

# BL4266 Conservation Research Methods

(BL4266 online module handbook version 49)

**Credits:** 15

**Semester:** 1

**Module Organiser**

Prof Will Cresswell

[wrlc@st-andrews.ac.uk](mailto:wrlc@st-andrews.ac.uk)

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**Pre-requisite Modules:**

Before taking this module  
you must pass BL3309

**Anti-requisite Modules:**

**Post-requisite Modules:**

**Additional Module**

**Information:**

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



image: An individually marked redshank - when animals become individuals we can estimate survival rates and population estimates accurately

The conservation of animal and plant populations relies initially on information of population sizes and trends. This information can only be collected by fieldwork. This module teaches the basic field techniques that underpin the monitoring of populations. Each week the theory behind a different technique is introduced, then the technique is practiced in the field, and finally data collected by the technique are analysed and discussed in a workshop at the end of the week, so that a full understanding of a technique and its proper application is gained. The module ends with students carrying out a project applying and integrating the techniques they have learnt.

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[BL4266View content for BL4266 \(2023/4\) in the Module Management System \(MMS\)](#)

[View the current Biology Online Module Catalogue for BL4266](#)

[BL4266View BL4266 \(2023/4\) in the University of St Andrews Module Catalogue](#)

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# BL4266: 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 10:00 to 11:00	Bute Building C26	<a href="#">Dr Andrew Blight</a> -	Lecture L1: <b>Line transect sampling: an introduction</b> 2023-4_BL4266_L1
Tuesday 12-09-2023 09:00 to 11:00	Other East Sands (grass by beach)	<a href="#">Dr Andrew Blight</a> -	Practical P1: <b>Line transect survey (field practical)</b> 2023-4_BL4266_P1
Friday 15-09-2023 09:00 to 11:00	Other Younger Hall: Seminar Room 4	<a href="#">Dr Andrew Blight</a> -	Workshop W1: <b>Line transect data analysis (data analysis practical)</b> 2023-4_BL4266_W1 Morning session
Friday 15-09-2023 14:00 to 16:00	Dyers Brae Seminar Room	<a href="#">Dr Andrew Blight</a> -	Workshop W2: <b>Line transect data analysis (data analysis practical)</b> 2023-4_BL4266_W2 Afternoon session

## Semester 1: Week 2

DATE & TIME	VENUE	STAFF	EVENT
Monday 18-09-2023 10:00 to 11:00	St Mary's College Lecture Room 3	<a href="#">Prof Will Cresswell</a> -	Lecture L2: <b>Counts: variation between observers and techniques; assessing necessary sampling effort, confidence limits</b> 2023-4_BL4266_L2
Tuesday 19-09-2023 12:00 to 14:30	Other Eden Estuary	<a href="#">Prof Will Cresswell</a> -	Practical P2: <b>Field trip to Eden Estuary - learning field counting methods</b> 2023-4_BL4266_P2
Friday 22-09-2023 11:00 to 13:00	Bute Building C5	<a href="#">Prof Will Cresswell</a> -	Workshop W3: <b>Analysis of field data - modelling count data</b> 2023-4_BL4266_W3

## Semester 1: Week 3

DATE & TIME	VENUE	STAFF	EVENT
Monday 25-09-2023 10:00 to 11:00	St Mary's College Lecture Room 3	<a href="#">Dr Andrew Blight</a> -	Lecture L3: <b>Mark-recapture: an introduction</b> 2023-4_BL4266_L3
Thursday 28-09-2023 11:00 to 13:00	Dyers Brae Seminar Room	<a href="#">Dr Andrew Blight</a> -	Workshop W4: <b>Mark-recapture estimation of population size I (data analysis practical)</b> 2023-4_BL4266_W4 Morning session
Thursday 28-09-2023 13:00 to 15:00	Other Old Burgh School- 108- Lumsden Seminar Room 1	<a href="#">Dr Andrew Blight</a> -	Workshop W5: <b>Mark-recapture estimation of population size II (data analysis practical)</b> 2023-4_BL4266_W5 Afternoon session

## Semester 1: Week 4

DATE & TIME	VENUE	STAFF	EVENT
Monday 02-10-2023 10:00 to 11:00	St Mary's College Lecture Room 3	<a href="#">Prof Will Cresswell</a> -	Lecture L4: <b>Behavioural sampling - focal and continuous techniques</b> 2023-4_BL4266_L4
Tuesday 03-10-2023 12:00 to 14:30	Other Eden Estuary	<a href="#">Prof Will Cresswell</a> -	Practical P3: <b>Field trip to Eden Estuary - learning field behavioural sampling methods</b> 2023-4_BL4266_P3
Friday 06-10-2023 11:00 to 13:00	Bute Building C5	<a href="#">Prof Will Cresswell</a> -	Workshop W6: <b>Analysis of field data - modelling behavioural data</b> 2023-4_BL4266_W6

## Semester 1: Week 5

DATE & TIME	VENUE	STAFF	EVENT
Monday 09-10-2023 10:00 to 11:00	St Mary's College Lecture Room 3	<a href="#">Prof Will Cresswell</a> -	Lecture L5: <b>Sampling design: random, stratified sampling, biases</b> <a href="#">2023-4_BL4266_L5</a>
Tuesday 10-10-2023 08:30 to 10:00	Other St Andrews Castle Beach	<a href="#">Prof Will Cresswell</a> -	Practical P4: <b>Field trip St Andrews rocky shore below the Castle</b> <a href="#">2023-4_BL4266_P4</a>
Friday 13-10-2023 11:00 to 13:00	Bute Building C5	<a href="#">Prof Will Cresswell</a> -	Workshop W7: <b>Analysis of field data - stratified sampling and bootstrapping</b> <a href="#">2023-4_BL4266_W7</a>

## Semester 1: Week 7

DATE & TIME	VENUE	STAFF	EVENT
Monday 23-10-2023 10:00 to 11:00	St Mary's College Lecture Room 3	<a href="#">Dr Andrew Blight</a> -	Lecture L6: <b>Life tables and survival analysis</b> <a href="#">2023-4_BL4266_L6</a>
Thursday 26-10-2023 09:00 to 11:00	Bute Building C5	<a href="#">Dr Andrew Blight</a> -	Workshop W8: <b>Life table analysis (data analysis practical)</b> <a href="#">2023-4_BL4266_W8</a> Thursday session
Friday 27-10-2023 09:00 to 11:00	Other Younger Hall: Seminar Room 4	<a href="#">Dr Andrew Blight</a> -	Workshop W9: <b>Mark-recapture estimation of survival rates (data analysis practical)</b> <a href="#">2023-4_BL4266_W9</a> Friday session

## Semester 1: Week 8

DATE & TIME	VENUE	STAFF	EVENT
Monday 30-10-2023 10:00 to 11:00	St Mary's College Lecture Room 3	<a href="#">Prof Will Cresswell</a> Dr Andrew Blight	Workshop W10: <b>Project proposal meeting</b> <a href="#">2023-4_BL4266_W10</a>
Thursday 02-11-2023 10:00 to 13:00	Bute Building C5	<a href="#">Prof Will Cresswell</a> Dr Andrew Blight	Other O1: <b>Project proposal presentations</b> <a href="#">2023-4_BL4266_O1</a>

## Semester 1: Week 11

DATE & TIME	VENUE	STAFF	EVENT
Thursday 23-11-2023 14:00 to 16:00	Dyers Brae Seminar Room	<a href="#">Prof Will Cresswell</a> Dr Andrew Blight	Workshop W11: <b>Project analysis session and troubleshooting</b> <a href="#">2023-4_BL4266_W11</a>

# BL4266: Reading List

[BL4266Click for BL4266 reading list](#)

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## BL4266: Assessment

Coursework = 100%

[BL4266View coursework assessment details for BL4266 \(2023/4\) in MMS](#)

The following related information applies to all Biology modules:

School of Biology Marking Criteria:	See <a href="#">JH booklet info (st-andrews.ac.uk)</a>
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 <a href="#">JH booklet info (st-andrews.ac.uk)</a> : All Biology exams will be conducted online for 2022-23.
Exam timetable:	See <a href="#">Timetables - Exams - University of St Andrews (st-andrews.ac.uk)</a>
Expected attendance:	See <a href="#">JH booklet info (st-andrews.ac.uk)</a> for detailed attendance requirements.
Good Academic Practice & Avoiding Academic Misconduct:	See <a href="#">JH booklet info (st-andrews.ac.uk)</a>
University Student Handbook:	<a href="#">University Student Handbook</a>
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.:	<a href="#">JH booklet info (st-andrews.ac.uk)</a> <a href="#">University Student Handbook</a>

## 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](mailto:bioteach@st-andrews.ac.uk) )  
Check your University email  
The lecturer who presented the material  
The lecturer who set the assignment  
Module Organiser ( [Prof Will Cresswell wrlc@st-andrews.ac.uk](mailto:Prof Will Cresswell wrlc@st-andrews.ac.uk) )  
The Demonstrator or Module Organiser ( [Prof Will Cresswell wrlc@st-andrews.ac.uk](mailto:Prof Will Cresswell wrlc@st-andrews.ac.uk) )  
Module Organiser ( [Prof Will Cresswell wrlc@st-andrews.ac.uk](mailto:Prof Will Cresswell wrlc@st-andrews.ac.uk) )  
Module Organiser ( [Prof Will Cresswell wrlc@st-andrews.ac.uk](mailto:Prof Will Cresswell wrlc@st-andrews.ac.uk) )  
Module Organiser ( [Prof Will Cresswell wrlc@st-andrews.ac.uk](mailto:Prof Will Cresswell wrlc@st-andrews.ac.uk) ) **and** the Biology Teaching Office ( [bioteach@st-andrews.ac.uk](mailto:bioteach@st-andrews.ac.uk) )  
Year Coordinator  
See School of Biology UG Handbook for list: [JH booklet info \(st-andrews.ac.uk\)](http://www.st-andrews.ac.uk/jh-booklet-info)  
Advisor of Studies  
  
Disability Coordinator ( [biodisabilities@st-andrews.ac.uk](mailto:biodisabilities@st-andrews.ac.uk) )  
Advice & Support Centre  
Address: 79 North Street, St Andrews  
Email: [theasc@st-andrews.ac.uk](mailto: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](mailto:bioteach@st-andrews.ac.uk)

Tel: 01334 46 3602 or 3566

## BL4266: Contributing Staff

**Prof Will Cresswell**  
**(Module Organiser)**

Professor of Biology

[wrlc@st-andrews.ac.uk](mailto:wrlc@st-andrews.ac.uk)

Dr Andrew Blight

Lecturer

[ajb34@st-andrews.ac.uk](mailto:ajb34@st-andrews.ac.uk)

Prof Will Cresswell  
(Module Organiser)

Professor of Biology

[wrlc@st-andrews.ac.uk](mailto:wrlc@st-andrews.ac.uk)

## **BL4266: Learning Outcomes**

Students completing module BL4266 successfully should be able to:

- Understand the process of designing and implementing an efficient conservation-based assessment of key population parameters.
- Use basic specific skills necessary for answering a range of conservation research questions to do with population size
- Evaluate whether methods are appropriate and efficient to address conservation research questions
- Analyse pilot data efficiently within the context of determining the limitations of the pilot data and the methods used to collect it so that they can both then be improved.
- Present and fully justify the methods chosen to most efficiently answer a conservation research question.



# **BL4266: Acquired Skills**

## **Practical Skills**

- Field sampling methods (Invertebrates)
- Field sampling methods (Vertebrates)
- Fieldwork safety awareness
- Species identification (Vertebrates)
- Sustainability related practical skills

## **Transferable Skills**

- Group discussion - leading
- Group discussion - participating
- Short individual presentation on project idea (up to 15 min)
- Short informal presentation (using PowerPoint or not)
- "Full" practical write-up (Intro, Methods, Results, Discussion)
- Project report
- Research proposal
- Response to comments on proposal
- Critically evaluating sources/information
- Finding information on the web
- Finding literature
- Referencing
- Sourcing figures/tables
- Computer programming
- Generating questions
- Peer assessment
- Problem-solving questions
- ANOVA/Kruskal-Wallis test
- Biodiversity analysis
- Calculations/equations
- Chi-square test
- Data analysis
- Data analysis (depending on project)
- Data presentation
- Deal with outliers
- Decimal places
- Descriptive statistics
- Distinguish different types of data
- Draw a line of best fit
- Generalised Linear Models
- Handling big data
- Interpolation
- Linear regression
- Logarithms
- Non-linear fit
- Other mathematical models
- Pearson/Spearman rank correlation
- Produce graphs/figures
- Produce tables

- Scaling
- Shapiro-Wilk test for normality
- SI units
- Significant figures
- Survival analysis
- t-test/Wilcoxon test
- Two-way ANOVA
- Use Excel
- Use other data analysis software
- Use R or R Studio
- Lab or field notebook
- Critiquing experimental design
- Designing experiments
- Sustainability Related Skills
- Generate class dataset
- Managing a team
- 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/>