Module Descriptor for CNWY40090 in 2014

Conway Institute of Biomolecular & Biomedical Research

Short Title	Long Title
Intro to Omic	Introduction to 'Omic' and Advanced Imaging Technologies

Level	Credits	Semester	Passing Grade	Available on Blackboard ?	Module Coordinator	Status	Last Modified
4	5.0	Semester Two and Three	40 %	Yes	Matthias Wilm	Continuing Module	20 Jun 2013

Total Places	Core /Option	In Prog	Gen Electives	Intl Places
30	30	0	0	0

Module Description

Indicative Module Descriptor: This course is designed to familiarise students with the principles, practice and application of the rapidly developing 'omic' and imaging technologies. It will comprise 10x3hr seminar-style sessions covering -Bioinformatics (2 sessions, the second session to encompass hands-on application of bioinformatic approaches) Proteomics (2 sessions) Genomics and Transcriptomics (2 sessions) Imaging- from cell to person (3 sessions) Flow cytometry (1 session)

Learning Outcomes

Indicative Learning Outcomes On completion of the course the students should; Bioinformatics: Understand what bioinformatics is and is not; be familiar with sequence formats, databases and associated query tools; be aware of complete genome projects and resources and how to access these resources; be familiar with the application of homology searching and multiple sequence alignment; Proteomics: Be familiar with the separation methods applied in proteomics, including 2D gel electrophoresis and chromatorgapic techniques; understand the use of mass spectrometry instruments and methods in proteomic analysis; be aware of the bioinformatic approaches and computer software used for proteomic data analysis; know about the use of protein expression systems, including protein and antibody arrays, and their biomedical applications; Genomics: Be familiar with the principals of genomics, the construction of genome maps, genome sequencing and genomic variation; understand the application of genomics to trait and disease identification, diagnostics and personalised medicine; be familiar with emerging technological advances and bioinformatics in genomics; Transcriptomics: Have a general understanding of transcriptomics, regulation of the transcriptome and the use of microarray technologies, including their advantages and disadvantages; be familiar with the bioinformatic approaches and software used in microarray analysis and with microarray data sharing in the life sciences, be aware of the application of transcriptome profiling in diagnostics and pharmacogenomics and the challenges it presents for the future; Advanced Imaging technologies: Understand the innovation and advances in current imaging technologies and the relevance and importance of the basic principles of imaging to the most widely used technologies for in vitro, in vivo and diagnostic research; appreciate the cell biological tools available for morphologic localisation of in vitro structures and understand how confocal and electron microscopy facilitates basic and translational research; be familiar with the applications of in vivo imaging technologies to animal models of human disease and the limitations and advantages of currently used technologies, have a comprehensive understanding of the most recent technologies for whole organism imaging, be familiar with the principals and applications of the major diagnostic imaging technologies used in medical practice, including CT, MRI and PET scanning.Flow cytometry: Be familiar with the concepts, the principles, practice and application of flow cytometry and cell sorting. Have a general understanding of sample preparation, the analysis and reanalysis of the data produced in a flow cytometer.

Workload

Type	Hours
Autonomous Student Learning	50
Seminar	30
Specified Learning Activities	40
Total	**120**

Assessment Details

Description	Timing	Score By	% Final Grade	In Blackboard ?
Attendance at 70% of the course	Unspecified	MRK	20	N
End-module MCQ	Unspecified	MRK	32	N
Mid-module MCQ	Unspecified	MRK	32	N
Online Bioinformatic exercise	Unspecified	MRK	16	N
Total			**100**	

Module Equivalents

Module Code	Module Title
CNWY40040	Introduction to 'Omic' and Adv

Module Resits

Resit Type	Duration - Hours	Timing Weeks
In-semester assessment		

Module Remediation Strategies

Remediation
If you fail this module you may repeat, resit or substitute where permissible

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