

BL4216 Structure based Drug Discovery

(BL4216 online module handbook version 79)

Credits: 15

Semester: 1

Module Organiser

Dr Tracey Gloster

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Pre-requisite Modules:

Before taking this module
you must pass BL2306 or
pass BL3301 or pass BL3324

Anti-requisite Modules:

Post-requisite Modules:

Additional Module

Information:

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

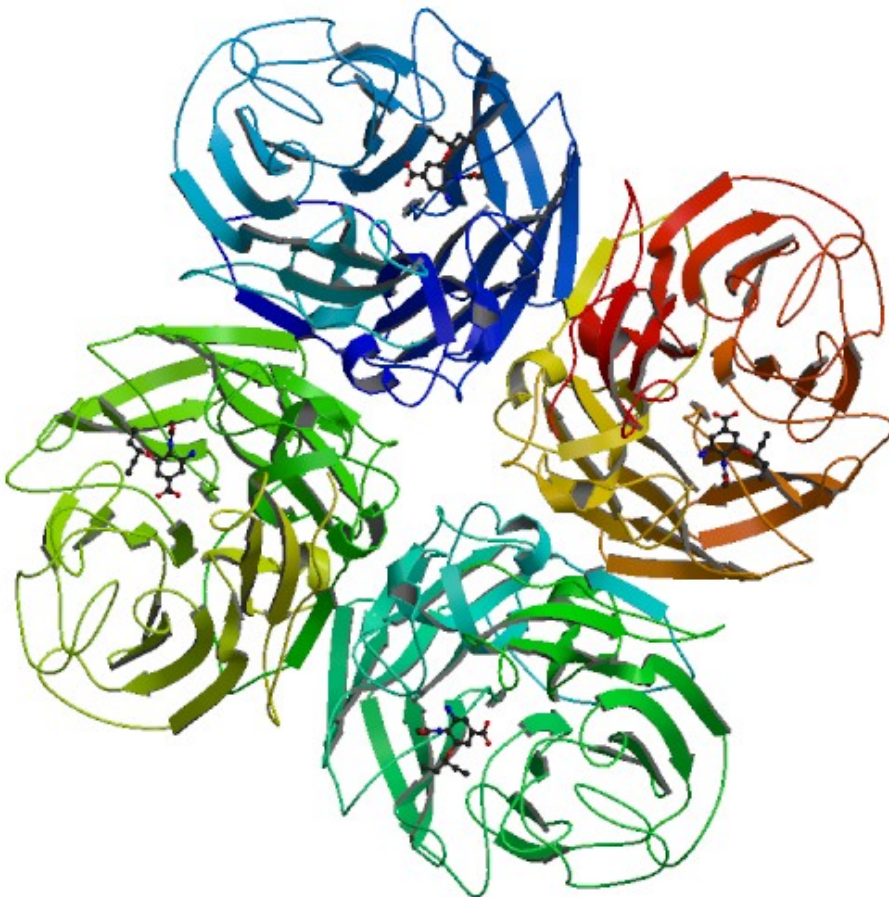


image: N1 neuraminidase in complex with oseltamivir (from
<http://www.rcsb.org/pdb/explore/explore.do?structureId=2hu4>)

The process of developing a new drug from conception to the clinic takes on average 15 years and costs over \$800M. There are now many examples of drugs developed based on a knowledge of the three dimensional structure of the target, and all major pharmaceutical companies have structural biology as part of their core drug discovery programmes. Many drugs currently used to combat AIDS were developed from a detailed knowledge of key HIV proteins, as were the two drugs used for influenza. Most major pharmaceutical companies are targeting kinases in the search for new cancer therapies, with international efforts focusing on producing structural details of huge numbers of human kinases. This module will examine case studies of drugs that have been developed with the aid of structure-based methods.

[View the current Biology Online Module Catalogue for BL4216](#)

[BL4216View BL4216 \(2023/4\) in the University of St Andrews Module Catalogue](#)

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BL4216: 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
Tuesday 12-09-2023 10:00 to 11:00	Medical and Biological Sciences Building MBS 103 Seminar Room 1	Dr Tracey Gloster -	Lecture L1: Module overview <small>2023-4_BL4216_L1</small>
Wednesday 13-09-2023 12:00 to 13:00	Biomolecular Sciences Building BMS seminar room	Dr Tracey Gloster -	Lecture L2: Overview on drug discovery <small>2023-4_BL4216_L2</small>
Thursday 14-09-2023 10:00 to 11:00	Biomedical Sciences Building BMS seminar room	Dr Tracey Gloster -	Lecture L3: Structure-based drug discovery <small>2023-4_BL4216_L3</small>

Semester 1: Week 2

DATE & TIME	VENUE	STAFF	EVENT
Tuesday 19-09-2023 10:00 to 11:00	Medical and Biological Sciences Building MBS 103 seminar room 1	Prof Garry Taylor Dr Tracey Gloster	Lecture L4: Case study: HN from Paramyxoviruses <small>2023-4_BL4216_L4</small>
Wednesday 20-09-2023 12:00 to 13:00	Medical and Biological Sciences Building MBS 103 seminar room 1	Prof Garry Taylor Dr Tracey Gloster	Lecture L5: Intellectual property <small>2023-4_BL4216_L5</small>
Thursday 21-09-2023 09:00 to 10:00	Biomedical Sciences Building BMS seminar room	NicolaMarchant Dr Tracey Gloster	Lecture L6: Bioethics <small>2023-4_BL4216_L6</small>
Thursday 21-09-2023 10:00 to 11:00	Biomedical Sciences Building BMS seminar room	NicolaMarchant Dr Tracey Gloster	Workshop W1: Bioethics debate <small>2023-4_BL4216_W1</small>

Semester 1: Week 3

DATE & TIME	VENUE	STAFF	EVENT
Tuesday 26-09-2023 10:00 to 11:00	Medical and Biological Sciences Building MBS 103 seminar room 1	Dr Tracey Gloster -	Workshop W2: PyMOL/Docking <small>2023-4_BL4216_W2</small> Bring your laptop (and a mouse, if you have one) and download PyMOL
Thursday 28-09-2023 09:00 to 11:00	Biomedical Sciences Building BMS seminar room	Dr Tracey Gloster -	Tutorial T1: Q&A session <small>2023-4_BL4216_T1</small>

Semester 1: Week 5

DATE & TIME	VENUE	STAFF	EVENT
Friday 13-10-2023 09:00 to 12:00	Medical and Biological Sciences Building MBS 103 seminar room 1	Dr Tracey Gloster Prof Garry Taylor	Other O1: Presentation 1- The disease <small>2023-4_BL4216_O1</small> Group presentation slides to be uploaded on MMS on Thursday week 5 at 5:00 pm

Semester 1: Week 8

DATE & TIME	VENUE	STAFF	EVENT
Monday 30-10-2023 14:00 to 17:00	Biomedical Sciences Building BMS seminar room	Dr Tracey Gloster Prof Garry Taylor	Other O2: Presentation 2 - Target and drug design strategy <small>2023-4_BL4216_O2</small> Group presentation slides to be uploaded on MMS on Monday week 8 at 10:00 am

Semester 1: Week 10

DATE & TIME	VENUE	STAFF	EVENT
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Friday 17-11-2023 13:00 to 16:00	Biomolecular Sciences Building BMS seminar room	Dr Tracey Gloster Prof Garry Taylor	Other O3: Presentation - 3 The complete pitch <small>2023-4_BL4216_O3</small> Group presentation slides to be uploaded on MMS on Wednesday week 10 at 5:00 pm
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Semester 1: Week 11

DATE & TIME	VENUE	STAFF	EVENT
Tuesday 21-11-2023 09:00 to 11:00	Biomedical Sciences Building MBS 122	Dr Tracey Gloster -	Tutorial T2: Synoptic exam practice <small>2023-4_BL4216_T2</small>

BL4216: Reading List

[BL4216Click for BL4216 reading list](#)

BL4216: Assessment

Written Exam = 40%, Practical Exam = 40%, Coursework = 20%

[BL4216View coursework assessment details for BL4216 \(2023/4\) 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 Tracey Gloster tmg@st-andrews.ac.uk)
The Demonstrator or Module Organiser (Dr Tracey Gloster tmg@st-andrews.ac.uk)
Module Organiser (Dr Tracey Gloster tmg@st-andrews.ac.uk)
Module Organiser (Dr Tracey Gloster tmg@st-andrews.ac.uk)
Module Organiser (Dr Tracey Gloster tmg@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 \(st-andrews.ac.uk\)](http://www.st-andrews.ac.uk/jh-booklet-info)
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

BL4216: Contributing Staff

[Dr Tracey Gloster](#)
(Module Organiser)

Reader

tmg@st-andrews.ac.uk

[Dr Tracey Gloster](#)
(Module Organiser)

Reader

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[Prof Garry Taylor](#)

Professor of Molecular Biophysics
(Emeritus)

glt2@st-andrews.ac.uk

BL4216: Learning Outcomes

Students completing module BL4216 successfully should be able to:

- Recognise and describe the steps involved in developing a new drug and getting the new drug to the market
- Appreciate the importance of Intellectual Property (IP) and issues such as protecting inventions through patents
- Assess drug design strategies
- Identify a disease in need of drug development
- Select a drug design strategy for an identified disease and develop a marketing strategy for this novel drug

BL4216: Acquired Skills

Practical Skills

- Database interrogation
- Molecular viewer software

Transferable Skills

- Group discussion - participating
- Long group presentation on project idea (>15 min)
- Group pamphlet aimed at general audience
- Handout (for presentation or poster)
- Science journalism piece aimed at general audience
- Finding information on the web
- Finding literature
- Searching databases
- Sourcing figures/tables
- Peer assessment
- 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/>