

Module Title:	Analytical & Molecular Techniques in Biomedical Sciences	Level:	7	Credit Value:	20
---------------	---	--------	---	---------------	----

Module code:	BMS701	Is this a new module?	Yes	Code of module being replaced:	NA
--------------	--------	-----------------------	-----	--------------------------------	----

Cost Centre:	GANG	JACS3 code: HECoS code:	F165 100265
--------------	------	----------------------------	----------------

Trimester(s) in which to be offered:	1	With effect from:	February 2019
--------------------------------------	---	-------------------	---------------

Faculty:	Social & Life Sciences	Module Leader:	Dr Stuart Savill (BCUHB)
----------	------------------------	----------------	--------------------------

Scheduled learning and teaching hours	21hrs
Guided independent study	179 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered	Core	Option
MSc Biomedical Science	✓	
MRes Applied Biomedical Sciences Research	✓	

Pre-requisites
N/A

Office use only

Initial approval January 19

APSC approval of modification *Enter date of approval*

Have any derogations received SQC approval?

Version 1

Yes No ✓

<p>Module Aims</p> <p>This module will enable students to:</p> <p>Understand the various foundational theories on which the current Biomedical laboratory principles and procedures function.</p> <p>Help create a clear appreciation of the relevance, scope and limitations of a range of analytical and molecular techniques relevant to the Biomedical Sciences.</p>
--

<p>Intended Learning Outcomes</p> <p>Key skills for employability</p> <p>KS1 Written, oral and media communication skills</p> <p>KS2 Leadership, team working and networking skills</p> <p>KS3 Opportunity, creativity and problem solving skills</p> <p>KS4 Information technology skills and digital literacy</p> <p>KS5 Information management skills</p> <p>KS6 Research skills</p> <p>KS7 Intercultural and sustainability skills</p> <p>KS8 Career management skills</p> <p>KS9 Learning to learn (managing personal and professional development, self-management)</p> <p>KS10 Numeracy</p>			
<p>At the end of this module, students will be able to</p>		<p>Key Skills</p>	
<p>1</p>	<p>Critically evaluate the principles underlying various analytical procedures and molecular techniques used in pathology laboratories</p>	<p>KS1</p>	<p>KS3</p>
		<p>KS4</p>	<p>KS5</p>
		<p>KS6</p>	<p>KS10</p>
<p>2</p>	<p>Critically analyse the importance, limitations and effectiveness of various analytical and molecular techniques.</p>	<p>KS3</p>	<p>KS4</p>
		<p>KS5</p>	<p>KS6</p>
		<p>KS10</p>	
<p>3</p>	<p>Apply enhanced knowledge to understand, interpret and critically analyse analytical and molecular data obtained from using various laboratory techniques</p>	<p>KS10</p>	<p>KS3</p>
		<p>KS1</p>	

4	Understand and develop advanced practical laboratory skills in Biomedical Science	KS2	KS6
		KS10	

Transferable/key skills and other attributes

Enhanced understanding of various laboratory techniques in Biomedical Science
 Better prepared to understand and interpret data obtained from various techniques
 Proficiency in advanced laboratory techniques
 Research, investigative and problem-solving skills
 Decision making and independent thought

Derogations

N/A

Assessment:

Indicative assessment tasks

The module will be assessed using a combination of report (e.g. laboratory report) and presentation, such as a poster, all presented in a portfolio. Students will also be expected to present their report to their peers and tutors. Prior to commencing any laboratory work, the students will be formatively assessed in their laboratory skills. This will form a component of the lab report.

All assessments will be evaluated using the learning outcomes.

Reassessment

Any student who fails this module will be reassessed in the component they failed. This reassessment will be in the same format as the failed component and will assess the original learning outcomes in that component.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	All	Portfolio	100%	N/A	4000

Learning and Teaching Strategies:

Strategies used in this module will involve a blend of several Higher Education teaching and Learning methods. These will include lectures, seminars, tutorials, case studies and student-led presentations.

On-line learning will consist of blogs, learning diaries, contribution to fora, quizzes and weekly check-ins.

Several sources of information (e.g. Literary books, online literature, web sites) will also be available for students.

Syllabus outline:

Lab skills

Electrophoresis, Western blotting

Tissue Culture and molecular/cell isolation methods

Molecular biology techniques (e.g. PCR)

Flow cytometry and microscopy

Immunoassays (ELISA)

Point of care testing (POCT)

Specialist Biomedical laboratory equipment (e.g. Biomerieux Mini-vidas)

Automation, COSHH, Risk Assessments, Standard Operating Procedures (SOPs)

Bibliography:

Essential reading

Klein, H.G. Anstee, D.J. (2014) *Mollison's Blood Transfusion in Clinical Medicine* 12th Ed. Hoboken, NJ, Wiley-Blackwell.

Skoog, D.A., Holler, F.J. & Nieman, T.A. (2017) *Principles of instrumental analysis*. 7th Ed. London: Cengage Learning.

Wilson, K. & Walker, J. (2010). *Principles and techniques of biochemistry and molecular biology*. Oxford: Oxford University Press.

Other indicative reading

The Biomedical Scientist (Gazette), IBMS, Step Pub. Ltd., Kent, U.K.

British Journal of Biomedical Science, IBMS, Step Pub. Ltd., Kent, U.K. - available via website (www.bjbs-online.org/).

Gosling, J. (Ed) (2000). *Immunoassays: A practical approach*. Oxford: Oxford University Press.