

## 2024 Akita University Faculty of Medicine Syllabus

<b>Category</b>	: 基礎医学 IV
<b>Course Title</b>	: Physiology and Pharmacology lab - 生理学実習・生体機能実習・薬理学実習 -
<b>Eligible Students</b>	: grade 2 Related Course
<b>Code</b>	: 71563021
<b>Schedule</b>	: week 28 ~ week 29
<b>Credits</b>	: 2

### 1. Lead Instructor

Kota Saito (Professor, Biological Informatics and Experimental Therapeutics, 6065)

### 2. Instructors

Kota Saito (Professor, Biological Informatics and Experimental Therapeutics, 6065)

Tomohiro Numata (Professor, Integrative Physiology, 6272)

Takafumi Miki (Professor, Cell Physiology, 6069)

Shinsuke Seki (Associate Professor, Bioscience Educational And Research Support Center, 6195)

### 3. Course Description Outline(Course Objectives)

In order to deepen understanding of biological functions, students will practice measuring electrical phenomena from nerves, membranes, and muscles, and collecting information from living organisms. The practical training will consist of the following 6 topics (1-1 1-2, 2-1 2-6, 2-8, 3-1 3-7, 4-1 4-7, 5-1 5-4, 6-1 6-2).

1. Frog sciatic nerve action potential recording
2. Frog skeletal muscle contractility recording practice
3. Informed consent practice
4. Drug action mechanism practice in mice
5. Practical training on superficial and deep sensation
6. Practical training on determination of central nervous system excitability

All students will be divided into 6 groups, each group will practice one theme per day for a total of 6 themes in 2 weeks.

### 4. Textbook/Reference Books

スタンフォード神経生物学、カンデル神経科学、人体の正常構造と機能

### 5. Assessment

Attendance, report

### 6. Out of Class Study/Message

Sufficient self-study time will be given, so please study the contents of the training thoroughly.

Topics and Contents of class, Course Objectives						
	Class Date	Period	Class Format	Topics and Contents of class, Course Objectives	Instructors	Class Room
1	11 / 11 (Mon)	1-10	Practice	Theme: Orientation On the first day, the participants will be divided into groups, briefed on the content of the practical training, and given a few notes. During the demonstration, several representatives from each group will be selected to collect data according to the actual training protocol. The instructor will provide detailed explanations and practical guidance on the practical techniques, equipment handling, and data analysis, so that the students will be able to fully master the techniques. On the day of the practical training, the representative of the group will take the lead in conducting the practical training. Group assignment will be announced on the day of the training.	Kota Saito Tomohiro Numata Takafumi Miki	第 2 講義室
2	11 / 12 (Tue)	1-10	Practice	Theme: Practice Each group will practice on the first theme. Note that the location of the laboratory will differ according to the theme. Recording of nerve action potentials in the frog sciatic nerve: 第 2 実習室 Frog skeletal muscle contractility recording: 第 2 実習室 Informed consent practice: 第 4 実習室 Practice on mechanism of drug action in mice : 第 4 実習室 Practice of superficial and deep sensation :第 2 実習室 Practical training for determination of central nervous system excitability : 第 2 講義室	Kota Saito Tomohiro Numata Takafumi Miki	To the place specified for each theme
3	11 / 13 (Wed)	1-10	Practice	Theme: Practice Each group will practice on the second theme.	Kota Saito Tomohiro Numata Takafumi Miki	To the place specified for each theme
4	11 / 14 (Thu)	1-10	Practice	Theme: Practice Each group will practice on the third theme.	Kota Saito Tomohiro Numata Takafumi Miki	To the place specified for each theme
5	11 / 15 (Fri)	1-10	Self learning	Theme: Practice Prepare a report summarizing the results and discussion of the experiment.		
6	11 / 18 (Mon)	1-10	Self learning	Theme: Practice Prepare a report summarizing the results and discussion of the experiment.		
7	11 / 19 (Tue)	1-10	Practice	Theme: Practice Each group will practice on the fourth theme.	Kota Saito Tomohiro Numata Takafumi Miki	To the place specified for each theme
8	11 / 20 (Wed)	1-10	Practice	Theme: Practice Each group will practice on the fifth theme.	Kota Saito Tomohiro Numata Takafumi Miki	To the place specified for each theme

Topics and Contents of class, Course Objectives						
	Class Date	Period	Class Format	Topics and Contents of class, Course Objectives	Instructors	Class Room
9	11 / 21 (Thu)	1-10	Practice	Theme: Practice Each group will practice on the sixth theme.	Kota Saito Tomohiro Numata Takafumi Miki	To the place specified for each theme
10	11 / 22 (Fri)	1-10	Self learning	Theme: Practice Prepare a report summarizing the results and discussion of the experiment.		