BS266-24 Laboratories for Biomedical Science

20/21

Department Life Sciences Level Undergraduate Level 2 Module leader Robert Spooner Credit value 24 Module duration 13 weeks Assessment 100% coursework Study location University of Warwick main campus, Coventry

Description

Introductory description

'This module aims to increase the practical laboratory skills, data handling, and problem-solving skills of BioMedical Science students and to reinforce the need to use Good Laboratory Practice. It covers core labs taken by all students (bioinformatics and molecular cell biology) and labs specific for Biomedical Science students (Human and Animal Physiology, Immunology and Epidemiology Laboratory and an Infection Laboratory). The core labs introduce students to the techniques of PCR and cloning, and to sequence –handling i.e. from clone to genome. The specific labs are strongly linked to lecture modules, with the aim of co-ordinating theory with practical skills.

Module web page

Module aims

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PCR and cloning, and to sequence –handling i.e. from clone to genome. The specific labs are strongly linked to lecture modules, with the aim of co-ordinating theory with practical skills.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Laboratories covering: Bioinformatics Molecular Biology Immunology Infection Physiology

Learning outcomes

By the end of the module, students should be able to:

 Improving laboratory, data-handling and problem-solving skills. Carry out experiments following GLP (Good Laboratory Practice)Understand the links between nucleic acid amplification/ cloning and collating/building a genomeUnderstand the structure and antigenbinding ability of an IgG antibody, and the relationship between the two; estimate the size of proteins on SDS-PAGE; have improved problem-solving skills.Know how to culture mammalian cells using aseptic techniques; understand viral growth assays, infectious yield and titre; understand the basis of proportionality in calculations; have improved problemsolving skills.Understand basic haematological techniques: obtaining blood samples, determining cell counts, and measuring coagulation parameters.Understand nerve and muscle function and recording of electrophysiological data

Indicative reading list

Not applicable.

Students are provided with comprehensive laboratory manuals before each laboratory class or block of classes.

Subject specific skills

Carry out experiments following GLP (Good Laboratory Practice)

Understand the links between nucleic acid amplification/ cloning and collating/building a genome

Understand the structure and antigen-binding ability of an IgG antibody, and the relationship between the two; estimate the size of proteins on SDS-PAGE; have improved problem-solving skills.

Know how to culture mammalian cells using aseptic techniques; understand viral growth assays, infectious yield and titre; understand the basis of proportionality in calculations; have improved problem-solving skills.

Understand basic haematological techniques: obtaining blood samples, determining cell counts, and measuring coagulation parameters.

Understand nerve and muscle function and recording of electrophysiological data

Transferable skills

Lab skills, self directed learning, team work, group work, report writing, adult learning

Study

Study time

Type Practical classes Private study Total Required 24 sessions of 6 hours (60%) 96 hours (40%) 240 hours

Private study description

Self directed learning, preparation for lab sessions and production of lab reports

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A1

	Weighting	Study time
Bioinformatics Lab	8%	
Laboratory reports and in-lab assessments		
MCB Lab	17%	
HAP Lab	25%	
Immunology Lab	25%	
Infection Lab	25%	

Feedback on assessment

Availability

Courses

This module is Core optional for:

- UBSA-C1B9 Undergraduate Biomedical Science
 - Year 2 of C1B9 Biomedical Science
 - Year 2 of C1B9 Biomedical Science
 - Year 2 of C1B9 Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
 - Year 2 of C1A3 Biomedical Science
 - Year 2 of C1B9 Biomedical Science
- Year 2 of ULFA-C1A7 Undergraduate Biomedical Science with Industrial Placement (MBio)
- Year 2 of UBSA-CB19 Undergraduate Biomedical Science with Intercalated Year