

LF271-30 Practical Skills for Biologists

2

25/26

Department

Life Sciences

Level

Undergraduate Level 2

Module leader

Beatriz Lagunas

Credit value

30

Module duration

25 weeks

Assessment

Multiple

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module provides an extension to the fundamental skills required for all life sciences degrees. The module comprises three teaching categories, tutorial, laboratory and quantitative skill workshop sessions where the different skills are assessed in a synoptic way. The module also comprises transferability skills in line with the Warwick Award.

Tutorial sessions: These sessions focus on the teaching of communication skills (both written and oral), information literacy, critical thinking, teamwork, and problem solving, as transferrable skills for any future job. To identify and support individual pastoral care needs and introduce the referral pathway.

Laboratory sessions: These sessions focus on the teaching of complex laboratory skills and techniques, and the link of those with data interpretation and analysis.

Quantitative skills sessions: These sessions focus on the teaching of analytical techniques to interpret data generated in the lab sessions with a particular focus on big data analysis.

Module aims

Students will expand their experience with more complex lab techniques, learn to acquire data, analyse and communicate their findings and discuss scientific results with peers.

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.

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sessions held may differ. A series of experimental sessions including complex techniques. A series of tutorial sessions providing up-skilling of scientific writing, speaking, team-working, researching and problem-solving skills. A series of quantitative skills workshop sessions introducing students to analysis of complex datasets.

Learning outcomes

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

- Research given topics in the primary and peer-reviewed literature and consolidate relevant information to present a well-structured scientific writing
- To consolidate the required skills for the delivery of oral presentations, where the delivery style will be appropriate to the topic and audience in a professional way
- Show development in their critical analytical skills
- Understand the scientific method to perform hypothesis-driven experiments, with due regard to appropriate accuracy and detail
- Application of the right statistical analysis when interpreting biological data
- Apply principles of modelling to biological populations for analysis
- Understand the importance of good laboratory practice

Subject specific skills

Subject specific skills

Research given topics in the primary and peer-reviewed literature and consolidate relevant information to present a well-structured scientific writing

To deliver oral presentations where the content accuracy and the delivery style will be appropriate to the topic and audience, in a professional manner

Develop familiarity with complex hands-on technical skills and good laboratory practice

To analyse complex datasets with the appropriate statistical analysis

Transferable skills

- Communication
 - Critical thinking
 - Digital literacy
 - Information literacy
 - Professionalism
 - Problem solving
 - Teamwork
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Study

Study time

Type	Required
Lectures	12 sessions of 1 hour (4%)
Seminars	2 sessions of 2 hours (1%)
Tutorials	12 sessions of 1 hour (4%)
Demonstrations	2 sessions of 2 hours (1%)
Practical classes	9 sessions of 6 hours (18%)
Supervised practical classes	12 sessions of 2 hours (8%)
Private study	190 hours (63%)
Total	300 hours

Private study description

Preparations for labs, quant skill workshops and tutorials and completion of coursework

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 A

	Weighting	Study time	Eligible for self-certification
Lab report 1	10%		Yes (extension)
Lab report 2	10%		Yes (extension)
Hands-on technical skills	10%		No
Skills assessed in the lab classes, each on a pass/fail basis. The mark awarded will be the percentage of those passed.			
Complex lab skills	10%		No
Skills assessed in the lab classes, each scored on a scale of competence			
Hands-on quantitative skills	10%		No
Skills assessed in the lab classes, each scored on a scale of competence			
Scientific writing	10%		Yes (extension)
Scientific writing to assess ability to synthesise information from different sources			
Oral presentation	10%		No
Group oral presentation	10%		No
Reflection on teamwork	10%		Yes (extension)
Reflective piece on the teamwork to prepare the oral presentation			
Quantitative skill assignment	10%		Yes (extension)
Quantitative skill assessment to assess knowledge of data analysis techniques not assessed in lab reports or continuously in the workshops			

Assessment group R

	Weighting	Study time	Eligible for self-certification
No reassessment	100%		No
This module is not reassessed			

Feedback on assessment

Individual written feedback on scientific writing (oral and poster presentations), and lab reports. Oral feedback is given for formative work and lab assessed skills. Cohort-level feedback for quant skills assignments.

Availability

Courses

This module is Core for:

- UBSA-C700 Undergraduate Biochemistry
 - Year 2 of C700 Biochemistry
 - Year 2 of C700 Biochemistry
- ULFA-C1A2 Undergraduate Biochemistry (MBio)
 - Year 2 of C1A2 Biochemistry
 - Year 2 of C700 Biochemistry
- Year 2 of ULFA-C702 Undergraduate Biochemistry (with Placement Year)
- Year 2 of ULFA-C1A6 Undergraduate Biochemistry with Industrial Placement (MBio)
- UBSA-3 Undergraduate Biological Sciences
 - Year 2 of C100 Biological Sciences
 - Year 2 of C100 Biological Sciences
 - Year 2 of C102 Biological Sciences with Cell Biology
 - Year 2 of C103 Biological Sciences with Environmental Resources
 - Year 2 of C104 Biological Sciences with Microbiology
 - Year 2 of C105 Biological Sciences with Molecular Genetics
 - Year 2 of C107 Biological Sciences with Virology
- Year 2 of ULFA-C1A1 Undergraduate Biological Sciences (MBio)
- Year 2 of ULFA-C113 Undergraduate Biological Sciences (with Placement Year)
- Year 2 of ULFA-C1A5 Undergraduate Biological Sciences with Industrial Placement (MBio)
- 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)
- ULFA-CB18 Undergraduate Biomedical Science with Placement Year
 - Year 2 of CB18 Biomedical Science with Placement Year
 - Year 2 of CB18 Biomedical Science with Placement Year
 - Year 2 of CB18 Biomedical Science with Placement Year
- Year 2 of ULFA-B140 Undergraduate Neuroscience (BSc)
- Year 2 of ULFA-B142 Undergraduate Neuroscience (MBio)
- Year 2 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)
- Year 2 of ULFA-B141 Undergraduate Neuroscience (with Placement Year) (BSc)