

Practical Skills in Research

Module Code:	INC7018-B
Academic Year:	2018-19
Credit Rating:	20
School:	School of Pharmacy and Medical Sciences
Subject Area:	Cancer Therapeutics
FHEQ Level:	FHEQ Level 7 (Masters)

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	17
Seminar	28
Tutorials	9
Laboratory	18
Directed Study	128

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Academic Year (Sept - May)

Module Aims

To provide a comprehensive understanding of selected important advanced pharmacology techniques; to develop student autonomy in learning and to develop research skills as well as enhance written communication skills.

Outline Syllabus

Theory and practice of basic and advanced laboratory techniques:

Introduction to good laboratory and clinical practice. Sample preparation for bio-analysis. Analytical biochemical techniques: separation methods, GC, HPLC, FPLC chromatography

(ion, gel, affinity), electrophoresis, mass spectrometry. Methods to study cells: microscopy, cell culture, cell proliferation, identification of cell markers and cell purification by FACS. Recombinant DNA techniques include: Polymerase Chain Reaction (PCR), Northern & Southern blotting, molecular analysis of gene expression (proteomics & transgenic approaches). Writing of drug evaluation, molecular biology and pharmacology reports. Attendance at seminars and production of a summary (reflective statement) of two of the topics, one in each Semester.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Demonstrate a fundamental understanding of the theory and principals of key experimental techniques and their application in pharmacological sciences.
- 2 Competently perform basic research laboratory skills - handling liquids, solids, calculations, routine scientific instruments (balances, centrifuges, pipettes) and good laboratory practice to a professional standard (behaviour, rules and regulations).
- 3 Autonomously design experiments, critically evaluate and interpret results.
- 4 Develop knowledge and practical experience of microscopy, cell culture, molecular biology, chromatography, mass spectrometry and drug analysis.
- 5 Evaluate health and safety considerations required legally for experimentation.
- 6 Work in a research laboratory.
- 7 Practical experience of data handling, analytical thinking and statistics.
- 8 Design and record a research experiment.
- 9 Acquire organisational and time management skills to produce a portfolio of work.
- 10 Assimilate research data in seminars, take notes and prepare scientific reports.

Learning, Teaching and Assessment Strategy

This course will be presented as a series of lectures, seminars, workshops and laboratory sessions. Where possible, practical classes and workshops will be held in the Institute of Cancer Therapeutics to provide students with the experience of working in a research environment. Some workshops and exercises will also be held in teaching laboratories. Each practical or workshop will require the completion of a problem-solving and interpretation exercise. Research seminars are held each week and require the preparation of a reflective statement about one of the seminars (to be selected by the student) in each Semester. The exercises and reflective statements are to be submitted as a portfolio at the end of each Semester.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Coursework	Production of a portfolio of work (practical exercises and reflective statements) covering semester 1 material		50%	No
Summative	Coursework	Production of a portfolio of work (practical exercises and reflective statements) covering semester 2 material		50%	Yes

Legacy Code (if applicable)

Reading List

To view Reading List, please go to [rebus:list](#).