

Category (科目区分)	Cluster of Neuroscience System		
Course Title (授業科目名)	Ion channels and neurological function / experimental practice		
Instructors (担当者名)	Tomohiro Numata	Academic Year (配当年次)	1
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 the course registration is complete.		
Class Date/Period (開講曜日・時間)	Students will be notified by email after the course registration is complete.		
Course Outline/ Course Objectives (授業の概要・到達目標)			
Class purpose: Understand the latest research articles on ion channel areas based on basic knowledge as a medical student.			
Class Achievement Goal: To acquire extensive knowledge to understand the essence of the latest research papers related to ion channels.			
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	Features of Na ⁺ channels	Tomohiro Numata	Department of Integrative Physiology [Reserch Building for Basic Medicine 5th floor, Seminar Room]
2	Features of Ca ⁺⁺ channels		
3	Features of Piezo channels		
4	Features of TRP channels		
5	Neurotransmitters and ion channels		
6	Signal transduction mechanism of endocrine cells		
7	Neural mechanism of neurological disorders		
8	Neural mechanism of neurological disorders		
9	Neural mechanism of metabolic disorders		
10	Neural mechanism of metabolic disorders		
Grading Criteria (成績評価の基準と方法)			
Thirty hours of practical training and 15 hours of self-study in the seminar room, a total of 45 hours, will be used for one unit.			
Grades will be considered by attendance, examination results, and reports.			
Contact Information (問い合わせ先(氏名, メールアドレス等))			
Name: Prof. Tomohiro Numata / E-mail: numata@med.akita-u.ac.jp			
Coment (その他特記事項)			
Information about courses: If you cannot attend the training due to work, such as working graduate students, we will adjust the schedule, including remote lectures and discussions.			
We accept participation not only from the medical field but also from a wide range of fields.			
Textbooks / References: Textbooks / References: "Standard Physiology" Igaku-Shoin			