

BL2305 Cell Systems

(BL2305 online module handbook version 130)

Credits: 15

Semester: 2

Module Organiser

Dr Frances der Weduwen
fe9@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](#)



Cells are often considered to be the fundamental unit of life. This module will discuss how cells interact with one another to form complex tissues and organisms. You will consider, the structure-function relationship of a variety of cell types, including those involved in forming muscles, neuronal networks, blood and immunity and infectious diseases. The mechanisms by which cells communicate in order to mediate the complex physiology of an organism will be discussed and you will consider how disruption of these cell systems can lead to disease states.

[BL2305View content for BL2305 \(2023/4\) in the Module Management System \(MMS\)](#)

[View the current Biology Online Module Catalogue for BL2305](#)

[BL2305View BL2305 \(2023/4\) in the University of St Andrews Module Catalogue](#)

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BL2305: Timetable

Legend (not all modules have every event type):

lecture	tutorial	workshop	practical	other
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Semester 2: Week 1

DATE & TIME	VENUE	STAFF	EVENT
Monday 15-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Lecture L1: Introduction and Experimental Techniques to look at cell structure-function relationships 2023-4_BL2305_L1
Tuesday 16-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Lecture L2: Epithelium and Connective Tissue 2023-4_BL2305_L2
Wednesday 17-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Lecture L3: General Principles of Cell Signalling 2023-4_BL2305_L3
Friday 19-01-2024 09:00 to 09:05	Online MMS	Dr Frances der Weduwen -	Other O1: Figure topics open for sign-ups on MMS 2023-4_BL2305_O1

Semester 2: Week 2

DATE & TIME	VENUE	STAFF	EVENT
Monday 22-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Other O2: Reading Day 2023-4_BL2305_O2 You are welcome to meet up with each other in the lecture theatre or in the BMS Hive and complete the reading tasks for BL2305 together. The lecturer will not be present for the session.
Monday 22-01-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr Frances der Weduwen -	Practical P1: Cell Signalling 2023-4_BL2305_P1 Navigation to venue available on Moodle
Tuesday 23-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Lecture L4: Receptors 2023-4_BL2305_L4
Tuesday 23-01-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr Frances der Weduwen -	Practical P2: Cell Signalling 2023-4_BL2305_P2 Navigation to venue available on Moodle

Semester 2: Week 3

DATE & TIME	VENUE	STAFF	EVENT
Monday 29-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Lecture L5: 2nd Messengers 2023-4_BL2305_L5
Tuesday 30-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Lecture L6: Receptor Tyrosine Kinases 2023-4_BL2305_L6
Wednesday 31-01-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Workshop W1: Cell Signalling tutorial 2023-4_BL2305_W1 Please ensure you have completed the reading for this class ahead of the session

Semester 2: Week 4

DATE & TIME	VENUE	STAFF	EVENT
Monday 05-02-2024 09:00 to 10:00	Bute Building Bute Theatre A	-	Other O3: Figure Assignment Reading Day 2023-4_BL2305_O3 Lecture theatre free if you want a quiet place to read the paper associated with the topic you signed up for.

Monday 05-02-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr Frances der Weduwen -	Practical P3: Locust Leg and Cockroach Lab <small>2023-4_BL2305_P3</small> YOU ALL HAVE A LAB THIS WEEK. Half of you do one lab task while the other half do another task, and then you will complete the alternate lab task in week 6.
Tuesday 06-02-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Kelly Robinson -	Other O4: Reading Day <small>2023-4_BL2305_O4</small> Timetabling restrictions meant we couldn't place this after Dr Robinson's lectures, so you may wish to complete this reading activity after her lectures. Why not use this slot to review your notes for the module so far?
Tuesday 06-02-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr Frances der Weduwen -	Practical P4: Locust Leg and Cockroach Lab <small>2023-4_BL2305_P4</small> Navigation to venue available on Moodle. Half the class does the locust lab, the other half the cockroach lab.
Friday 09-02-2024 09:00 to 11:00	Biomedical Sciences Building Drop in to the Hive	Dr Frances der Weduwen -	Workshop W2: First Q&A session on figure assignment <small>2023-4_BL2305_W2</small> ATTENDANCE IS NOT COMPULSORY. Navigation to venue available on Moodle.

Semester 2: Week 5

DATE & TIME	VENUE	STAFF	EVENT
Monday 12-02-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Kelly Robinson -	Lecture L7: Action Potentials <small>2023-4_BL2305_L7</small>
Tuesday 13-02-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Kelly Robinson -	Lecture L8: Electrical and Chemical Synapses <small>2023-4_BL2305_L8</small>
Wednesday 14-02-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Kelly Robinson -	Lecture L9: Sensory Receptors <small>2023-4_BL2305_L9</small>
Wednesday 14-02-2024 14:00 to 16:00	Biomedical Sciences Building Drop in to the Hive	Dr Frances der Weduwen -	Workshop W3: Second Q&A session on figure assignment <small>2023-4_BL2305_W3</small> ATTENDANCE IS NOT COMPULSORY. Navigation to venue available on Moodle.

Semester 2: Week 6

DATE & TIME	VENUE	STAFF	EVENT
Monday 19-02-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Simon Young -	Lecture L10: Skeletal Muscles I <small>2023-4_BL2305_L10</small>
Monday 19-02-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr Frances der Weduwen -	Practical P5: Locust Leg and Cockroach Lab <small>2023-4_BL2305_P5</small> YOU ALL HAVE A LAB THIS WEEK. You will be completing whichever lab task you didn't complete in Week 4
Tuesday 20-02-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Simon Young -	Lecture L11: Skeletal Muscles II <small>2023-4_BL2305_L11</small>
Tuesday 20-02-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr Frances der Weduwen -	Practical P6: Locust Leg and Cockroach Lab <small>2023-4_BL2305_P6</small> Navigation to venue available on Moodle. Half the class does the locust lab, the other half the cockroach lab (whichever one you did in Week 4, you will now do the opposite lab).

Tuesday 20-02-2024 17:00 to 17:05	Online Moodle	-	Other O5: Submission requirements and expected locust leg report content made available via Moodle. <small>2023-4_BL2305_O5</small> Locust report is due on Wednesday of Week 8 at 5PM
Friday 23-02-2024 09:00 to 11:00	Biomolecular Sciences Building Drop in to the Hive	Dr Frances der Weduwen -	Workshop W4: Q&A session on locust leg report <small>2023-4_BL2305_W4</small> ATTENDANCE IS NOT COMPULSORY. Navigation to venue available on Moodle.
Friday 23-02-2024 12:00 to 12:05	Online MMS by midday	-	Other O6: FIGURE ASSIGNMENT DUE <small>2023-4_BL2305_O6</small> Please ensure you have uploaded two files - one for your figure and legend, and another for the supporting text that accompanies the figure.

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

Semester 2: Week 7

DATE & TIME	VENUE	STAFF	EVENT
Monday 04-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Simon Young -	Lecture L12: Cardiac Muscle <small>2023-4_BL2305_L12</small>
Tuesday 05-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Simon Young -	Lecture L13: Smooth Muscle I <small>2023-4_BL2305_L13</small>
Wednesday 06-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Simon Young -	Lecture L14: Smooth Muscle II <small>2023-4_BL2305_L14</small>
Wednesday 06-03-2024 14:00 to 16:30	Biomedical Sciences Building BMS Hive	Dr Frances der Weduwen -	Workshop W5: Q&A session on locust leg report <small>2023-4_BL2305_W5</small> ATTENDANCE IS NOT COMPULSORY. Navigation to venue available on Moodle.

Semester 2: Week 8

DATE & TIME	VENUE	STAFF	EVENT
Monday 11-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Simon Young -	Workshop W6: Comparison of Muscles workshop <small>2023-4_BL2305_W6</small> Please ensure you have checked Teams and Moodle for any prep work required for this workshop.
Monday 11-03-2024 14:00 to 17:00	Biomedical Sciences Building Small Teaching Lab	Dr Simon Young -	Practical P7: Muscle Dissection <small>2023-4_BL2305_P7</small> Navigation to venue available on Moodle
Tuesday 12-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr David J Hughes -	Lecture L15: Blood and Immunity I <small>2023-4_BL2305_L15</small>
Tuesday 12-03-2024 14:00 to 17:00	Biomedical Sciences Building Small Teaching Lab	Dr Simon Young -	Practical P8: Muscle Dissection <small>2023-4_BL2305_P8</small> Navigation to venue available on Moodle
Wednesday 13-03-2024 17:00 to 17:05	Online MMS	Dr Frances der Weduwen -	Other O7: LOCUST LEG REPORT DUE <small>2023-4_BL2305_O7</small> Submit via MMS

Semester 2: Week 9

DATE & TIME	VENUE	STAFF	EVENT
Monday 18-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr David J Hughes -	Lecture L16: Blood and Immunity II <small>2023-4_BL2305_L16</small>
Tuesday 19-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr David J Hughes -	Lecture L17: Blood and Immunity III <small>2023-4_BL2305_L17</small>

Wednesday 20-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr David J Hughes -	Other O8: Reading day 2023-4_BL2305_O8 You are welcome to meet up with each other in the lecture theatre or in the BMS Hive and complete the reading tasks for BL2305 together. The lecturer will not be present for the session.
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Semester 2: Week 10

DATE & TIME	VENUE	STAFF	EVENT
Monday 25-03-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr David J Hughes -	Lecture L18: Blood and Immunity IV 2023-4_BL2305_L18
Monday 25-03-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr David J Hughes -	Practical P9: Blood Slides & ELISA 2023-4_BL2305_P9 Navigation to venue available on Moodle
Tuesday 26-03-2024 14:00 to 17:00	Medical and Biological Sciences Building Small Teaching Lab	Dr David J Hughes -	Practical P10: Blood Slides & ELISA 2023-4_BL2305_P10 Navigation to venue available on Moodle

Semester 2: Week 11

DATE & TIME	VENUE	STAFF	EVENT
Monday 01-04-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr David J Hughes -	Workshop W7: Vaccines workshop 2023-4_BL2305_W7 Please ensure you have checked Teams and Moodle for any prep work required for this workshop.
Wednesday 03-04-2024 09:00 to 10:00	Bute Building Bute Theatre A	Dr Frances der Weduwen -	Workshop W8: Exams and PSQ Q&A session 2023-4_BL2305_W8

BL2305: Reading List

[BL2305Click for BL2305 reading list](#)

BL2305: Assessment

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

[BL2305View coursework assessment details for BL2305 \(2023/4\) 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 Frances der Weduwen fe9@st-andrews.ac.uk)

The Demonstrator or Module Organiser (Dr Frances der Weduwen fe9@st-andrews.ac.uk)

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Module Organiser (Dr Frances der Weduwen fe9@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

BL2305: Contributing Staff

Dr Frances der Weduwen
(Module Organiser)

Associate Lecturer (Education
Focused)

fe9@st-andrews.ac.uk

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(Module Organiser)

Associate Lecturer (Education
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fe9@st-andrews.ac.uk

Dr David J Hughes

Lecturer

djh25@st-andrews.ac.uk

Dr Kelly Robinson

Associate Lecturer in Animal
Behaviour and Evolution

kjr33@st-andrews.ac.uk

Dr Simon Young

Associate Lecturer (Education
focused)

say2@st-andrews.ac.uk

BL2305: Learning Outcomes

Students completing module BL2305 successfully should be able to:

- Demonstrate a critical awareness of the structure-function relationship of cells and tissues.
- Describe core signal transduction pathways including steroid hormones, G-proteins and tyrosine kinases
- Explain how neurons communicate to mediate complex biological functions.
- Compare and contrast the anatomical and physiological features of skeletal, cardiac and smooth muscle.
- Discuss how the different cells types of the immune system mediate immunity.
- Manipulate and interpret cellular and physiological data.

BL2305: Acquired Skills

Practical Skills

- Biological drawing and photography
- Compound Microscopy
- Enzyme-Linked ImmunoSorbent Assay (ELISA)
- Handling microbes
- Measuring structures using microscopes
- Pipetting
- Protein purification
- Purpose and practice of dissection
- SDS PAGE
- Stereomicroscopy

Transferable Skills

- Group discussion - participating
- Journal club
- "Full" practical write-up (Intro, Methods, Results, Discussion)
- "Short" practical write-up (e.g. completed worksheet)
- Short essay (1000-2000 words)
- Summary
- Critically evaluating sources/information
- Finding literature
- Referencing
- Problem-solving questions
- Calculations/equations
- Data analysis
- Data presentation
- Produce graphs/figures
- Produce tables
- Use Excel
- Lab or field notebook
- 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/>