

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RMM5-011-79-2	2023spring	Graduate School of Medical Sciences (10140)	1, 2	1	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Introduction for Laboratory Animal Experiments(B7)			Takeo Tooru, TORIGOE Daisuke, NAKAMURA Akira, KOJIMA Akihiro, ARAKI Kimi, ARAKI Masatake		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……80% 2.Profound inter-disciplinary knowledge ……10% 3.Global perspective and ability to take initiative action ……10%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	Mainly PowerPoint will be used in lectures and active participation in discussions is encouraged.				
Course Goals(授業の目的)	To provide students with opportunities to gain an understanding of laboratory animals (especially mice).				
Course Learning goals(学修目標)	<p>[A level (A水準)] To understand and explain the basics for experimental model animals, manipulation of mouse embryos, genetically engineered mice and experiments using animals. Moreover, to develop it to the leading life science and pharmacy.</p> <p>[C level (C水準)] To understand and explain the basics for experimental model animals, manipulation of mouse embryos, genetically engineered mice and experiments using animals.</p>				
Course Outline(授業の概要)	<p>1) Reproductive engineering technology in mice 2) Infectious diseases of laboratory animals 3) Small animal experiment using molecular imaging 4) Production of knock-out mice, transgenic mice and genome editing 5) Production of gene trap mice 6) Principle of the RNA silencing technology</p>				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	07/10	1st period, Reproductive engineering technology in mice I by TAKEO Tooru	Lecture and discussion about reproductive engineering technology in mice I		
2	07/10	2nd period, Reproductive engineering technology in mice II by TAKEO Tooru	Lecture and discussion about reproductive engineering technology in mice II		
3	07/10	3rd period, Infectious diseases of laboratory animals by TORIGOE Daisuke	Lecture and discussion about infectious diseases of laboratory animals		
4	07/10	4th period, Small animal experiment using molecular imaging by KOJIMA Akihiro	Lecture and discussion about small animal experiment using molecular imaging		
5	07/11	1st period, Production of transgenic mice by ARAKI Kimi	Lecture and discussion about production of transgenic mice		
6	07/11	2nd period, Knock-out mice and genome editing by ARAKI Kimi	Lecture and discussion about knock-out mice and genome editing		
7	07/11	3rd period, Production of gene trap mice by ARAKI Masatake	Lecture and discussion about production of gene trap mice		
8	07/11	4th period, Principle of the RNA silencing technology by NAKAMURA Akira	Lecture and discussion about principle of the RNA silencing technology		
Estimated out-of-class study time					
Required Textbook(テキスト)	Handouts				
Reading List(参考文献)	<ul style="list-style-type: none"> ・ Behringer, Richard/Nagy, Kristina/Gertsenstein, Marina, R. Manipulating the mouse embryo: a laboratory manual (4th ed.). Cold Spring Harbor Laboratory Press, 2013. ・ Virginia E. Papaianou and Richard R. Behringer. Mouse Phenotypes: A Handbook of Mutation Analysis. Cold Spring Harbor Laboratory Press 2005. ・ Fox, J.G., Barthold, S.W., Davisson, M.T., Newcomer, C.E., Quimby, F.W. &Smith, A.L. ・ The mouse in biomedical research, vol.2 diseases (2nd ed.). Academic Press, 2007. 				
Enrollment Conditions(履修条件)	Knowledge about molecular biology				
Assessment Methods and Criteria(評価方法・基準)	Grading will be based on active participation in a class, quizzes, paper summaries, and the final report to evaluate the student's understanding of the course subject matter. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.				
Language Used in Instruction(使用言語)	Japanese				
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				