The assessment strategy for this module may include shared assessments with other modules. The modules that are co-assessed may vary from year to year but will be designed to reduce the assessment burden on the student while ensuring that learning outcomes are achieved across the programme

Repeat Assessment Strategies

Repeat assessment will be accommodated in accordance with GMIT Code of Practice No.3 for 100% continuous assessment modules. The repeat assessment type will be linked to the achievement of particular learning outcomes and will be appropriate to demonstrating achievement of these outcomes.

Indicative Coursework and Continuous Assessment:		100 %		
Form	Title	Percent	Week (Indicative)	Learning Outcomes
Assignment	Case Study Assessment	40 %	TBA	1,2,3,4,5
Assignment	Written assignment	30 %	TBA	1,2,4,5
Assignment	Presentation	30 %	TBA	3,4,5

Part Time Delivery Mode Average Weekly Workload:			2.50 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Online Learning	Online Lecture	Online	2	Weekly	2.00
Online Learning	Online Tutorial	Online	1	Fortnightly	0.50

Recommended Reading Book List

Levinson, E., (2020). *Review of Medical Microbiology and Immunology, Sixteenth Edition*. McGraw-Hill Education / Medical.
ISBN 1260116719 ISBN-13 9781260116717

Kenneth, N., (2018). *Sherris Medical Microbiology, Seventh Edition*. McGraw-Hill Education / Medical.
ISBN 1259859800 ISBN-13 9781259859809

Jos-Luis, G., (2019). *Antibiotic Drug Resistance*. John Wiley & Sons.
ISBN 9781119282525 ISBN-13 1119282527

Tang, Y., Stratton, W., (2018). *Advanced Techniques in Diagnostic Microbiology*. Springer.
ISBN 9783319339009 ISBN-13 3319339001

Barer, R., Irving, L., (2018). *Medical Microbiology E-Book*. Elsevier Health Sciences.
ISBN 9780702071980 ISBN-13 0702071986

Ford, M., (2019). *Medical Microbiology*.
ISBN 9780198818144 ISBN-13 0198818149

Damani, N., (2019). *Manual of Infection Prevention and Control*. Oxford University Press, USA.
ISBN 9780198815938 ISBN-13 019881593X

Tille, M., (2016). *Bailey & Scott's Diagnostic Microbiology*. Mosby.
ISBN 0323354823 ISBN-13 9780323354820

Journal Resources

Journal of Clinical Microbiology

Journal of Medical Microbiology

International Journal of Clinical and Medical Microbiology

Clinical Microbiology and Infection
Journal of Medical Microbiology and Diagnosis
Clinical Infectious Disease
Emerging Infectious Diseases
Antimicrobial Resistance and Infection Control

Online Resources

<https://www.hpsc.ie>

<https://www.eucast.org>

<http://www.iscm.ie>

<https://www.acslm.ie>

<https://www.ibms.org>

These will be updated and revised each year. Students will be given websites/links in lectures and they are also uploaded on Moodle.

Other Resources

Online seminars

Programme Membership

GA_SCMLG_V09 202100 Master of Science in Medical Science

GA_SCMLG_N09 202100 Certificate in Medical Science