

BL2304 Invertebrate Zoology

(BL2304 online module handbook version 109)

Credits: 15

Semester: 1

Module Organiser

Dr Carmel McDougall
cm107@st-andrews.ac.uk

Pre-requisite Modules:

Before taking this module
you must pass BL1101 and
pass BL1102

Anti-requisite Modules:

Post-requisite Modules:

Additional Module

Information:

[Please check MMS regularly
for additional module
information](#)



image: A trap jaw ant of the genus *Odontomachus*. Photograph courtesy Melvyn Yeo.

The vast majority of animals are invertebrates - they do not have backbones. This module surveys the major invertebrate groups, emphasizing the diversity of body plans while demonstrating how the common functional requirements such as feeding, reproduction, respiration and excretion are achieved. The module starts with the simplest animals such as sponges and jellyfish, and considers how these primitive animals may have arisen from non-animal ancestors. It continues with a description of the several groups of worms, and the molluscs and arthropods. The last major group discussed are the echinoderms, which are close invertebrate relatives to vertebrate animals such as ourselves. The economic, social, and scientific impact that invertebrates have on human society is identified. The evolutionary relations between the various groups is the common thread that binds this diversity into a coherent story. A series of practical exercises reinforces and complements the lecture component of this module.

[BL2304View content for BL2304 \(2023/4\) in the Module Management System \(MMS\)](#)

[View the current Biology Online Module Catalogue for BL2304](#)

[BL2304View BL2304 \(2023/4\) in the University of St Andrews Module Catalogue](#)

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BL2304: Timetable

Legend (not all modules have every event type):

lecture	tutorial	workshop	practical	other
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Semester 1: Week 1

DATE & TIME	VENUE	STAFF	EVENT
Monday 11-09-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Carmel McDougall -	Lecture L1: Course introduction 2023-4_BL2304_L1
Tuesday 12-09-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Miguel Barbosa -	Lecture L2: Invertebrate biodiversity I 2023-4_BL2304_L2
Wednesday 13-09-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Miguel Barbosa -	Lecture L3: Invertebrate biodiversity II 2023-4_BL2304_L3

Semester 1: Week 2

DATE & TIME	VENUE	STAFF	EVENT
Monday 18-09-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Miguel Barbosa -	Lecture L4: Invertebrate biodiversity III 2023-4_BL2304_L4
Tuesday 19-09-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Miguel Barbosa -	Tutorial T1: Sampling methods for invertebrates 2023-4_BL2304_T1
Thursday 21-09-2023 14:00 to 17:00	Offsite Field Sampling	Dr Miguel Barbosa -	Practical P1: Field Sampling for Invertebrates 2023-4_BL2304_P1
Friday 22-09-2023 14:00 to 17:00	Offsite Field Sampling	Dr Miguel Barbosa -	Practical P2: Field Sampling for Invertebrates 2023-4_BL2304_P2

Semester 1: Week 3

DATE & TIME	VENUE	STAFF	EVENT
Monday 25-09-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Carmel McDougall -	Tutorial T2: Assessment information 2023-4_BL2304_T2
Tuesday 26-09-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Prof Dave Ferrier -	Lecture L5: Early Animals 2023-4_BL2304_L5
Wednesday 27-09-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Prof Dave Ferrier -	Lecture L6: Early Animals 2023-4_BL2304_L6

Semester 1: Week 4

DATE & TIME	VENUE	STAFF	EVENT
Monday 02-10-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Prof Dave Ferrier -	Lecture L7: Early Animals 2023-4_BL2304_L7
Tuesday 03-10-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Prof Dave Ferrier -	Tutorial T3: Early Animals tutorial 2023-4_BL2304_T3
Thursday 05-10-2023 14:00 to 17:00	Medical and Biological Sciences Building MBS 142	Dr Miguel Barbosa -	Practical P3: Identifying invertebrates 2023-4_BL2304_P3 Attend on assigned lab day
Friday 06-10-2023 14:00 to 17:00	Medical and Biological Sciences Building MBS 142	Dr Miguel Barbosa -	Practical P4: Identifying invertebrates 2023-4_BL2304_P4 Attend on assigned lab day

Semester 1: Week 5

DATE & TIME	VENUE	STAFF	EVENT
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Monday 09-10-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L8: Arthropods I 2023-4_BL2304_L8
Tuesday 10-10-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Verena Dietrich-Bischoff -	Lecture L9: Arthropods II 2023-4_BL2304_L9
Wednesday 11-10-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L10: Arthropods III 2023-4_BL2304_L10

Semester 1: Week 7

DATE & TIME	VENUE	STAFF	EVENT
Monday 23-10-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L11: Arthropods IV 2023-4_BL2304_L11
Tuesday 24-10-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Verena Dietrich-Bischoff -	Tutorial T4: Arthropods tutorial 2023-4_BL2304_T4
Wednesday 25-10-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr James Price -	Lecture L12: Nematodes 2023-4_BL2304_L12
Thursday 26-10-2023 14:00 to 17:00	Medical and Biological Sciences Building MBS 142	Dr James Price -	Practical P5: Nematodes practical 2023-4_BL2304_P5 Attend on assigned lab day
Friday 27-10-2023 14:00 to 17:00	Medical and Biological Sciences Building MBS 142	Dr James Price -	Practical P6: Nematodes practical 2023-4_BL2304_P6 Attend on assigned lab day

Semester 1: Week 8

DATE & TIME	VENUE	STAFF	EVENT
Monday 30-10-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Carmel McDougall -	Lecture L13: Annelids I 2023-4_BL2304_L13
Tuesday 31-10-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Carmel McDougall -	Lecture L14: Annelids II 2023-4_BL2304_L14

Semester 1: Week 9

DATE & TIME	VENUE	STAFF	EVENT
Monday 06-11-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Carmel McDougall -	Lecture L15: Annelids tutorial 2023-4_BL2304_L15
Tuesday 07-11-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Carmel McDougall -	Lecture L16: Molluscs I 2023-4_BL2304_L16
Wednesday 08-11-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Carmel McDougall -	Lecture L17: Molluscs II 2023-4_BL2304_L17
Thursday 09-11-2023 14:00 to 17:00	Scottish Oceans Institute SOI teaching lab	Dr Carmel McDougall -	Practical P7: Molluscs practical 2023-4_BL2304_P7 Attend on assigned lab day
Friday 10-11-2023 14:00 to 17:00	Scottish Oceans Institute SOI teaching lab	Dr Carmel McDougall -	Practical P8: Molluscs practical 2023-4_BL2304_P8 Attend on assigned lab day

Semester 1: Week 10

DATE & TIME	VENUE	STAFF	EVENT
Monday 13-11-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Iain Matthews -	Lecture L18: Hemichordates (and some Lophophorates) 2023-4_BL2304_L18

Tuesday 14-11-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Iain Matthews -	Lecture L19: Echinoderm diversity 2023-4_BL2304_L19
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Semester 1: Week 11

DATE & TIME	VENUE	STAFF	EVENT
Monday 20-11-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Iain Matthews -	Lecture L20: Invertebrate chordates and vertebrate origins 2023-4_BL2304_L20
Tuesday 21-11-2023 11:00 to 12:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Carmel McDougall -	Lecture L21: Applied invertebrate biology I 2023-4_BL2304_L21
Wednesday 22-11-2023 11:00 to 12:00	Mathematical Institute Lecture Theatre A	Dr Carmel McDougall -	Lecture L22: Applied invertebrate biology II & End of Module Round Up 2023-4_BL2304_L22
Thursday 23-11-2023 14:00 to 17:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Carmel McDougall -	Practical P9: Poster session I 2023-4_BL2304_P9 Attend on assigned lab day
Friday 24-11-2023 14:00 to 17:00	Biomolecular Sciences Building RM 001 - Seminar Room	Dr Carmel McDougall -	Practical P10: Poster session II 2023-4_BL2304_P10 Attend on assigned lab day

BL2304: Reading List

[BL2304Click for BL2304 reading list](#)

BL2304: Assessment

2-hour Written Examination = 50%, Coursework = 50%

[BL2304View coursework assessment details for BL2304 \(2023/4\) in MMS](#)

The following related information applies to all Biology modules:

School of Biology Marking Criteria:	See JH booklet info (st-andrews.ac.uk)
Late submission of continuous assessment work:	All late submissions of coursework that do not require electronic submission should be made via the Biology Teaching Office, Level 2, BMS Building, North Haugh.
Exam details:	See School of Biology UG Handbook JH booklet info (st-andrews.ac.uk) : All Biology exams will be conducted online for 2022-23.
Exam timetable:	See Timetables - Exams - University of St Andrews (st-andrews.ac.uk)
Expected attendance:	See JH booklet info (st-andrews.ac.uk) for detailed attendance requirements.
Good Academic Practice & Avoiding Academic Misconduct:	See JH booklet info (st-andrews.ac.uk)
University Student Handbook:	University Student Handbook
School and University regulations in the School and University Undergraduate Handbook relating to absence reporting, penalties and rules for late submission of work, extensions for coursework, return of coursework, S-coding, good academic practice and Academic Alerts.:	JH booklet info (st-andrews.ac.uk) University Student Handbook

Who to ask

(Information in this section applies to all Biology Modules)

Before contacting staff, students should check the content of the Biology Undergraduate Handbook, the module handbook and specific task instructions.

Questions about

General teaching matters
Rescheduled or cancelled events
Lecture or practical content
Completing assessed practical assignments
Completing assessments

Marking on continuous assessment

Marking on exams

Rearranging practical days

Absence and/or extensions

Difficulties with academic progress which impact more than one module:

Overall performance, progress or future directions:

Disability:

For advice and support on any issue e.g. academic, financial, international, personal or health matters, or if you are unsure of who to go to for help:

University assistance with urgent matters out of office hours:

Contact

Biology Teaching Office (bioteach@st-andrews.ac.uk)

Check your University email

The lecturer who presented the material

The lecturer who set the assignment

Module Organiser ([Dr Carmel McDougall cm107@st-andrews.ac.uk](mailto:Dr.Carmel.McDougall@st-andrews.ac.uk))

The Demonstrator or Module Organiser ([Dr Carmel McDougall cm107@st-andrews.ac.uk](mailto:Dr.Carmel.McDougall@st-andrews.ac.uk))

Module Organiser ([Dr Carmel McDougall cm107@st-andrews.ac.uk](mailto:Dr.Carmel.McDougall@st-andrews.ac.uk))

Module Organiser ([Dr Carmel McDougall cm107@st-andrews.ac.uk](mailto:Dr.Carmel.McDougall@st-andrews.ac.uk))

Module Organiser ([Dr Carmel McDougall cm107@st-andrews.ac.uk](mailto:Dr.Carmel.McDougall@st-andrews.ac.uk))

and the Biology Teaching Office (bioteach@st-andrews.ac.uk)

Year Coordinator

See School of Biology UG Handbook for list:
[JH booklet info \(st-andrews.ac.uk\)](#)

Advisor of Studies

Disability Coordinator (biodisabilities@st-andrews.ac.uk)

Advice & Support Centre

Address: 79 North Street, St Andrews

Email: theasc@st-andrews.ac.uk

Web: <https://www.standrews.ac.uk/ask-a-question/>

Tel: 01334 462020

Tel: 01334 476161

Web:

<https://www.st-andrews.ac.uk/students/advice/counselling/incrisis/>

Biology Teaching Office:

We are happy to hear from you about teaching matters. The School of Biology Teaching Office is open Monday to Friday 09.00 - 13.00 and 14.00 - 17.00. School of Biology staff will respond to your emails during these hours. Our team will provide a response to you within three working days.

Biology Teaching Office (Level 2), University of St Andrews, Biomolecular Sciences Building, North Haugh, St Andrews, Fife KY16 9ST

Email: bioteach@st-andrews.ac.uk

Tel: 01334 46 3602 or 3566

BL2304: Contributing Staff

Dr Carmel McDougall
(Module Organiser)

Lecturer in Marine Biology

cm107@st-andrews.ac.uk

Dr Miguel Barbosa

Lecturer in Marine Biology

mb334@st-andrews.ac.uk

Dr Verena Dietrich-Bischoff

Lecturer (Education-Focused)

vdb@st-andrews.ac.uk

Prof Dave Ferrier

Reader in Biology and Deputy
Director of the Scottish Oceans
Institute

dekf@st-andrews.ac.uk

Dr Iain Matthews

Senior Teaching Fellow & Pro-
Dean for the Faculty of Science

imm7@st-andrews.ac.uk

Dr Carmel McDougall
(Module Organiser)

Lecturer in Marine Biology

cm107@st-andrews.ac.uk

Dr James Price

Research Fellow/Visiting Scholar

jp203@st-andrews.ac.uk

BL2304: Learning Outcomes

Students completing module BL2304 successfully should be able to:

- Achieve an overview of animal phylogeny, including the origins of animals themselves, and the major divisions within the animal kingdom
- Appreciate the main methodologies and controversies associated with determining phylogenetic relationships
- Identify the defining features of the key invertebrate groups
- Appreciate how representatives from the key invertebrate groups carry out basic animal functions in similar or different ways
- Appreciate the economic, social, and scientific impact that invertebrates have on human society

BL2304: Acquired Skills

Practical Skills

- Field sampling methods (Invertebrates)
- Biological drawing and photography
- Compound Microscopy
- Fixing and preserving specimens
- Pipetting
- Species identification (Invertebrates)
- Stereomicroscopy

Transferable Skills

- Preparing group poster on given topic
- Q+A poster session
- "Short" practical write-up (e.g. completed worksheet)
- Handout (for presentation or poster)
- Summary
- Critically evaluating sources/information
- Finding information from museums
- Finding information on the web
- Finding literature
- Referencing
- Data analysis
- Data presentation
- Descriptive statistics
- Dilutions
- Produce graphs/figures
- Significant figures
- Lab or field notebook
- Generate class dataset
- Organising group work
- Working in pairs/small groups

Policies

(Information in this section applies to all Biology Modules)

- The procedures and regulations followed by the School of Biology are outlined in the [University Handbook](#) and in the School of Biology UG handbook [JH booklet info \(st-andrews.ac.uk\)](#)
- All coursework associated with the module must be completed and submitted by its due date.
- Specific School regulations relating to absence reporting, penalties and rules for late submission of work, extensions for coursework, return of coursework, S-coding, Good Academic Practice and Academic Alert are stated in the School of Biology UG handbook [JH booklet info \(st-andrews.ac.uk\)](#) and students are required to carefully read these regulations.
- Students are also referred to the University Handbook, available at: <http://www.st-andrews.ac.uk/studenthandbook/>