Welcome

Immunity and Infection 2020-21

Welcome to the Immunity and Infection BSc course!

This exciting course will teach you the essential concepts of molecular and cellular immunology and how the immune system detects and eliminates different types of infectious pathogen. You will also learn about how dysfunction of the immune system can lead to disease, such as autoimmunity and allergy, how pathogens have evolved sophisticated mechanisms to bypass immune responses and how the exquisite specificity of the immune system is a major barrier to the success of organ transplantation. The course will also show how an increased knowledge of the immune system is being used to develop immunotherapies for various types of cancer and autoimmune disease as well as effective vaccines to different global pathogens, including SARS-CoV-2. In addition, you will receive training in research techniques, data analysis, science communication and presentation. These skills will then be put in to practice in a laboratory-based project within an active research group at Imperial.

With the ongoing COVID-19 pandemic, this is a very relevant time to be studying immunology and infectious diseases. Advances in vaccine technology will be important in the development of effective vaccines for SARS-CoV-2, while increased understanding of the immune response in COVID-19 will lead to better treatments for severe disease. Imperial College is one of the leading UK centres for COVID-19 research and this course will include several talks by Imperial researchers on late breaking work in this fast-moving area.

We look forward to working with you over the next year to prepare you to apply your knowledge of immunology and infectious diseases in your future careers in the clinic and research laboratory.

Professor Steve Ley, Course Director
General Information

Key People

Dr Andrew Edwards
Module 1 lead
a.edwards@imperial.ac.uk

Dr Wayne Mitchell
Module 1 Assessments lead
w.mitchell@imperial.ac.uk

Prof Graham Taylor
Module 2 Science in Context lead
g.p.taylor@imperial.ac.uk

Prof Danny Altmann
Module 2 Literature Review lead
d.altmann@imperial.ac.uk

Dr James Pease
Module 3 Research Projects lead
j.pease@imperial.ac.uk

Celeste Miles
Course Administrator
celeste.miles@imperial.ac.uk
Remote Learning

In Term 1 most of your learning will take place online on Microsoft Teams. Please ensure you download this to your computer/iPad.

You can find more information on how to use MS Teams at:

https://www.imperial.ac.uk/admin-services/ict/self-service/connect-communicate/office-365/apps/microsoft-teams/

Microsoft Teams

- Live teaching sessions will take place in Microsoft Teams.
- There will be space for general module Q&A in the class channel where you can ask colleagues and team questions.
- There is a specific “Student room” which is just for you (no staff) where you can chat to your colleagues.
- There is a virtual office where the team will hold drop-in sessions and you can arrange one-to-one meetings with the team.

Blackboard VLE

Course information, e-learning materials, Pantopto recordings, details of in course submission portals are found on the Immunity and Infection Blackboard pages.

On Blackboard:

- The ‘Learning Resources’ link will take you to the session resources link with details and resources of your interactive sessions.
- The ‘Assessment Information’ will provide you with details of assessments including deadlines and submission portals.
On Med Learn:

- The ‘Key Information’ link is where you can find information about BSc structure and assessment, along with the link to apply for mitigating circumstances
- The ‘Course Material’ link will take you to the course-specific page within MedLearn.
- Upcoming ICA deadlines will be listed on your MedLearn Homepage along with a link to the guidance and submission portal for that particular ICA.
- The ‘Research Skills’ link will go to a page which contains useful information for developing your skills throughout the course.

Plagarism: Written coursework will be checked on Turnitin. Late work is capped at the pass mark (40%) when it is up to 24h late. A mark of 0% is awarded for work which is more than 24h late.

Absence:
If you need to take absence this MUST be reported via the ‘Absence and Leave’ link on blackboard. This will take you to the form where you submit absence reports/leave requests.

You must request leave in advance via the FEO. A maximum of 3 days leave are allowed in the year. A medical certificate is required after 7 calendar day’s sickness.

Registers will be taken in all virtual teaching sessions and unreported absence will followed up.
Locations

Your MRP in November will take place at our Hammersmith Campus. Any other on campus teaching and Laboratory projects will take place on one of our three main campuses.

Campus maps are available on the course Blackboard pages and here:

https://www.imperial.ac.uk/visit/campuses/

Room Directions:

South Kensington – SAF, Sir Alexander Fleming Building

- 119 - up the steps onto the first-floor concourse.
- MDL 1/2 - go to the orange wall on the ground floor, turn right for the stairs or lift and go to the first floor. Turn left.

St Mary’s

- Daads – 3rd floor, Medical School Building
- G65A/B, G64 – ground floor, Medical School Building, turn left at main entrance
- Clinical Lecture Theatre – 2nd floor, Cambridge Wing
- Cockburn - 2nd floor of the QEQM wing – at the end of the Sporborg Bridge.

Hammersmith Hospital – Commonwealth Building CWB

- Wolfson Education Centre (WEC)
  Seminar room II – first floor
- Computer seminar room – Commonwealth building (CWB) 3rd Floor
- Laboratories – CWB 3rd Floor
- Library: Level 1 CWB
  - Cafeterias: Level 1 CWB
  - Ground floor (WEC)
Key Dates

**Autumn Term (Monday 28 September – Friday 18 December 2020)**

**Induction Day**
Monday 28 September 2020 (AM)

**Module 1 – Taught Component**
Monday 28 September – Friday 18 December 2020 (12 weeks)

**Block 1:** Monday 28 September - Friday 23 October (4 weeks)

**Block 2:** Monday 26 October - Friday 20 November (4 weeks)

**Block 3:** Monday 23 November – Friday 18 December (4 weeks)

**Science in Context - Clinical Case Study:** Students will be assigned their clinical case study during module 1.

**Spring Term (Thursday 4 January – Wednesday 31st March 2021)**

**Module 2 – Self Directed Learning**

**Literature Review | Writing up Science in Context:**
Thursday 4 January – Friday 29 January (4 Weeks)

**Module 3 – BSc Project**
Monday 1 February - Friday 28 May (17 weeks)

**BSc Project Guidance Session:** Monday 1 February 2021 (09:00 – 11:00) Brian Drewe Lecture Theatre, Charing Cross or MS Teams (TBD)

**Easter Break:** Year 4 students are entitled to a 2-week Easter break between Spring and Summer terms. This should be arranged in consultation with Project Supervisors and must include the College closure dates between Thursday 1 – Tuesday 6 April 2021 (inclusive).

**Summer Term (Wednesday 7 April – Friday 28 May 2021)**

**BSc Project continued:** Wednesday 7 April - Friday 7 May 2021 (3 weeks, 2 days)

**Project write-up:** Monday 10 May – Friday 21 May (2 weeks)

**Oral presentations of the Project:** Monday 24 - Wednesday 26 May

(Presentations are usually held over 2 days within the dates above. They may be held as early as Thursday 20 May)

**Project submission deadline:** Friday 28 May 2021 (1pm) (Presentations are usually held over 2 days within the dates above. They may be held as early as Thursday 14 May)

**Project submission deadline:** Friday 22 May 2020 (1pm)

**Year 5 Pathology**: Monday 28 June – Friday 23 July 2021 *Imperial MBBS students only
Wider reading


Other recommended journals are; Nature Immunology; Nature Reviews in Immunology; Nature Reviews in Microbiology; Nature Medicine; Nature Microbiology; Current Opinions in Immunology; Trends in Immunology; Immunity; Cell Host & Microbe; Lancet Infectious Diseases; Immunological Reviews; Annual Reviews in Immunology

See Leganto for suggested further reading.

Course Learning Outcomes

To be able to demonstrate an in-depth understanding of Immunity and Infection:

a) Demonstrate an understanding of the major components of the immune system, their functions and the mechanisms by which they are activated and regulated.

b) Discuss the concepts of innate and adaptive immunity, self- non-self-discrimination, tolerance, immune regulation, immune-evasion and immunopathology in the context of infection, allergy, autoimmunity, cancer and transplantation

c) Demonstrate an understanding of how microorganisms interact with the host and cause disease, and the mechanisms by which we diagnose, treat and prevent infections and how microbes resist antimicrobial drugs.

d) Evaluate the current and potential future therapeutic applications of our knowledge of immunity and infection.
Course Structure and Module Content

The Immunity and Infection course content will include the basic organisation of the immune system, and the mechanisms by which it detects microorganisms and protects against infection, using examples of global importance. Content will also include the role of the immune system in cancer, transplantation, autoimmunity and allergy, and how our knowledge of immunology has application in the development of novel vaccines, diagnostics and therapies. You will carry out a mini-research project using key immunological techniques, and evaluate different experimental approaches used in immunology.
Module 1

The taught component structure consists of a 12-week teaching block interspersed with three consolidation weeks (i.e. Three blocks of: three weeks of teaching plus one consolidation week).

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You will learn through:

- Mini Lectures
- Tutorials
- Journal clubs
- Laboratory work
- Skills masterclasses
- Formative writing and presentation with feedback
- E-learning
- Self-directed learning
Assessments

Module 1
A1. Written assessment of specialism-specific knowledge within scientific context – 4.5% of overall BSc
You will produce a 1000 word commentary article on a research paper in the style of an editorial from The Lancet.
Submission deadline: Week 12, midday, Friday 18th December

A2. Oral assessment of specialism-specific knowledge within scientific context - 4.5%
You will give a 10 minute presentation + questions on a current area of immunity and infection research.
Oral presentations will take place: Week 11, Friday 11th December

A3. Assessment of data management, interpretation and communication of findings – 21%
You will carry out a week long mini research project. You will design your own experiments and produce data. You will write a report which includes a scientific and lay abstract.
Deadline: Week 8, midday 20th November

Module 2
A4. Assessment of group work and appraisal of literature and evidence base -15%
A5. Science in Context (SiC) - Clinical Case Study - 10%

Module 3
A6. Assessment of Project work - Research Paper -35%
A7. Assessment of Project work - Oral Presentation – 10%