



Module Descriptor for CNWY40090 in 2023/2024

| Short Title | Long Title | Subject Area | College | School/Unit | Last Modified |
|---------------|--|------------------|--------------------------------|----------------------|---------------|
| Intro to Omic | Introduction to 'Omic' and Advanced Imaging Technologies | Conway Institute | Research Inst & Other Entities | UCD Conway Institute | |

| UCD Level | Credits (ECTS) | Semester/Trimester | Grade Scale | VLE Setup | Module Coordinator | Status |
|-------------|----------------|--------------------|---------------|--------------------|--------------------|--------|
| 4 - Masters | 5.0 | Spring | Letter grades | Start of Trimester | Matthias Wilm | Active |

| Mode of Delivery | Internship Module | Clinical / Fieldwork / Placement | Micro-credential Module |
|------------------|-------------------|----------------------------------|-------------------------|
| Online | No | Other | No |

| Overall Places | Core/Option | General Elective | First Year Elective | International | Open Learning |
|----------------|-------------|------------------|---------------------|---------------|---------------|
| 30 | 30 | 0 | 0 | 0 | 0 |

| Purpose & Overarching Content |
|--|
| 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 Proteomics - analysis techniques and visualisations, Metabolomics, Glycomics and Nutrigenomics, Clinical Applications in Proteomics, Genomics, including Single Cell Genomics, Imaging techniques in research and clinical diagnostics, including Ultrasound, Digital Pathology and Flow Cytometry. |

| Learning Outcomes |
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| Indicative Learning Outcomes On completion of the course the students should: |
| - Proteomics: Will have seen how mass spectrometer are used to identify and quantify proteins and how this ability can be used in systems based biological research and clinical applications; |
| - Imaging for clinical diagnostics: Be familiar with the different imaging technologies used in clinics, their capabilities and limitations; |
| - Glycomics: Will be exposed to current techniques to analyse glycosilations on proteins, their representation in databases and which role glycosilations play in cancer biology. Finally, it will be demonstrated how glycosilations are characterised on pharmaceutical products. |
| - Metabolomics: Will learn about how metabolomic profiles are acquired and used in biological research |
| Clinical Applications in Proteomics: Will see how proteomic technologies are used in a clinical context |
| - Genomics: Will have seen the principals of genomics and its use in the identification of trait and disease; |
| - 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. |
| - Advanced Imaging technologies: Will have learned about the most recent advances in light and electron microscopic imaging and how it can be used in research to trace molecules in biological contexts. |
| - Advanced In Vivo Imaging: Will have learned what kind of imaging technologies are used in a clinical context |
| - Digital Pathology: Will have learned about the new tissue imaging techniques in histological pathology and its integration in clinical diagnosis |

| Approaches to Teaching and Learning |
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| Presentation of all the techniques available in the Conway to conduct biological research |

Student Effort Hours

| Student Effort Type | Hours |
|--|------------|
| Contact Time | |
| Seminar (or Webinar) | 30 |
| Total Contact Time | 30 |
| Specified Learning Activities | |
| Specified Learning Activities | 40 |
| Total Specified Learning Activities | 40 |
| Autonomous Student Learning | |
| Autonomous Student Learning | 50 |
| Total Autonomous Student Learning | 50 |
| Total | 120 |

FTE Breakdown

| School | FTE |
|--|-----|
| S025 - School of Medicine | 28 |
| S123 - Fees, State & Research Activity | 72 |



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Assessment Details

| Assesment Type | Description | Timing | Open Book? | % of Final Grade | Component Scale | Must-Pass? | In-module Component Repeat Offered? |
|-------------------------------|---------------------------------|-------------|------------|------------------|-----------------|------------|-------------------------------------|
| Multiple Choice Questionnaire | End-module MCQ | Unspecified | | 32 | Graded | Yes | Yes |
| Multiple Choice Questionnaire | Mid-module MCQ | Unspecified | | 32 | Graded | Yes | Yes |
| Attendance | Attendance at 70% of the course | Unspecified | | 20 | Pass/Fail | No | No |
| Assignment | Short answer question | Unspecified | | 16 | Pass/Fail | No | Yes |
| Total | | | | 100 | | | |

| |
|---|
| Carry Forward of Passed Components |
| No |

Feedback Strategy

| Feedback Strategies | Sequence of Feedback |
|-----------------------------|----------------------|
| - Online automated feedback | |

Remediation Strategy

| Remediation Type | Remediation Timing |
|------------------|-----------------------|
| In-Module Resit | Prior to relevant PEB |

Module Equivalents

| Module ID | Module Title |
|-----------|--------------------------------|
| CNWY40040 | Introduction to 'Omic' and Adv |

Associated Staff

| Name | Role |
|------------------------------|------------------|
| Ms Lydia Bigley | Module Assistant |
| Professor Lorraine Brennan | Tutor |
| Mr Mark Crowley | Module Assistant |
| Dr Kathleen Curran | Tutor |
| Professor Aurelie Fabre | Tutor |
| Dr Radka Fahey | Tutor |
| Dr Alfonso Fernández | Tutor |
| Ms Therese Herlihy | Tutor |
| Professor Brendan Loftus | Tutor |
| Ms Catherine Moss | Tutor |
| Professor Stephen Pennington | Tutor |
| Ms Elaine Quinn | Module Assistant |
| Dr Dimitri Scholz | Tutor |

Associated Majors

| Programme | Major | Stage | Module Type |
|---|---------------------------------------|-------|---------------|
| DRLSC001 - Doctor of Philosophy (Post 06) | X237 - Medicine PhD FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X434 - PublicHlthPhys&Sport Sc PhD PT | 1 | Option Module |
| MTLSC007 - Master of Science | X846 - MSc Experimental Physiology FT | 1 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X851 - PhD B&SB Prog CompSci FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X253 - Translational Med PhD FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X254 - Translational Med PhD PT | 2 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X853 - PhD B&SB Prog BBS FT | 1 | Option Module |



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Associated Majors (continued)

| Programme | Major | Stage | Module Type |
|---|---------------------------------------|-------|---------------|
| DRLSC001 - Doctor of Philosophy (Post 06) | X810 - PhD Infection Biology(SMMS) FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X811 - PhD Infection Biology(SMMS) PT | 2 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X855 - PhD B&SB Prog BES FT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X859 - PhD B&SB Prog PHPSS FT | 2 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X861 - PhD B&SB Prog Physics FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X254 - Translational Med PhD PT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X849 - PhD B&SB Prog Medicine FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X859 - PhD B&SB Prog PHPSS FT | 1 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X861 - PhD B&SB Prog Physics FT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X245 - Bioinfor & Systems Biol PhD FT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X246 - Bioinfor & Systems Biol PhD PT | 2 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X855 - PhD B&SB Prog BES FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X237 - Medicine PhD FT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X434 - PublicHlthPhys&Sport Sc PhD PT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X810 - PhD Infection Biology(SMMS) FT | 1 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X853 - PhD B&SB Prog BBS FT | 2 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X857 - PhD B&SB Prog Maths FT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X245 - Bioinfor & Systems Biol PhD FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X246 - Bioinfor & Systems Biol PhD PT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X811 - PhD Infection Biology(SMMS) PT | 1 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X857 - PhD B&SB Prog Maths FT | 2 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X253 - Translational Med PhD FT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X238 - Medicine PhD PT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X433 - PublicHlthPhys&Sport Sc PhD FT | 1 | Option Module |
| DRLSC001 - Doctor of Philosophy (Post 06) | X433 - PublicHlthPhys&Sport Sc PhD FT | 2 | Option Module |
| DRSCI001 - Doctor of Philosophy (Post 06) | X851 - PhD B&SB Prog CompSci FT | 1 | Option Module |

For help with the information on this report, please email curriculum@ucd.ie