

PHGY 313
BLOOD, GASTROINTESTINAL & IMMUNE SYSTEM PHYSIOLOGY
COURSE SCHEDULE
Winter 2024

Lecturers: Dr. Judith Mandl, (Coordinator), judith.mandl@mcgill.ca
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Location/Time McIntyre Bldg., Room 1034 -> Monday, Wednesday & Friday from 9:35am - 10:25am

Date	Day	Lecture Title	Lecture	Lecturer
Jan. 5	F	Introduction		J.M
8	M	Blood – Overview	1	V.B
10	W	Stem cells <i>Assignment #1 Topics for short essay will be posted via MyCourses. One assignment per student.</i>	2	V.B
12	F	Regulation of hematopoietic differentiation	3	V.B
15	M	Erythroid cells	4	V.B
17	W	Hemoglobin structure and function	5	T.P
19	F	Regulation of hemoglobin synthesis	6	T.P
22	M	Erythroid cell disorders	7	T.P
24	W	Iron regulation and erythropoiesis	8	K.P
26	F	Granulopoiesis	9	J.M
29	M	Tutorial – Blood Section (VIA ZOOM)		V.B., T.P, & K.P
31	W	Organization and structure of the Immune System, part 1	9	J.M
Feb. 2	F	Organization and structure of the Immune System, part 2	10	J.M
5	M	Innate Immunity 2: Pattern Recognition Receptors and how your immune system recognizes danger	12	D.Q
7	W	Innate Immunity 3: Complement and Antigen presenting cells (APCs)	13	D.Q
9	F	Adaptive Immunity 1: B cell development and generation of diversity • <i>Assignment #1 (Short essay) is due by 4:00pm via MyCourses</i> • <i>Assignment #2 Topic for group Infographic will be posted via MyCourses. One assignment per group</i>	14	J.M
12	M	Adaptive Immunity 2: Antibody production	15	J.M
14	W	Adaptive Immunity 3: T cell development and Self/Non self-discrimination	16	J.M
16	F	Adaptive Immunity 4: T cell activation and effector functions	17	J.M
19	M	Immunology section tutorial & In-Class Concept Test		J.M
21	W	When self-tolerance fails: Autoimmune disease <i>Assignment #2, task list is due by 4:00pm via MyCourses (1 per group only)</i>	18	J.M

Date	Day	Lecture Title	Lecture	Lecturer
23	F	When the immune system over-reacts: Allergy and hypersensitivity	19	J.M
26	M	Immunity to Viral Infections	20	J.M
28	W	Manipulation of the immune system: transplantation & immunization	21	J.M
Mar. 1	F	Immunity to Parasitic infections	22	J.M
		READING WEEK (March 4 to 8)		
11	M	Immunity to Cancer 1: the tumour microenvironment	23	D.Q
13	W	Immunity to Cancer 2: adoptive therapy & checkpoint blockade	24	H.M
15	F	Overview of the digestive system	25	M.V
18	M	Stomach Physiology	26	M.V
20	W	Exocrine functions of the GI tract I Assignment #2 (infographic) is due by 4:00pm via MyCourses (1 submission per group)	27	M.V
22	F	Exocrine functions of the GI tract II	28	M.V
25	M	Intestine Biology I	29	M.V
27	W	Intestine Biology II	30	M.V
29	F	Good Friday – NO CLASS		
Apr. 1	M	Easter Monday – NO CLASS		
3	W	Immunology of the GI tract 1	31	J.F
5	F	Immunology of the GI tract 2	32	J.F
8	M	Tutorial – Digestion Section		M.V
10	W	Regulation of energy homeostasis: Hypothalamic control of food intake	33	M.K
11	*TH	Brainstem and reward circuits in energy balance control	34	M.K
12	F	The Microbiome	35	I.K

****Thursday, April 11, 2024 follows a “Monday” schedule!***

***** Students are responsible for checking MyCourses for course notes/slides and any updates! *****

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see <http://www.mcgill.ca/srr/honest> for more information).

Using AI tools such as ChatGPT, Bard, DALL-E, and others, is equivalent to assistance from another person. Specifically, using generative AI tools to complete an assignment such a term paper or presentation is not permitted.

Every student has the right to write term papers, examinations, and theses in English or French, except in courses where knowledge of the language is one of the objectives of the course.

In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.

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“Work submitted for evaluation as part of this course may be checked with text-matching software within myCourses.”

COURSE MATERIALS

All slides will be made available to students via MyCourses. However, please note that it is **strongly recommended** that students take advantage of **additional reading materials** that are provided on slides (eg. references to reviews or primary articles, as relevant), as well as the **following textbooks** which supplement the information provided in the lectures and on the slides:

Blood Physiology:

Wintrobe's Clinical Hematology by John P. Greer, George M. Rodgers, Bertil E. Glader *et al.* Wolters Kluwer, 2019 (edition 14).

Immunology:

Janeway's Immunobiology by Kenneth Murphy, Casey Weaver *et al.* Garland Science, 2017 (9th Edition).

Kuby Immunology by Jenni Punt, Sharon Stranford, Patricia P. Jones *et al.* MacMillan Education, 2019 (8th Edition).

Gastrointestinal Physiology:

The Digestive System: Basic Science and Clinical Conditions by Margaret Smith and Dion Morton. Churchill Livingstone, 2010 (2nd Edition).

All above reference text books are available through the McGill University Library. Janeway's Immunobiology is available at the McGill bookstore for purchase and the online-version only of both Kuby and Janeway are also available for purchase online:

<https://store.macmillanlearning.com/ca/product/Kuby-Immunology-Covid-19--Digital-Update-8th-edition/p/1319495281>

<https://digital.wwnorton.com/janeway10>

EVALUATION

1. Assignment #1 – (25%)

Students are to submit an individual written short essay assignment based on a primary research article related to Blood Cell Physiology. Topics will be assigned to students **randomly** and posted via MyCourses on **Wednesday, January 10, 2024**.

The written term paper is structured as follows:

- Include a cover page with the student name, McGill ID, and title of the short essay (not included in the page count).
- Include a 200-300 word abstract (not included in the page count).
- Be no more than **3 typewritten pages, 1.5 line-spaced, Times New Roman font (12 point), with 2cm page margins**. Pages should be numbered from the start of the main text (ie, not cover page or abstract page).
- Have the following three sections: Introduction, Results, and Conclusions.
- References are to be included at the end of the document as a list and cited throughout your text. There is no page limit for references. **Endnote** has to be used to prepare the bibliography with the formatting guideline of the *Journal of Immunology* <https://www.jimmunol.org/info/authors#References>.

Additional instructions will be provided with the assignment and in Lecture 1.

The assignment is due on **Friday, February 9, 2024 by 4:00pm** and is to be submitted via the “Assignment” tab on MyCourses.

NOTE: Marks will be deducted for late submissions (*5% per day including weekends*).

2. Assignment #2 – (30%)

Students are to submit a team effort (groups of 3-4 students) producing an **infographic** using the program **BioRender** to explain an assigned concept related to Immune Cell Physiology using graphics/illustrations. Topic will be posted via MyCourses on **Friday, February 9, 2024 by 4:00pm** and students will be producing an infographic as a group, with individual tasks allocated within the group. Additional instructions will be provided with the assignment and in Lecture 1.

- An initial outline with task allocations & scheduling milestones (**bullet points, max 1 page**) should be submitted via the “**Assignment**” tab on myCourses by **one** person from each group by **Wednesday, February 21, 2024 by 4:00pm**.
- The infographic (1 per group) is to be submitted as a PDF via the “**Assignment**” tab on MyCourses on **Wednesday, March 20, 2024 by 4:00pm**.

NOTE: Marks will be deducted for late submissions (***5% per day including weekends***).

3. In-Class Concept Test (5%)

Immunology concepts covered in lectures 9-17 will be tested in a short-answer test (30 minutes) in class. As much of the remaining immunology lectures will rely on an understanding of the foundational material, this test is to ensure that students review this material. Questions will be discussed in a tutorial in the same class after the test (30 minutes).

4. Final exam – (40%)

The Final exam will consist of short answer and/or essay-style questions. All three sections of the course will be covered equally (approximately weighted by the number of lectures).

Supplemental/Deferred and **Religious Conflict** exams **will differ** from the final exam. They will consist of short answer and/or essay type questions.

MARKING SCHEME SUMMARY: The 2 assignments count for a total of 55% and the in-class test plus the final exam is worth 45%, totaling 100% of the final grade.

GRADING

The Department of Physiology will **NOT** revise/upgrade marks except on sound academic grounds. Once computed, the marks in this course will **NOT** be altered/increased arbitrarily. Please note that grades are given **relative** to the performance of all other students in the class and as such, marks are **FINAL and NON-negotiable**. **Unreasonable email requests for regrades will not be answered.**

Decimal points will be “rounded off” as follows: if the final aggregate mark is computed to be 79.5%, the mark will be reported as 80% (an A-); a final aggregate mark of 79.4% will be reported as 79% (B+).