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BL2302 Molecular Biology

(BL2302 online module handbook version 71)

Credits: 15

Semester: 1

Module Organiser

Dr Helder Ferreira
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01334 463425

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

Molecular biology is an essential tool within modern biology, widely used in biochemistry, cell biology and ecology. This module will provide an introduction to modern molecular biology. Lectures will cover fundamental biological processes such as transcription, translation, DNA replication and repair - as well as touch on the genomics revolution and how this has influenced the field. These concepts will be reinforced through laboratory practical classes where students will develop their practical skills and be exposed to the use of basic bioinformatics resources to analyse and interpret data.

BL2302View content for BL2302 (2023/4) in the Module Management System (MMS)

View the current Biology Online Module Catalogue for BL2302

BL2302View BL2302 (2023/4) in the University of St Andrews Module Catalogue

Contents:

BL2302: Timetable

Please note that all events are still provisional at this stage and subject to change

Legend (not all modules have every event type):

lecture	tutorial	workshop	practical	other

Semester 1: Week 1

DATE & TIME	VENUE	STAFF	EVENT
Thursday 14-09-2023 09:00 to 10:00	Purdie Building Lecture Theatre B	Dr Helder Ferreira -	Lecture L1: **Introduction to molecular biology** 2023-4_BL2302_L1
Friday 15-09-2023 09:00 to 10:00	Purdie Building Lecture Theatre B	Dr Helder Ferreira -	Lecture L2: **Transcription** 2023-4_BL2302_L2

Semester 1: Week 2

DATE & TIME	VENUE	STAFF	EVENT
Monday 18-09-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	Dr Helder Ferreira -	Practical P1: **Fundamental lab skills** 2023-4_BL2302_P1
Tuesday 19-09-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	Dr Helder Ferreira -	Practical P2: **Fundamental lab skills** 2023-4_BL2302_P2
Wednesday 20-09-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	Dr Helder Ferreira -	Lecture L3: **mRNA processing** 2023-4_BL2302_L3
Thursday 21-09-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	Dr Helder Ferreira -	Lecture L4: **Non-coding RNA** 2023-4_BL2302_L4
Friday 22-09-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	Dr Helder Ferreira -	Lecture L5: **Gene regulation** 2023-4_BL2302_L5

Semester 1: Week 3

DATE & TIME	VENUE	STAFF	EVENT
Thursday 28-09-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	Dr Michela Cerone -	Lecture L6: **Translation I** 2023-4_BL2302_L6
Friday 29-09-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	Dr Michela Cerone -	Lecture L7: **Translation II** 2023-4_BL2302_L7

Semester 1: Week 4

DATE & TIME	VENUE	STAFF	EVENT
Monday 02-10-2023 14:00 to 15:50	Biomolecular Sciences Building BMS 205	Dr Helder Ferreira -	Practical P3: **Basic bioinformatics - DNA sequence handling** 2023-4_BL2302_P3 Please use MMS to select timeslot AND if you require a laptop
Monday 02-10-2023 16:00 to 17:50	Biomolecular Sciences Building BMS 205	Dr Helder Ferreira -	Practical P4: **Please use MMS to select timeslot AND if you require a laptop** 2023-4_BL2302_P4
Tuesday 03-10-2023 14:00 to 15:50	Biomolecular Sciences Building BMS 205	Dr Helder Ferreira -	Practical P5: **Basic bioinformatics - DNA sequence handling** 2023-4_BL2302_P5 Please use MMS to select timeslot AND if you require a laptop
Tuesday 03-10-2023 16:00 to 17:50	Biomolecular Sciences Building BMS 205	Dr Helder Ferreira -	Practical P6: **Please use MMS to select timeslot AND if you require a laptop** 2023-4_BL2302_P6

Wednesday 04-10-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Helder Ferreira** -	Lecture L8: **Review of basic bioinformatics** 2023-4_BL2302_L8
Thursday 05-10-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L9: **DNA structure and sequencing** 2023-4_BL2302_L9
Friday 06-10-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L10: **Genome structure and sequencing** 2023-4_BL2302_L10

Semester 1: Week 5

DATE & TIME	VENUE	STAFF	EVENT
Tuesday 10-10-2023 18:00 to 18:30	Online Teams (live)	**Dr Helder Ferreira** -	Tutorial T1: **Bioinformatics drop-in session** 2023-4_BL2302_T1
Thursday 12-10-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Michela Cerone** -	Lecture L11: **translation** 2023-4_BL2302_L11
Friday 13-10-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Michela Cerone** -	Lecture L12: **regulation of translation** 2023-4_BL2302_L12

Semester 1: Week 7

DATE & TIME	VENUE	STAFF	EVENT
Monday 23-10-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	**Dr Stuart MacNeill** -	Practical P7: **PCR** 2023-4_BL2302_P7
Tuesday 24-10-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	**Dr Stuart MacNeill** -	Practical P8: **PCR** 2023-4_BL2302_P8
Thursday 26-10-2023 09:00 to 10:00	Online Moodle	**Dr Helder Ferreira** -	Other O1: **mid-module test** 2023-4_BL2302_O1 assessed via Moodle
Friday 27-10-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L13: **DNA replication** 2023-4_BL2302_L13

Semester 1: Week 8

DATE & TIME	VENUE	STAFF	EVENT
Wednesday 01-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L14: **DNA replication II** 2023-4_BL2302_L14
Thursday 02-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L15: **DNA replication III** 2023-4_BL2302_L15
Friday 03-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Simon Young** -	Lecture L16: **DNA damage and Direct Repair** 2023-4_BL2302_L16

Semester 1: Week 9

DATE & TIME	VENUE	STAFF	EVENT
Monday 06-11-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	**Dr Stuart MacNeill** -	Practical P9: **Plasmid purification and restriction digest** 2023-4_BL2302_P9
Tuesday 07-11-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	**Dr Stuart MacNeill** -	Practical P10: **Plasmid purification and restriction digest** 2023-4_BL2302_P10
Thursday 09-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Simon Young** -	Lecture L17: **Excision repair** 2023-4_BL2302_L17

Friday 10-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Simon Young** -	Lecture L18: **Mismatch Repair and Double-strand break Repair** 2023-4_BL2302_L18

Semester 1: Week 10

DATE & TIME	VENUE	STAFF	EVENT
Wednesday 15-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Simon Young** -	Lecture L19: **Origins of molecular biology** 2023-4_BL2302_L19
Thursday 16-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L20: **Review of minipreps and PCR** 2023-4_BL2302_L20
Friday 17-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L21: **Transposition** 2023-4_BL2302_L21

Semester 1: Week 11

DATE & TIME	VENUE	STAFF	EVENT
Monday 20-11-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	**Dr Helder Ferreira** -	Practical P11: **Inducing and measuring YFP expression** 2023-4_BL2302_P11
Tuesday 21-11-2023 14:00 to 17:00	Biomolecular Sciences Building BMS 205a	**Dr Helder Ferreira** -	Practical P12: **Inducing and measuring YFP expression** 2023-4_BL2302_P12
Thursday 23-11-2023 09:00 to 10:00	Buchanan Building Lecture Theatre	**Dr Stuart MacNeill** -	Lecture L22: **Genomics** 2023-4_BL2302_L22
Friday 24-11-2023 09:00 to 10:00	Online Moodle	**Dr Helder Ferreira** -	Other O2: **end-of-module test** 2023-4_BL2302_O2 assessed via Moodle

BL2302: Reading List

BL2302Click for BL2302 reading list

BL2302: Assessment

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

BL2302View coursework assessment details for BL2302 (2023/4) in MMS

The following related information applies to all Biology modules:

School of Biology Marking Criteria:	SeeÂ JH booklet info (st-andrews.ac.uk)Â
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)Â : All Biology exams will be conducted online for 2022-23.
Exam timetable:	See Timetables - Exams - University of St Andrews (st-andrews.ac.uk)Â
Expected attendance:	SeeÂ JH booklet info (st-andrews.ac.uk) Â for detailed attendance requirements.
Good Academic Practice & Avoiding Academic Misconduct:	SeeÂ 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	**Contact**
General teaching matters	Biology Teaching Office (bioteach@st-andrews.ac.uk)
Rescheduled or cancelled events	Check your University email
Lecture or practical content	The lecturer who presented the material
Completing assessed practical assignments	The lecturer who set the assignment
Completing assessments	Module Organiser (Dr Helder Ferreira hcf2@st-andrews.ac.uk)
Marking on continuous assessment	The Demonstrator or Module Organiser (Dr Helder Ferreira hcf2@st-andrews.ac.uk)
Marking on exams	Module Organiser (Dr Helder Ferreira hcf2@st-andrews.ac.uk)
Rearranging practical days	Module Organiser (Dr Helder Ferreira hcf2@st-andrews.ac.uk)
Absence and/or extensions	Module Organiser (Dr Helder Ferreira hcf2@st-andrews.ac.uk) **and** the Biology Teaching Office (bioteach@st-andrews.ac.uk)
Difficulties with academic progress which impact more than one module:	Year Coordinator See School of Biology UG Handbook for list: JH booklet info (st-andrews.ac.uk)
Overall performance, progress or future directions:	Advisor of Studies
Disability:	Disability Coordinator (biodisabilities@st-andrews.ac.uk)
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:	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
University assistance with urgent matters out of office hours:	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

BL2302: Contributing Staff

Dr Helder Ferreira (Module Organiser)	Lecturer	hcf2@st-andrews.ac.uk
Dr Michela Cerone	Lecturer in Biochemistry	mc319@st-andrews.ac.uk
Dr Helder Ferreira (Module Organiser)	Lecturer	hcf2@st-andrews.ac.uk
Dr Stuart MacNeill	SULSA Reader in Translational Biology	sam31@st-andrews.ac.uk
Dr Simon Young	Associate Lecturer (Education focused)	say2@st-andrews.ac.uk

BL2302: Learning Outcomes

Students completing module BL2302 successfully should be able to:

- Describe fundamental processes such as transcription, translation, DNA replication and repair
- Develop an awareness of the genomics revolution and its impact on Biology
- Develp practical skills in Molecular Biology
- Develop skills required for Bioinformatic studies

BL2302: Acquired Skills

Practical Skills

- Agarose gel
- Buffers
- DNA isolation
- Handling microbes
- Kinetic data analysis
- Pipetting
- Polymerase Chain Reaction (PCR)
- Restriction digest

Transferable Skills

- "Short" practical write-up (e.g. completed worksheet)
- Searching databases
- Generating questions
- Lab safety awareness
- Reflective analysis
- Problem-solving questions
- Calculations/equations
- Data analysis
- Data presentation
- Use other data analysis software
- 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 handbookÂ Â JH booklet info (st-andrews.ac.uk)Â
- 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 hand bookÂ JH booklet info (st-andrews.ac.uk)Â Â 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/