

APPROVED**BIOM7001: Analytical Microbiology****Module Details**

Module Code:	BIOM7001
Title:	Analytical Microbiology APPROVED
Long Title:	Analytical Microbiology
NFQ Level:	Intermediate
Valid From:	Semester 1 - 2020/21 (September 2020)
Duration:	1 Semester
Credits:	5
Field of Study:	4213 - Microbiology
Module Delivered in:	4 programme(s)
Module Description:	This module will cover the biology of microbes, contamination and its detection, and infection control. Traditional culture methods will be studied and compared to molecular and rapid identification techniques used in industry.

Learning Outcomes

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

#	Learning Outcome Description
LO1	Define microbiological pharmacopoeia and its use in analytical microbiology.
LO2	Apply cultural methods for the isolation and distinction of relevant microbial contamination in sterile and non sterile areas.
LO3	Describe the common industrial and public health microbial contaminants.
LO4	Analyse new and innovative rapid methods available to identify microorganisms and the use of automation to increase testing efficiency.
LO5	Perform laboratory experiments using current methods of identification and enumeration of microorganisms, and demonstrate learning and scientific writing skills through reporting.

Dependencies**Module Recommendations****Incompatible Modules**

No incompatible modules listed

Co-requisite Modules

No Co-requisite modules listed

Requirements

No requirements listed

Indicative Content**Regulation requirements**

Microbiological pharmacopoeia, environmental monitoring, quality control of media, GMP, clean rooms.

Cultural methods of identification

Conventional cultural methods for the isolation, identification and enumeration of microorganisms from a variety of environments.

Identification methods

Immunological-, chemical- and molecular-based detection for microbial identifications. The use of automation in an industrial setting.

Laboratory Practicals

Practical experiments supporting the lecture material will be conducted.

Module Content & Assessment

Assessment Breakdown	%
Coursework	100.00%

Assessments

Coursework			
Assessment Type	Short Answer Questions	% of Total Mark	35
Timing	Week 6	Learning Outcomes	1,2
Assessment Description Theory assessment			
Assessment Type	Short Answer Questions	% of Total Mark	35
Timing	Week 12	Learning Outcomes	3,4
Assessment Description Theory Assessment			
Assessment Type	Practical/Skills Evaluation	% of Total Mark	30
Timing	Every Second Week	Learning Outcomes	5
Assessment Description Written laboratory reports will be required for laboratory sessions.			
No End of Module Formal Examination			
Reassessment Requirement			
Repeat examination Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.			

Module Workload**Workload: Full Time**

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	Class based learning	Every Week	2.00	2
Lab	Contact	Practical laboratory sessions (Where appropriate labs may be scheduled for 3/ 4 hours per session and the number of sessions adjusted accordingly).	Every Week	2.00	2
Independent & Directed Learning (Non-contact)	Non Contact	Student independent learning time for this module	Every Week	3.00	3
Total Hours					7.00
Total Weekly Learner Workload					7.00
Total Weekly Contact Hours					4.00

This module has no Part Time workload.

Module Resources

Recommended Book Resources

Denyer, Hodges, Gorman, Gilmore. (2011), Hugo & Russell's Pharmaceutical Microbiology, 8th. Wiley-Blackwell, UK, [ISBN: 978144433063].

Supplementary Book Resources

Madigan M.T., Bender K.S., Buckley D.H., Sattley W.M., Stahl D.A. (2015), Brock Biology of Microorganisms, 15th. Pearson, [ISBN: 9780134261928].

This module does not have any article/paper resources

Other Resources

Website, European Directorate for the Quality of Medicines & HealthCare,
<http://www.edqm.eu>

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_SCHQA_8	Bachelor of Science (Honours) in Analytical Chemistry with Quality Assurance	-1	Elective
CR_SPHBI_8	Bachelor of Science (Honours) in Pharmaceutical Biotechnology	-1	Mandatory
CR_SCHEM_7	Bachelor of Science in Analytical and Pharmaceutical Chemistry	-1	Elective
CR_SBIBI_7	Bachelor of Science in Applied Biosciences and Biotechnology	-1	Mandatory