

BL3316 Co evolution living together

(BL3316 online module handbook version 87)

Credits: 20

Semester: 2

Module Organiser

Dr Verena Dietrich-Bischoff

vdb@st-andrews.ac.uk

01334 464812

Pre-requisite Modules:

Before taking this module
you must pass BL2304 or
pass BL2307 or pass BL2312

Anti-requisite Modules:

Post-requisite Modules:

Additional Module

Information:

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

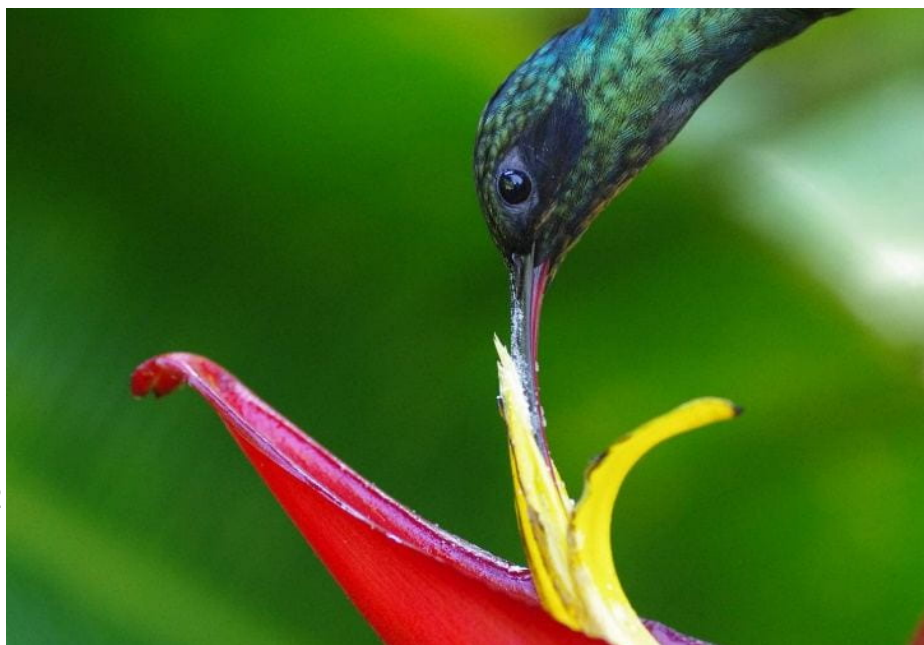


image: Hummingbird pollinating flower

This module considers coevolution: how organisms influence the evolution of other organisms around them. Some of the most exquisite and remarkable adaptations in the natural world are the products of coevolution, from the elaborate displays of birds-of-paradise to the sexual mimicry of orchids. We will consider coevolution within a species, focusing in particular on the interactions between males and females, and also coevolution between species, including animal-plant interactions, host-parasite interactions, and predator-prey interactions. Topics to be considered in detail will be sexual selection, pollination biology, herbivory, prey defences, the evolution of virulence, and the ecology of coevolution, focusing in particular on tritrophic interactions between animals, plants and fungi. Finally, we will consider broader themes in coevolution, including the geographic mosaic theory of coevolution and applied aspects of coevolution.

[BL3316View content for BL3316 \(2023/4\) in the Module Management System \(MMS\)](#)

[View the current Biology Online Module Catalogue for BL3316](#)

[BL3316View BL3316 \(2023/4\) in the University of St Andrews Module Catalogue](#)

Contents:

- Cover
- Contents
- Timetable
- Reading List
- Assessment
- Who To Ask
- Contributing Staff
- Learning Outcomes
- Acquired Skills
- Policies

BL3316: Timetable

Legend (not all modules have every event type):

lecture	tutorial	workshop	practical	other
---------	----------	----------	-----------	-------

Semester 2: Week 1

DATE & TIME	VENUE	STAFF	EVENT
Monday 15-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L1: Overview of the module and introduction to coevolution 2023-4_BL3316_L1
Tuesday 16-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L2: The geographic mosaic theory of coevolution 2023-4_BL3316_L2
Wednesday 17-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Tutorial T1: Paper discussion (Synthesis of coevolution across levels of biological organisation) 2023-4_BL3316_T1

Semester 2: Week 2

DATE & TIME	VENUE	STAFF	EVENT
Monday 22-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L3: Pollination 2023-4_BL3316_L3
Tuesday 23-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L4: Pollination and coevolution 2023-4_BL3316_L4
Wednesday 24-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L5: Seed dispersal 2023-4_BL3316_L5

Semester 2: Week 3

DATE & TIME	VENUE	STAFF	EVENT
Monday 29-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L6: Coevolution of fruit colouration 2023-4_BL3316_L6
Tuesday 30-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L7: Coevolution of other fruit traits 2023-4_BL3316_L7
Wednesday 31-01-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Tutorial T2: Discussion (How do coevolutionary interactions differ between pollination and seed dispersal?) 2023-4_BL3316_T2

Semester 2: Week 4

DATE & TIME	VENUE	STAFF	EVENT
Monday 05-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Harry Watkins -	Lecture L8: The role of botanic gardens in the late Anthropocene 2023-4_BL3316_L8
Tuesday 06-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Harry Watkins -	Lecture L9: Green infrastructure: harnessing urban ecologies as a frontier of evolution 2023-4_BL3316_L9
Wednesday 07-02-2024 13:00 to 17:00	Other St Andrews Botanic Garden	Dr Harry Watkins -	Practical P1: Exploring the leaf economic spectrum in Northeast Fife 2023-4_BL3316_P1

Semester 2: Week 5

DATE & TIME	VENUE	STAFF	EVENT
Monday 12-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L10: Ant-plant interactions 1 2023-4_BL3316_L10

Tuesday 13-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L11: Ant-plant interactions 2 2023-4_BL3316_L11
Wednesday 14-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L12: Figs and fig wasps 2023-4_BL3316_L12

Semester 2: Week 6

DATE & TIME	VENUE	STAFF	EVENT
Monday 19-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Miguel Barbosa -	Lecture L13: Coevolution on the coral reef 2023-4_BL3316_L13
Tuesday 20-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L14: Fish cleaning mutualisms 2023-4_BL3316_L14
Wednesday 21-02-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Tutorial T3: Discussion (Cleaning mutualisms) and introduction to assessment 2023-4_BL3316_T3

Spring Break: 26-Feb-2024 to 01-Mar-2024

Semester 2: Week 7

DATE & TIME	VENUE	STAFF	EVENT
Monday 04-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L15: Concepts in predator-prey coevolution 2023-4_BL3316_L15
Tuesday 05-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L16: Coevolution in echolocating predators and their prey 2023-4_BL3316_L16
Wednesday 06-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Lecture L17: Carnivorous plants 2023-4_BL3316_L17

Semester 2: Week 8

DATE & TIME	VENUE	STAFF	EVENT
Monday 11-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L18: Avian brood parasitism 2023-4_BL3316_L18
Tuesday 12-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L19: Insect social parasitism 2023-4_BL3316_L19
Tuesday 12-03-2024 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	Dr Verena Dietrich-Bischoff -	Practical P2: Exploring egg rejection defences against brood parasites 2023-4_BL3316_P2
Wednesday 13-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Tutorial T4: Paper discussion (Brood parasitism in fish) 2023-4_BL3316_T4

Semester 2: Week 9

DATE & TIME	VENUE	STAFF	EVENT
Monday 18-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Nathan Bailey -	Lecture L20: Host-parasite coevolution I 2023-4_BL3316_L20
Tuesday 19-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Nathan Bailey -	Lecture L21: Host-parasite coevolution II 2023-4_BL3316_L21
Wednesday 20-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Graeme Ruxton -	Tutorial T5: Paper discussion (Birds using cigarette buds to control nest parasites) 2023-4_BL3316_T5

Semester 2: Week 10

DATE & TIME	VENUE	STAFF	EVENT
-------------	-------	-------	-------

Tuesday 26-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L22: Sexual selection as coevolution <small>2023-4_BL3316_L22</small>
Wednesday 27-03-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof Mike Ritchie -	Lecture L23: Coevolution in the genome <small>2023-4_BL3316_L23</small>

Semester 2: Week 11

DATE & TIME	VENUE	STAFF	EVENT
Monday 01-04-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L24: Sexual conflict <small>2023-4_BL3316_L24</small>
Tuesday 02-04-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Dr Verena Dietrich-Bischoff -	Lecture L25: Effects of climate change and other anthropogenic stressors on coevolutionary relationships <small>2023-4_BL3316_L25</small>
Wednesday 03-04-2024 13:00 to 14:00	Bute Building Lecture Theatre A	Prof John Jones -	Lecture L26: Plant-nematode interactions and their implications for agriculture <small>2023-4_BL3316_L26</small>

BL3316: Reading List

[BL3316Click for BL3316 reading list](#)

BL3316: Assessment

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

[BL3316View coursework assessment details for BL3316 \(2023/4\) 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 Verena Dietrich-Bischoff vdb@st-andrews.ac.uk](mailto:Dr%20Verena%20Dietrich-Bischoff%20vdb@st-andrews.ac.uk))

The Demonstrator or Module Organiser ([Dr Verena Dietrich-Bischoff vdb@st-andrews.ac.uk](mailto:Dr%20Verena%20Dietrich-Bischoff%20vdb@st-andrews.ac.uk))

Module Organiser ([Dr Verena Dietrich-Bischoff vdb@st-andrews.ac.uk](mailto:Dr%20Verena%20Dietrich-Bischoff%20vdb@st-andrews.ac.uk))

Module Organiser ([Dr Verena Dietrich-Bischoff vdb@st-andrews.ac.uk](mailto:Dr%20Verena%20Dietrich-Bischoff%20vdb@st-andrews.ac.uk))

Module Organiser ([Dr Verena Dietrich-Bischoff vdb@st-andrews.ac.uk](mailto:Dr%20Verena%20Dietrich-Bischoff%20vdb@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

BL3316: Contributing Staff

Dr Verena Dietrich-Bischoff
(Module Organiser)

Lecturer (Education-Focused)

vdb@st-andrews.ac.uk

[Prof Nathan Bailey](#)

Professor

nwb3@st-andrews.ac.uk

[Dr Miguel Barbosa](#)

Lecturer in Marine Biology

mb334@st-andrews.ac.uk

[Dr Verena Dietrich-Bischoff](#)
(Module Organiser)

Lecturer (Education-Focused)

vdb@st-andrews.ac.uk

[Prof John Jones](#)

Professor

jj33@st-andrews.ac.uk

[Prof Mike Ritchie](#)

Professor

mgr@st-andrews.ac.uk

[Prof Graeme Ruxton](#)

Professor

gr41@st-andrews.ac.uk

[Dr Harry Watkins](#)

Honorary Research Fellow

jhrw@st-andrews.ac.uk

BL3316: Learning Outcomes

Students completing module BL3316 successfully should be able to:

- Explain the basic principles of coevolution at the intra- and interspecific level
- Understand how coevolution shapes species interactions and can affect ecosystems
- Compare and contrast detailed examples of coevolutionary interactions in different contexts and systems
- Discuss the mechanisms that can maintain mutualisms
- Develop skills for scientific exploration and analysis

BL3316: Acquired Skills

Practical Skills

- Field sampling methods (Botanics)
- Fixing and preserving specimens
- Measuring specimens using calipers
- Species identification (Botany)

Transferable Skills

- "Short" practical write-up (e.g. completed worksheet)
- Paper critique
- Critically evaluating sources/information
- Finding information on the web
- Finding literature
- Referencing
- Searching databases
- Data analysis
- Use Excel
- Use R or R Studio
- Lab or field notebook
- Critiquing experimental design
- Designing experiments
- 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/>