

Category (科目区分)	Cluster of Metabolism and Information Systems		
Course Title (授業科目名)	Experimental diabetology		
Instructors (担当者名)	Hironori Waki	Academic Year (配当年次)	1, 2
Required Course / Elective Course (必修/選択)	Elective Course	Credits (単位数)	1
Class Format (授業形態)	Experimental practice		
Schedule (開講期間)	Students will be notified by email after completing the course registration.		
Class Date/Period (開講曜日・時間)	Students will be notified by email after completing the course registration.		

Course Outline/ Course Objectives (授業の概要・到達目標)

Aim: To learn techniques for the research to elucidate pathophysiology and to develop a treatment of diabetes and diabetic complications.

Goal: To learn how to conduct experiments, analyze experimental data, submit and publish research articles in scientific journals, and obtain a doctoral degree.

Outline:

- 1 Diabetology basics and ethics of animal experiments
- 2 Cell culture (adipocyte differentiation)
- 3 Analysis of cultured cells (lipid staining, mRNA expression)
- 4 Measurement of glucose levels of diabetic mice and drug treatment
- 5 Genetically engineered mice and their genotyping
- 6 Measurement of blood pressure of experimental mice
- 7 Measurement of biochemical parameters in blood of experimental mice
- 8 Dissection of experimental mice
- 9 Messenger RNA extraction from tissues and measurement of mRNA by RT-qPCR
- 10 Protein extraction from tissues and measurement of protein by Western blotting
- 11 Microscopic examination of tissues and Immunohistochemistry
- 12 Analysis of experimental data

Course Planning (授業計画)

	Course Outline/ Course Objectives (授業の概要及び到達目標) (Contents of Class) (授業内容)	Instructor (担当教員名)	Department (講座名) Class Room [実施場所]
1	Diabetology basics and ethics of animal experiments	Hiroki Fujita, assistant professor	Department of Metabolism and Endocrinology [laboratory]
2	Cell culture (adipocyte differentiation)	Hironori Waki, professor	
3	Analysis of cultured cells (lipid staining, mRNA expression)	Hironori Waki, professor	
4	Measurement of glucose levels of diabetic mice and drug treatment	Hiroki Fujita, assistant professor	
5	Genetically engineered mice and their genotyping	Hiroki Fujita, assistant professor	
6	Measurement of blood pressure of experimental mice	Tsukasa Morii, lecturer	
7	Measurement of biochemical parameters in blood of experimental mice	Tsukasa Morii, lecturer	
8	Dissection of experimental mice	Hiroki Fujita, assistant professor	
9	Messenger RNA extraction from tissues and measurement of mRNA by RT-qPCR	Tsukasa Morii, lecturer	
10	Protein extraction from tissues and measurement of protein by Western blotting	Hiroki Fujita, assistant professor	
11	Microscopic examination of tissues and Immunohistochemistry	Hiroki Fujita, assistant professor	
12	Analysis of experimental data	Hiroki Fujita, assistant professor	

Grading Criteria (成績評価の基準と方法)

1 credit is composed of experimental practice (30 hours) + self study (15 hours) (total 45 hours).
Evaluation will be made based on attendance, oral test, paper test and report.

Contact Information (問い合わせ先(氏名, メールアドレス等))

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Coment (その他特記事項)

Information about the course: If a graduate student who is a member of society can't attend the practice due to work, we will adjust the schedule.

Textbook/Reference Books: The Japan Diabetes Society (ed.) "Training Guidebook for Diabetes Specialists".

Out of Class Study/Message: Preparation and review in accordance with the achievement goal, topics, and contents of class are essential.