

Module Specification

Module Summary Information

1	Module Title	New Technologies in Biomedicine
2	Module Credits	20
3	Module Level	6
4	Module Code	BMS6003

5	Module Overview
<p>Modern healthcare providers are constantly striving to provide better patient care, improved diagnostics and treatments for current and emerging diseases. However, in order to comply with financial pressures and an expanding, increasingly mobile global population, healthcare improvements must be efficient, cost effective and sustainable. Underpinning these improvements are new technologies and contemporary approaches that provide more rapid and rigorous diagnostics and therapies. Research within the Biosciences has had a substantial part to play in these developments, with advances in DNA sequencing, genetic engineering and drug discovery for example, leading to significant medical breakthroughs.</p> <p>In this module, you will learn about modern, contemporary technologies that have a substantial impact on modern healthcare. You will examine the route of developmental of each technology, and investigate the limitations and potential for future improvement of each of the technologies. Contemporary scientific advances can be contentious issues, using technologies that are at the forefront of our understanding. Thus, during this module you will consider the moral and ethical issues of these scientific advances.</p> <p>Alignment with Programme Philosophy and Aims:</p> <p>In this module, you will adopt a holistic approach, building on knowledge gained in previous modules, to examine modern technologies in biomedicine. You will learn about the fundamental principles of the technologies, how they are benefitting society, the potential for improvement and the technical limitations. Through analysis of contemporary technologies, you will gain an appreciation of the considerations and the ethical and safety requirements placed on technology developers. The module will adopt a blend of interactive theory, ethical discussion and practice based learning elements, allowing you to engage in rigorous analysis of contemporary technologies that impact on the global human population. Through discussion sessions and ethical debates, you will develop key communication skills.</p> <p>Learning and Teaching Strategy:</p> <p>The module is divided into learning components, each covering a different contemporary technology. The learning schedule of each component will be very similar. There will be an initial session to establish a level of subject understanding, followed by a peer-led discussion centred around the specific subject content to be delivered. There will then be sessions of information delivery and discussion. Depending on the subject content, there will be a debate where you and your peers with discuss ethical issues concerning contentious technology developments. Where possible, a guest speaker will be invited to deliver a seminar on the area of their expertise. There is also an expectation that you will supplement the knowledge from teaching elements with additional material from textbooks, research articles and online resources.</p>	

To achieve the required 20 credits for this module, you will need to dedicate at least 200 hours studying the module material. For this module, the time is broken down in an approximately 20:80 ratio (directed: self-directed). The scheduled learning activities will include interactive lectures, workshops and practical sessions; approximately 20% of this learning will take place in an online environment.

Assessment Strategy:

The module will be assessed via a written assignment of 3000 words on a particular trend or development in the biomedical sciences.

6	Indicative Content
	Model Organisms Next Generation DNA Sequencing technologies STEM Cell Technology Genetic Interventions – gene therapy, CRISPR-Cas9 Drug Discovery

7	Module Learning Outcomes	
	On successful completion of the module, students will be able to:	
	1	Demonstrate understanding and knowledge of contemporary scientific technologies and their impact on modern healthcare.
	2	Explore the limitations and the potential for future development of scientific technologies.
	3	Critically appraise scientific literature relating to current technologies in biomedical sciences.

8	Module Assessment		
Learning Outcome			
	Coursework	Exam	In-Person
1,2,3	X		

9	Breakdown Learning and Teaching Activities	
Learning Activities	Hours	
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	35	
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	55	
Private Study (PS) includes preparation for exams	110	
Total Study Hours:	200	