



BIOS226 Computational Biology

Week 1 - Welcome and Module Overview

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Welcome to BIOS226

- Computational biology and bioinformatics are about turning biological data into insight
- You will work with real datasets and learn how to justify analytical choices
- We focus on practical skills: data handling, analysis, interpretation, and communication
- The module builds toward an individual case study presentation

Teaching Team

- Natasha Savage (NS) - module organiser
- Robert Treharne (RT) - module lead, supervised learning, case study support
- Stephen Chapman (SC) - data formats, databases, and annotation
- Robert Morris (RM) - QC, statistics, visualisation, genomics, and transcriptomics

How Sessions Will Run

- Weekly lecture: context and background
- Workshops: 2 x 2-hour guided, hands-on; build portfolio evidence
- Use University PCs and participate actively
- Support is during workshops only; work independently outside

Content

Recent announcements

-  Welcome to BIOS226 – Computational Biology and Bioinformatics!
Welcome to BIOS226 – Computational Biology and Bioinformatics. My colleagues and I are looking forward to workin...

Posted on:
23 Jan 2026, 10:44

202526-BIOS226 - Bioinformatics and Computational Biology

BIOS226 - Computational Biology and Bioinformatics

[17 Timetable](#)

Weekly schedule of lectures, workshops, deadlines.

[General Information](#)

Assessment details, contacts and study support.

[Topic 1](#)

Introduction to the module and getting started with R.

Timetable at a Glance (Part 1)

Part 1 - Foundations

- Week 1: Introduction and R primer (RT)
- Week 2: Biological data formats, databases, and annotation (SC)
- Week 3: Quality control, normalisation, and essential statistics (RM)
- Week 4: Visualisation and dimensionality reduction (RM)
- Week 5: Supervised learning and model evaluation (RT)
- Week 6 — w/c 02/03/2026 — Assessment week (no BIOS226 assessment this week)

Timetable at a Glance (Part 2)

Part 2 - Applications

- Week 7: Genomics, variant data, and GWAS (RM)
- Week 8: Transcriptomics and differential expression (RM)
- Easter break: no teaching w/c 23/03, 30/03, 06/04
- Week 9: Proteomics, metabolomics, and KEGG pathway analysis (SC)
- Week 10: Case study topic selection and pipeline development (RT)
- Week 11: Case study workshop and preparation
- Week 12: Case study completion and module wrap-up

Attendance Expectations

- Attendance at lectures and workshops is expected
- Workshops are where skills are practiced and supported
- If you miss a session, catch up using the slides and workbook tasks
- Let the teaching team know early if you have ongoing attendance issues
- There are no attendance codes - paper-based register only

Assessment Overview

- Two components:
 - Portfolio (60% of the module mark)
 - Case study presentation (40% of the module mark)
- Deadlines: Portfolio final submission Week 10; Case study Week 12

Portfolio (60%) - What is it?

- A curated record of your weekly work
- Workbook templates for each week
- Activities and questions to complete
- Work should be documented and submitted to Canvas weekly
- Text based Viva required for week 5
- In-person Viva week 10

Portfolio (60%) - Mark Breakdown

The portfolio assesses your practical work across the semester. The viva verifies your understanding of that work.

| Component | What is assessed | Portfolio weighting | Module weighting |
|-----------|---|---------------------|------------------|
| Workbook | Weekly workbooks demonstrating correct methods, accurate analysis, clear figures and outputs, and a reproducible workflow | 70% | 42% |
| Viva | 15-minute in-person viva (Week 10) verifying understanding of submitted workbook work | 30% | 18% |

Viva Practice!

- AutoViva is an online text-based viva tool that helps you practice explaining your work.
- Use it regularly, at least once a week.
- Download your transcripts and include them in your portfolio as evidence.

Case Study Presentation (40%) - What is it?

- Individual, conference-style academic presentation
- Delivered to your peers and teaching team
- Based on one substantial biological dataset
- Dataset chosen from a provided range (e.g. genomics, transcriptomics, proteomics)
- Focus is on reasoning and decision-making, not perfect results
- You are assessed on how you think with data, not on producing flawless outputs

Format, Timing, and Expectations

Format and timing:

- 10 min presentation + 5 min questions
- Delivered during Week 12 workshops
- Preparation supported in Weeks 10 to 11 workshops
- Academic, technical, professional tone expected

How is Case Study Assessed?

| Area | What is assessed | Presentation % | Module % |
|----------------|--|----------------|-----------|
| Data handling | Cleaning, preprocessing, reproducibility | 20 | 8 |
| Analysis | Choice and application of techniques | 25 | 10 |
| Visualisation | Clarity and appropriateness of figures | 15 | 6 |
| Interpretation | Biological meaning and limitations | 25 | 10 |
| Presentation | Structure, clarity, questions | 10 | 4 |
| Timing | Within time limits | 5 | 2 |
| Total | | 100 | 40 |

Use of Generative AI (GAI)

You may use GAI to:

- Plan structure
- Improve clarity and presentation flow

You remain responsible for:

- Analytical decisions
- Interpretation and accuracy
- Demonstrating understanding

GAI is a support tool, not a substitute for analysis.

