Lecture No	031945				
Subject title	Public Health Biology			**Subject ID**	GP--b3324-L
Instructors	長谷川　久紀[HASEGAWA Hisanori]				
Semester	Fall 2025	**Level**	1st year	**Units**	2
Course by the instructor with practical experiences					

(Course director)

Takeo Fujiwara, Professor, Department of Public Health

(Instructors)

Hisanori Hasegawa, MD, PhD Junior Associate Professor, Office of Global Affairs

Yoshimitsu Akiyama, PhD Junior Associate Professor, Department of Molecular Oncology

Takasato Fujiwara, MD Hospital Director, Tanaka Clinic

Sadakatsu Ikeda, MD, PhD Professor, Cancer Center, Medical Hospital

Janelle Moross, RN Associate Professor, Office of Education

Shun Nakagama, MD,PhD Clinical Lecturer, Department of Virology & Parasitology, Osaka Metropolitan University

Hiroshi Noto, MD, PhD Director, Endocrinology Department, St. Luke's International Hospital

Koh Okamoto, MD, PhD Associate Professor, Department of Infectious Diseases

Yasuaki Tagashira, MD, PhD Junior Associate Professor, Department of Infectious Diseases

Kentaro Takahashi, MD, PhD Assistant Professor, Department of Human Genetics and Disease Diversity

Akihito Uezato, MD, PhD Professor, Center for Basic Medical Research, International University of Health and Welfare

Availability in English: All classes are taught in English.

Key word: Public Health

Lecture place

Refer to the course schedule

Course Purpose and Outline

Course Purpose:

The goals of this course are to provide students with a fundamental understanding of the biology and pathophysiology underlying major human diseases which cause significant morbidity or mortality that are necessary for the practice of public health. This course is mandatory for MPH students without MD, DDS, DMD, or RN.

Outline:

Discusses the molecular, cellular, physiological, genetic and immunological determinants of human diseases and disease susceptibility, including infectious disease, pulmonary diseases related to air pollution, diabetes and obesity, cardiovascular diseases, stress-related conditions, psychiatric diseases, perinatal complications, and cancer. Focuses on how biological principles help to understand the development, treatment and prevention of disease, and to assess risk from potentially hazardous agents and behaviors.

Course Objective(s)

Upon successfully completing this course, students will be able to:

・Describe the public health strategies for the prevention of infectious diseases of public health concern worldwide

・Explain how a vaccine works to achieve resistance to an infectious organism, define the term herd immunity, and explain how it provides protection for the non-immunized person as well as its philosophical consideration

・Describe the psychophysiological effector mechanisms that represent the stress response and the effect of the stress response on the target organ systems and its public health implications

・Describe the prevalence, clinical manifestations, natural history and societal impact, pathophysiology, and management of mood and anxiety disorders, schizophrenia, developmental disorders, and dementia

・Outline normal pregnancy and parturition and describe the effects of host environment on fetus

・Describe the public health strategies for the prevention of pulmonary diseases related to air pollution and the respiratory tract infection of

public-health concerns

·Describe the public health burden (domestic and global) of and the public health strategies for the prevention of cardiovascular diseases

·Describe the public health burden (domestic and global) of and the public health strategies for the prevention of diabetes/obesity

·Define genetics and its relationship to the health of individuals and populations, and define major ethical, legal, and social implications of genetics as applied in the clinical setting and in public health

·Describe the effects of epigenetic states on health outcomes related to cardiovascular and respiratory disease, aging, reproductive health, neurological and neuropsychological diseases, and cancer

·Describe the public health burden (domestic and global) of and the public health strategies for various cancer

Lecture plan

No	Date	Time	Room	Lecture theme	Staff	Learning objectives・Learning methods・Instructions
1	10/8	08:50-10:20	G-Lab	Host response to infection: the immune response and vaccination	HASEGAWA Hisanori	Objectives:2) Class Style:Class discussion Pre-Assignments:Refer course syllabus on the WebClass
2	10/8	10:45-12:15	G-Lab	Host response to infection: the immune response and vaccination	HASEGAWA Hisanori	Objectives:2) Class Style:Class discussion Pre-Assignments:Refer course syllabus on the WebClass
3	10/8	13:30-15:00	On-demand	Pulmonary diseases related to air pollution and respiratory tract infection of public-health concern	Takasato Fujiwara	Pre-Assignments:Refer syllabus on the WebClass
4	10/9	08:50-10:20	On-demand	Genetics for public health students	TAKAHASHI Kentaro	Pre-Assignments:Refer syllabus on the WebClass
5	10/9	10:45-12:15	On-demand	Genetics for public health students	TAKAHASHI Kentaro	Pre-Assignments:Refer syllabus on the WebClass
6	10/10	13:30-15:00	On-demand	Essentials of obstetrics for public health students	JANELLE RENEE MOROSS	Pre-Assignments:Refer course syllabus on the WebClass
7	10/14	8:50-10:20	On-demand	Cardiovascular diseases for public health students	NAKAGAMA Shunn	Pre-Assignments:Refer course syllabus on the WebClass
8	10/14	10:45-13:15	On-demand	Cardiovascular diseases for public health students	NAKAGAMA Shunn	Pre-Assignments:Refer course syllabus on the WebClass
9	10/14	13:30-15:00	On-demand	Diabetes and obesity for public health students	NOTO Hiroshi	Pre-Assignments:Refer course syllabus on the WebClass
10	10/14	15:25-16:55	On-demand	Diabetes and obesity for public health students	NOTO Hiroshi	Pre-Assignments:Refer course syllabus on the WebClass
11	10/15	8:50-10:20	On-demand	Cancer for public health students	IKEDA Sadakatsu	Pre-Assignments:Refer syllabus on the WebClass
12	10/15	10:45-12:15	On-demand	Pathogens, infection, and infectious diseases	OKAMOTO Koh	Pre-Assignments:Refer syllabus on the WebClass
13	10/15	13:30-15:00	On-demand	Pathogens, infection, and infectious diseases	TAGASHIRA Yasuaki	Pre-Assignments:Refer syllabus on the WebClass
14	10/15	15:25-16:55	On-demand	Epigenetics for public health students	AKIYAMA Yoshimitsu	Pre-Assignments:Refer syllabus on the WebClass
15	10/16	8:50-10:20	On-demand	Stress Response / Essentials of neuroscience and psychiatric illnesses	UEZATO Akihito	Pre-Assignments:Refer syllabus on the WebClass
16	10/16	10:45-12:15	On-demand	Stress Response / Essentials of neuroscience and psychiatric illnesses	UEZATO Akihito	Pre-Assignments:Refer syllabus on the WebClass

Lecture Style

·Except for the lecture "Host response to infection: the immune response and vaccination (session 1&2)", all the other lectures will be delivered on-demand (asynchronous).

·Lecture videos will be uploaded to the

"IL2500488 Public Health Biology 2025 (Autumn semester)" course in WebClass.

·Videos will be only available on WebClass during Oct 6～9:00 am on November 14, 2025.

Course Outline

Refer to the course schedule

Grading System

The final grade will be based on the sum of all points granted. For those students who fail to meet the requirements for grading or those students who did not fulfill attendance requirements or other necessary requirements, the grade will be marked as credit not granted.

Grading Criteria

Grades are finalized by considering the sum of all points granted for the following items.

(1) Class Attendance: 25% of the total course points

(2) Final Report: 75% of the total course points

Evaluation of the Final Report will be based NOT on the quantity (the length) but on the quality (content and organization) by taking into account the following factors:

·Analytical ability and insights

·Reasoning skills

·Ability to develop and evaluate hypotheses

·Comprehension of learned concepts and frameworks

·Strength of the argument presented

Prerequisite Reading

Preparation (reading, viewing, assignments, etc) will be specified in the course syllabus which will be provided to registered students on WebClass.

Exam eligibility

There will be no final exams in this course. Course gradings will be based on the sum of all points granted from the Class Participation and Final Report.

Module Unit Judgment

2 units

TextBook

Please purchase the following textbooks before the session "Genetics for public health students".

<Sessions 4 and 5>

Human Genetic Diversity

by Julian C. Knight

Oxford University Press ISBN 978-0199227709

Reference Materials

Reference materials will be specified in the course syllabus on WebClass.

Important Course Requirements

(1) Lecture style

·Except for the lecture "Host response to infection: the immune response and vaccination (session 1&2)", all the other lectures will be delivered on-demand (asynchronous).

·Lecture videos will be uploaded to the

"IL2500488 Public Health Biology 2025 (Autumn semester)" course in WebClass.

·Videos will be only available on WebClass during Oct 8～Oct 17 23:59.

(2) Self Introduction

Set your concrete goal for taking this course and post it, along with your self-introduction, to the course mailing list (phb@ml.tmd.ac.jp) by 7th of Oct (Tue) 19:00.

(3) Attendance

·Attendance of at least 11 out of 16 sessions.

·Attendance will be checked through your browsing history of each session's video.

·75% or more viewing per video on WebClass is required for attendance.

·For the in person lecture, you will be marked as absent if you are more than 10 minutes late or you leave the class more than 10 minutes before the class ends. However, if tardiness overall is excessive (in frequency and length, even if it does not go beyond the 10-minute allowance range), some points may be deducted when calculating your final grade.

(4) Preparation Assignments

Students are required to do preparation assignments as specified by each session in this syllabus. Preparation Assignments assist you in understanding the topic for the class.

(5) Preparation and Class Participation

All sessions are conducted with the assumption that all students are fully prepared. Students attending class without having prepared will not benefit themselves. Therefore, all students are expected to prepare thoroughly.

(6) Submission of Final Report

A report is required for the completion of the course and its deadline will be specified in the course syllabus. The most important point in completing the Final Report is to develop and explain your own opinions which should be thought through thoroughly and lead you to make your own conclusion. Merely summarizing cases, methods or frameworks is not sufficient. Explain your thoughts clearly and concisely. Use simple and clear expressions. If you use any charts in your Report, clarify and explain what information those can tell readers. Detailed direction for Final Report will be given at the end of this course syllabus. Final report is due at 9:00 am on November 14th, 2025.

Note: Measures against cheating and plagiarism

When writing your Final Report, it is strictly forbidden to copy or use ideas from Final Reports of your classmates or those students who took this course in past terms, handouts from other courses, or materials from past terms. Students should refrain from sharing solutions for Final Report exercises and any other information that could impact the outcome of it through any forms of communication. Both the provider and beneficiary of relevant information shall become disqualified from completing the course in the case of such cheating and plagiarism.

Note(s) to Students

Preparation assignments, dates, time, location of each session are subject to change. Please check with the most updated course syllabus.

Email

HASEGAWA Hisanori: hasegawa.rheu@tmd.ac.jp

Instructor's Contact Information

HASEGAWA Hisanori:Please call 81600 or mail hasegawa.rheu@tmd.ac.jp if contact needed.