

IMMUNOCEUTICA

LABS & TECHNOLOGIES

Introduction to Immunology and Infectious Diseases

Course Outline 2024

All lectures are recorded and available for flexible viewing from Friday, April 26, 2024

Instructors:

Section 1: Dr Bonnie Mallard (Professor of Immunology & Immunogenetics)

Section 2: Dr Niel Karrow (Professor of Immunology & Immunotoxicology)

Section 3: Dr Byram Bridle (Associate Professor of Viral Immunology & Cancer Biology)

ICI Course Certification Provided Upon Course Completion

Course Details

● Description

This course provides an exciting introduction into the mammalian immune system with specific emphasis on infectious diseases, including SARS-CoV-2, influenza and other relevant human and animal pathogens. The cells and tissues involved in immunity, innate and adaptive host responses, and the concept of immunity to infectious diseases will be explored in an easy-to-understand manner.

This nine-lecture course will also touch on strategies to help provide protection of the host and optimize immune function. This will include an introduction to conventional and novel vaccines, as well as immunoceuticals.

The professors teaching this course have decades of experience in teaching immunology at all levels and manage highly successful immunology-based research programs.

● Prerequisites

No prerequisites are required but any background in biology will be helpful. All concepts will be carefully explained in this introductory course. Healthcare professionals and health-conscious individuals wanting to understand the immune system will find this course particularly useful.

● Timetable

- Nine lectures (three by each professor) will be presented.
 - Lectures will be recorded to ensure flexible viewing of each topic.
 - Various live 45-60 minute Q&A sessions on Zoom with the professors will be recorded and available throughout the course to provide flexibility for those with other commitments.

Empowering Immunity Naturally to Improve Health and Well-being

- **Start Date**

Friday, April 26: Lecture 1 opens with flexible viewing throughout the course duration. Each subsequent lecture recording is released on Friday morning and will be available until two weeks after the final wrap up session

- **Exams**

No formal exams are required, but there will be optional test questions provided for you to assess your understanding of the course material. Please Note: The questions in our courses are proprietary and not available for download or copying. For the duration of your course you may review your answers to the questions in each test.

Instructional Team

Instructor 1: Professor Bonnie Mallard will teach the first three lectures which cover an overview of the immune system, including gene-by-environmental impact on immunity, and an introduction to immune response to infectious diseases, such as COVID-19.

Instructor 2: Professor Niel Karrow will give the next three lectures that cover how stress affects immune function, an introduction to immunotoxicology including how it relates to SARS-CoV-2, and immunomodulation by select immunocellulars.

Instructor 3: Professor Byram Bridle will give the final three lectures that cover an introduction to cancer immunology, viral immunology and vaccinology.

Learning Resources

All required resources will be provided to the participants

Optional Resources - *Text Book: Immunology, 8th Edition, 2013, by Judith A. Owen, Jenny Punt, Sharon A. Stanford. W.H. Freeman & Co.*

Learning Outcomes

The goal of this course is to gain a basic understanding of the structure and function of the mammalian immune system in an integrated, easy to comprehend manner. Emphasis will be placed on host defense against harmful microbes, immune system homeostasis, strategies to optimize immune function, and traditional and new vaccine strategies. An understanding of the current application of immunology in health and disease will be established.

At the end of the course, participants should be able to explain, analyze and apply:

1. Common terms used in the field of Immunology
2. The structure and function of key cells, molecules & organs of the immune system
3. How the immune system provides protection and what can go wrong and why
4. Strategies to help optimize immune function
5. Traditional and novel vaccine design and function
6. The latest on Covid-19, current variants and other emerging pathogens

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Teaching and Learning Activities

Learning Strategy: The goal is to create a friendly interactive learning environment.

- PowerPoint slides and multimedia will be used to convey the basic concepts in immunology. Key papers from the peer-reviewed literature will be discussed and provided to the students as appropriate to gain an introductory but state-of-the-art knowledge of the field of immunology.
- Lectures are recorded and released for viewing by the registered participants each week.
- Two live 45-60 minute Q&A sessions will be held each week. One Zoom link will be sent to participants to be used for all sessions.
- Participants are encouraged to participate in discussions and ask questions to enhance their understanding by joining online sessions whenever possible to support their learning experience.
- Brief guided notes will accompany the lectures and participants may download them for future reference.
- Certificates of completion will be provided to those who complete the course.
- Official grading may be provided upon request if necessary for certification by specific professional organizations.

Assessments

- Methods of assessment include optional quizzes with grades available although formal exams are not required.

Course Statements

- Students are required to check their email for course announcements regularly.
- No email sent to ICI can be considered as confidential unless clearly stated.
- Use of cell phones during the lecture is not allowed.
- Electronic recording of classes is expressly forbidden without prior written consent of the instructor.
- Students are encouraged to participate in discussions
- Any unusual incident during the conducting of the course should be immediately brought to the attention of the Professor.

Personal Information

Personal information will not be shared.

Disclaimers

This is an introductory course. Additional and more advanced courses will follow.

From time to time due to unforeseen circumstances such as illness the course timetable may need to be adjusted but every effort will be made to limit changes.

Please contact Shirlee, the course administrator for any matter concerning the course at admin@immunoceutica.ca

Course Content & Lecture Schedule: April to June 2024

Instructor: Dr. Mallard (Sessions 1-3), Dr Karrow (Sessions 4-6), Dr Bridle (Sessions 7-9)

Session Numbers & Lecture Release Dates	Topics Covered in Lecture	Q&A Session Date/Time All times in North American Eastern Daylight Time
1. Wk of Apr 29 (release Apr 26)	Introductory overview of the immune system: Cells, Organs, Genes and Micro-environments	Tues., Apr 30 @ 7:00 pm
		Thurs., May 2 @ 2:00 pm
2. Wk of May 6 (release May 3)	Innate and Adaptive Host Defense Mechanisms: Recognition of Danger Signals, Antibody and Cell-mediate Immunity, Immunological Memory	Tues., May 7 @ 7:00 pm
		Thurs., May 9 @ 2:00 pm
3. Wk of May 13 (release May 10)	Introduction to Infection and Immunity: SARS-CoV-2, Influenza, HIV-AIDS	Tues., May 14 @ 7:00 pm
		Thurs., May 16 @ 2:00 pm
4. Wk of May 20 (release May 17)	Stress and the immune system	Tues., May 21 @ 7:00 pm
		Thurs., May 23 @ 2:00 pm
5. Wk of May 27 (release May 24)	Introduction to Immunotoxicology Including how it relates to SARS-CoV-2	Tues., May 28 @ 7:00 pm
		Thurs., May 30 @ 2:00 pm
6. Wk of June 3 (release May 31)	Immunomodulation by Immunoceuticals	Tues., June 4 @ 7:00 pm
		Thurs., June 6 @ 2:00 pm
7. Wk of June 10 (release June 7)	Cancers and the Role of the Immune System: How the immune system prevents cancers from developing, shapes their development when they do grow, and how the immune system can be harnessed to treat cancers	Tues., June 11 @ 7:00 pm
		Thurs., June 13 @ 2:00 pm
8. Wk of June 17 (release June 14)	Making Sense Alphabet Soup: The Immune Response to Viruses, From A to Z.	Tues., June 18 @ 7:00 pm
		Thurs., June 20 @ 2:00 pm
9. Wk of June 24 (release June 21)	COVID-19 Shots as the Antithesis of an Ideal Vaccine: What an ideal vaccine looks like and how it works, contrasted with how COVID-19 modified RNA shots perform	Tues., June 25 @ 7:00 pm
	Wrap Up Session with all three Professors	Thurs., June 27 @ 7:00 pm
		Fri., June 28 @ 2:00 pm