

Doctoral Program in Biomedical Sciences

Common Subjects

| Course Number | Course Name | Course Type | Credits | Standard Academic Year | Course Offering Term | Weekday and Period | Classroom | Instructor | Course Overview | Remarks |
|---------------|---|-------------|---------|------------------------|----------------------|--------------------|-----------|--|--|--|
| O2EW037 | Initiation Seminar for Career Path | 1 | 1.0 | 1 | Fall/A | Intensive | | Chair of Biomedical Sciences | In this first course of the Doctoral program in Biomedical Science, the students study the aims and objectives of the program, curriculum policies, lineups and time tables of the curriculum, and possible research topics in the program. In the career path seminar, the students recognize a wide variety of possible future careers through lectures by guest lecturers, have discussions with their classmates, and then make study plans for the program. | Compulsory (Choose either O2EW001, which was available until 2016) 10/13-10/14 |
| O2EW002 | Introduction to Medical Research | 1 | 1.0 | 1, 2 | Spr/AB | Thu/Fri 7, 8 | 4A203 | Kazuya Morikawa | This course provides the opportunities for the students to learn the essential knowledge of the physical- and chemical-hazard, bio-hazard, information security, research ethics, and legal requirements, and also to understand how to use the research facilities and equipments on biomedical research. | Compulsory |
| O2EW003 | Seminar in Medical Sciences | 2 | 3.0 | 1, 2 | Annual | by appointment | | Chair and Chief of the Academic Committee of Biomedical Sciences | Students attend 3 or more designated 'seminars in medical sciences' and participate in discussion. In addition, students will deepen their understanding by reading original research papers in a related field, by conducting a discussion about its contents with their advising faculty, and by writing papers. | Compulsory |
| O2EW004 | Special Studies on Medical Sciences | 2 | 2.0 | 1, 2 | Annual | by appointment | | Chair of Biomedical Sciences, Research supervisors | Students learn fundamental knowledges required to set their PhD research subjects and how to obtain them under the instruction of their research supervisors. Then the students determine their research subjects as well as the methods to fulfill their research questions. The students then submit necessary applications for the PhD research, and make up a prospect for completing the dissertation. | Compulsory |
| O2EW005 | Special Practice in Medical Sciences | 2 | 5.0 | 1, 2 | Annual | by appointment | | Chair of Biomedical Sciences, Research supervisors | Students will learn how to analyze the research results and to understand the significance of the results under the supervision of professors. Students will also plan and perform the next research process and repeat this cycle. | Compulsory |
| O2EW031 | Technical English in Medical Sciences | 2 | 2.0 | 1, 2 | Annual | by appointment | | Flaminia Miyamasu | Students will first learn the basic principles of scientific writing style and composition. They will then apply these principles by writing and editing their own research papers. | |
| O2EW033 | Research Presentation and Discussion | 2 | 1.0 | 2, 3 | Spr/ABC | Wed2 | | Hiroyuki Suzuki, Thomas Mayers | Invited speakers and students give presentation about their research and discuss them in English | |
| O2EW007 | International practical medical science | 1 | 3.0 | 1 - 4 | Annual | by appointment | | Tadachika Koganezawa | Through presentations of research results at international academic conferences and training abroad, students acquire language ability and learn presentation methods while experiencing internationally recognizable research by holding discussions with researchers overseas. Furthermore, students actively participate in educational research abroad and discussions as well as practice teaching in English. | |

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| 02EW010 | Training in Medical Science Education | 3 | 1.0 | 2, 3 | Annual | by appointment | | Chair of Biomedical Sciences, Research supervisors | In this subject, students firstly need to understand i) the objectives of the student education of this Doctoral Program, and ii) the role of each course toward achieving the objectives. Then, the students will join in iii) preparing the syllabus of a certain course together with supervisors, iv) give lecture in the course, and v) evaluate participants in the course. The students will be evaluated by the participants of the course which you will join in. | |
| 02EW034 | International Discussion on Medical Sciences I | 2 | 2.0 | 1 | SprABC | Fri1-3 | | Kenji Irie, Ryosuke Ohniwa | Focusing on molecular biology of the cell, International discussion on medical sciences I provides the opportunities for the students to have interactive online distance learning with the National Taiwan University and the Kyoto University, and to be engaged in thesis presentation and discussion conducted in English. In this course, the students should be able to understand basic knowledge of life sciences and acquire scientific communication skills in English. | |
| 02EW035 | International Discussion on Medical Sciences II | 2 | 2.0 | 1 | FallABC | Wed1-3 | | Kenji Irie, Ryosuke Ohniwa | Focusing on molecular cell biology and cancer biology, International discussion on medical sciences II provides the opportunities for the students to have interactive online distance learning with the National Taiwan University and the Kyoto University, and to be engaged in thesis presentation and discussion conducted in English. In this course, the students should be able to understand basic knowledge of life sciences and acquire scientific communication skills in English. | |
| 02EW008 | Advanced Seminar in Medical Sciences | 1 | 3.0 | 1, 2 | Annual | by appointment | | Yoshito Kumagai, All faculty members of Biomedical Sciences | Students attend lectures about the new concepts and technologies underlying research in the post-genome-era medical and biological sciences and conduct discussions on their contents. | Lectures are conducted in Japanese |
| 02EW009 | Lecture on Critical Path Research Management | 1 | 2.0 | 1, 2 | FallABC | Mon6, 7 | 4F204 | Koichi Hashimoto, Masafumi Muratani | This course aims to equip students with an understanding the process of critical path research and translational research, using to translate the finding in basic research more quickly and efficiently into medical practice. | |
| 02EW036 | Internship I | 0 | 1.0 | 1 - 4 | Annual | by appointment | | Kazuya Morikawa | The goal of this course for students is to build up work consciousness and business ability, and to understand future roles expected for PhD students in Medical field. | |
| 02EW038 | Internship II | 0 | 1.0 | 1 - 4 | Annual | by appointment | | Kazuya Morikawa | The goal of this course for students is to build up work consciousness and business ability, and to understand future roles expected for PhD students in Medical field. | |
| 02EW039 | English Topics in Science I | 2 | 1.0 | 1 - 4 | SprC | Tue/Thu 4 | | Bryan James Mathis | To reinforce English vocabulary and fluency in discussing scientific concepts in a diverse array of research fields while introducing cutting edge technologies. Students will develop critical thinking and questioning skills for use in conferences, presentations and daily scientific work. | |

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| 02EW040 | English Topics in Science II | 2 | 1.0 | 1 - 4 | SprC | Tue/Thu 4 | | Bryan James Mathis | To reinforce English vocabulary and fluency in discussing scientific concepts in a diverse array of research fields while introducing cutting edge technologies. Students will develop critical thinking and questioning skills for use in conferences, presentations and daily scientific work. | |

Specialized Sciences

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|---------------|---|-------------|---------|------------------------|----------------------|--------------------|-----------|---|---|------------|
| 02EW101 | Lectures in Biomedical Research | 1 | 1.0 | 1, 2 | FallABC | Wed7 | | Chair of Biomedical Sciences, Research supervisors | Lecture in Biomedical Sciences provides the opportunities for the students to learn the ongoing researches performed in the doctoral programs of Biomedical Sciences and discuss the research contents in English. The students consider the relationship between these subjects and their own research and make reports on it. | Compulsory |
| 02EW401 | Lecture and Discussion in Molecular Medical Sciences I | 1 | 2.0 | 1, 2 | SprABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology. This lecture is aimed to take comprehensive knowledge required for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics through a presentation and discussion of the latest research results obtained in the affiliated laboratories. | |
| 02EW402 | Lecture and Discussion in Molecular Medical Sciences II | 1 | 2.0 | 1, 2 | FallABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology. This lecture is aimed to take comprehensive knowledge required for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics through a presentation and discussion of the latest research results obtained in the affiliated laboratories. | |
| 02EW403 | Seminar in Molecular Medical Sciences I | 2 | 2.0 | 1, 2 | SprABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | This seminar is aimed to understand the purpose, methods, and results of latest articles related to Anatomy and Embryology, Reproductive Biochemistry, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics. They also discuss the significances, problems, and future directions of the study. | |

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| 02EW404 | Seminar in Molecular Medical Sciences II | 2 | 2.0 | 1, 2 | Fall/ABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | This seminar is aimed to understand the purpose, methods, and results of latest articles related to Anatomy and Embryology, Reproductive Biochemistry, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics. They also discuss the significances, problems, and future directions of the study. | |
| 02EW405 | Practice in Molecular Medical Sciences I | 3 | 2.0 | 1, 2 | Spr/ABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | This course is aimed to learn the principles and methods of experiments and analysis for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics. | |
| 02EW406 | Practice in Molecular Medical Sciences II | 3 | 2.0 | 1, 2 | Fall/ABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | This course is aimed to learn the principles and methods of experiments and analysis for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics. | |
| 02EW407 | Lecture and Discussion in Molecular Medical Sciences I | 1 | 2.0 | 1, 2 | Spr/ABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology. This lecture is aimed to take comprehensive knowledge required for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics through a presentation and discussion of the latest research results obtained in the affiliated laboratories. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW408 | Lecture and Discussion in Molecular Medical Sciences II | 1 | 2.0 | 1, 2 | Fall/ABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology. This lecture is aimed to take comprehensive knowledge required for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics through a presentation and discussion of the latest research results obtained in the affiliated laboratories. | Open to Day/Evening course students. 昼夜制学生に限る |

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| 02EW409 | Practice in Molecular Medical Sciences I | 3 | 2.0 | 1, 2 | SprABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | This course is aimed to learn the principles and methods of experiments and analysis for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW410 | Practice in Molecular Medical Sciences II | 3 | 2.0 | 1, 2 | FallABC | by appointment | | Koji Hisatake, Kenji Irie, Ken Nishimura, Norihiko Ohbayashi, Masayuki Masu, Satoru Takahashi, Shunsuke Ishii, Yukio Nakamura, Keiji Tanaka | This course is aimed to learn the principles and methods of experiments and analysis for research on Anatomy and Embryology, Molecular Cell Biology, Gene Regulation, Physiological Chemistry, Molecular Neurobiology, Molecular Behavioral Genetics, and Molecular Genetics. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW411 | Lecture and Discussion in Human Medical Biology I | 1 | 2.0 | 1, 2 | SprABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | Students conduct molecular biological and biotechnological research approach to understand regulatory mechanisms of biological phenomena and pathogenic processes of human being at the individual and/or cellular levels. In this subject, students give presentations on their own research and have discussion on research achievement and future plan. Students are required to attend the classes organized by multiple faculties including their own research supervisor. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | |
| 02EW412 | Lecture and Discussion in Human Medical Biology II | 1 | 2.0 | 1, 2 | FallABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | Students conduct molecular biological and biotechnological research approach to understand regulatory mechanisms of biological phenomena and pathogenic processes of human being at the individual and/or cellular levels. In this subject, students give presentations on their own research and have discussion on research achievement and future plan. Students are required to attend the classes organized by multiple faculties including their own research supervisor. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | |

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| 02EW413 | Seminar in Human Medical Biology I | 2 | 2.0 | 1, 2 | SprABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | This seminar is aimed to understand the purpose, methods, and results of latest articles. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | |
| 02EW414 | Seminar in Human Medical Biology II | 2 | 2.0 | 1, 2 | FallABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | This seminar is aimed to understand the purpose, methods, and results of latest articles. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | |
| 02EW415 | Practice in Human Medical Biology I | 3 | 2.0 | 1, 2 | SprABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | This course is aimed to learn the principles and methods of experiments and analysis for research. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | |

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| 02EW416 | Practice in Human Medical Biology II | 3 | 2.0 | 1, 2 | Fall IABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | This course is aimed to learn the principles and methods of experiments and analysis for research. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | |
| 02EW417 | Lecture and Discussion in Human Medical Biology I | 1 | 2.0 | 1, 2 | Spr ABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | Students conduct molecular biological and biotechnological research approach to understand regulatory mechanisms of biological phenomena and pathogenic processes of human being at the individual and/or cellular levels. In this subject, students give presentations on their own research and have discussion on research achievement and future plan. Students are required to attend the classes organized by multiple faculties including their own research supervisor. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW418 | Lecture and Discussion in Human Medical Biology II | 1 | 2.0 | 1, 2 | Fall IABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | Students conduct molecular biological and biotechnological research approach to understand regulatory mechanisms of biological phenomena and pathogenic processes of human being at the individual and/or cellular levels. In this subject, students give presentations on their own research and have discussion on research achievement and future plan. Students are required to attend the classes organized by multiple faculties including their own research supervisor. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | Open to Day/Evening course students. 昼夜制学生に限る |

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| 02EW419 | Practice in Human Medical Biology I | 3 | 2.0 | 1, 2 | SprABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | This course is aimed to learn the principles and methods of experiments and analysis for research. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW420 | Practice in Human Medical Biology II | 3 | 2.0 | 1, 2 | FallABC | by appointment | | Mitsuyasu Kato, Peter ten Dijke, Fumihiro Sugiyama, Masayuki Noguchi, Michio Nagata, Akira Shibuya, Kazuko Shibuya, Osamu Ohneda, Koji Tsuboi, Takeji Sakae, Atsushi Kawaguchi, Kazuya Morikawa, Kiong Ho, Tadachika Koganezawa, Masayuki Matsumoto, Hiroshi Miyoshi, Hiromi Yanagisawa | This course is aimed to learn the principles and methods of experiments and analysis for research. The research fields involved in this subject are, experimental pathology, cancer signaling, animal models for human disease, diagnostic pathology, kidney and vascular pathology, Immunology, regenerative medicine, radiation life science, medical physics, infection biology, neurophysiology, cognitive and behavioral neuroscience, biomedical engineering, and vascular biology. | Open to Day/Evening course students. 昼夜制学生に限る |

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| 02EW421 | Lecture and Discussion in Genome and Environmental Medicine I | 1 | 2.0 | 1, 2 | SprABC | by appointment | | Naoyuki Tsuchiya, Kazumasa Yamagishi, Yoshito Kumagai, Ichiyo Matsuzaki, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada, Shigeyuki Kano | <p>In this course, each laboratory opens a series of classes in which how to design and conduct research and interpret the findings is discussed. The topics covered in this course include genomic factors, environmental factors and their interactions involved in diseases, as well as human adaptation to environment and its medical significance. The students are requested to present their own research plans and findings, followed by discussion by staff members and all attending students. In some laboratories, lectures pertinent to these issues will be given.</p> <p>Each student is required to attend the classes given by his/her research supervisor, as well as at least one series of classes given by other laboratories belonging to the Doctoral Program in Biomedical Sciences (not restricted to the laboratories who hold the lectures for the genome and environmental medicine). Attendance at 20 classes is required to earn 2 credits each semester.</p> <p>Please be sure to contact the responsible faculty members when attending the lectures held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | |
| 02EW422 | Lecture and Discussion in Genome and Environmental Medicine II | 1 | 2.0 | 1, 2 | FallABC | by appointment | | Naoyuki Tsuchiya, Kazumasa Yamagishi, Yoshito Kumagai, Ichiyo Matsuzaki, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada, Shigeyuki Kano | <p>In this course, each laboratory opens a series of classes in which how to design and conduct research and interpret the findings is discussed. The topics covered in this course include genomic factors, environmental factors and their interactions involved in diseases, as well as human adaptation to environment and its medical significance. The students are requested to present their own research plans and findings, followed by discussion by staff members and all attending students. In some laboratories, lectures pertinent to these issues will be given.</p> <p>Each student is required to attend the classes given by his/her research supervisor, as well as at least one series of classes given by other laboratories belonging to the Doctoral Program in Biomedical Sciences (not restricted to the laboratories who hold the lectures for the genome and environmental medicine). Attendance at 20 classes is required to earn 2 credits each semester.</p> <p>Please be sure to contact the responsible faculty members when attending the lectures held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | |

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| 02EW423 | Seminar in Genome and Environmental Medicine I | 2 | 2.0 | 1, 2 | SprABC | by appointment | | Naoyuki Tsuchiya, Kazumasa Yamagishi, Yoshito Kumagai, Ichiyo Matsuzaki, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada, Shigeyuki Kano | <p>In this course, each laboratory opens a series of seminars in which students present and critically discuss latest scientific papers related to their research interest. The topics covered in this course include genomic factors, environmental factors and their interactions involved in diseases, as well as human adaptation to environment and its medical significance. In the Laboratory of Public Health Medicine, the students actually participate in the preventive medicine activities in the community (optional).</p> <p>Each student is required to attend the seminars given by his/her research supervisor, as well as at least one series of seminars given by other staff members belonging to the Doctoral Program in Biomedical Sciences (not restricted to the laboratories who hold the seminars for the genome and environmental medicine). Attendance at 20 seminars is required to earn 2 credits each semester.</p> <p>Please be sure to contact the responsible faculty members when attending the seminars held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | |
| 02EW424 | Seminar in Genome and Environmental Medicine II | 2 | 2.0 | 1, 2 | FallABC | by appointment | | Naoyuki Tsuchiya, Kazumasa Yamagishi, Yoshito Kumagai, Ichiyo Matsuzaki, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada, Shigeyuki Kano | <p>In this course, each laboratory opens a series of seminars in which students present and critically discuss latest scientific papers related to their research interest. The topics covered in this course include genomic factors, environmental factors and their interactions involved in diseases, as well as human adaptation to environment and its medical significance. In the Laboratory of Public Health Medicine, the students actually participate in the preventive medicine activities in the community (optional).</p> <p>Each student is required to attend the seminars given by his/her research supervisor, as well as at least one series of seminars given by other staff members belonging to the Doctoral Program in Biomedical Sciences (not restricted to the laboratories who hold the seminars for the genome and environmental medicine). Attendance at 20 seminars is required to earn 2 credits each semester.</p> <p>Please be sure to contact the responsible faculty members when attending the seminars held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | |

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| 02EW425 | Practice in Genome and Environmental Medicine I | 3 | 2.0 | 1, 2 | SprABC | by appointment | | Naoyuki Tsuchiya, Yoshito Kumagai, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada | <p>In this course, each laboratory opens a workshop on basic principles and methods in experimental or laboratory analyses related to the genomic factors, environmental factors and their interactions.</p> <p>Each student is required to attend the workshop given by his/her research supervisor. In addition, he/she can take other workshop(s) given by other laboratories belonging to the Doctoral Program in Biomedical Sciences.</p> <p>Please be sure to contact the responsible faculty members when attending the workshops held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | |
| 02EW426 | Practice in Genome and Environmental Medicine II | 3 | 2.0 | 1, 2 | FallABC | by appointment | | Naoyuki Tsuchiya, Yoshito Kumagai, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada | <p>In this course, each laboratory opens a workshop on basic principles and methods in experimental or laboratory analyses related to the genomic factors, environmental factors and their interactions.</p> <p>Each student is required to attend the workshop given by his/her research supervisor. In addition, he/she can take other workshop(s) given by other laboratories belonging to the Doctoral Program in Biomedical Sciences.</p> <p>Please be sure to contact the responsible faculty members when attending the workshops held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | |
| 02EW427 | Lecture and Discussion in Genome and Environmental Medicine I | 1 | 2.0 | 1, 2 | SprABC | by appointment | | Naoyuki Tsuchiya, Kazumasa Yamagishi, Yoshito Kumagai, Ichio Matsuzaki, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada, Shigeyuki Kano | <p>In this course, each laboratory opens a series of classes in which how to design and conduct research and interpret the findings is discussed. The topics covered in this course include genomic factors, environmental factors and their interactions involved in diseases, as well as human adaptation to environment and its medical significance. The students are requested to present their own research plans and findings, followed by discussion by staff members and all attending students. In some laboratories, lectures pertinent to these issues will be given.</p> <p>Each student is required to attend the classes given by his/her research supervisor, as well as at least one series of classes given by other laboratories belonging to the Doctoral Program in Biomedical Sciences (not restricted to the laboratories who hold the lectures for the genome and environmental medicine). Attendance at 20 classes is required to earn 2 credits each semester.</p> <p>Please be sure to contact the responsible faculty members when attending the lectures held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | Open to Day/Evening course students. 昼夜制学生に限る |

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|---------------|--|-------------|---------|------------------------|----------------------|--------------------|-----------|---|---|--|
| 02EW428 | Lecture and Discussion in Genome and Environmental Medicine II | 1 | 2.0 | 1, 2 | Fall/ABC | by appointment | | Naoyuki Tsuchiya, Kazumasa Yamagishi, Yoshito Kumagai, Ichijo Matsuzaki, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada, Shigeyuki Kano | <p>In this course, each laboratory opens a series of classes in which how to design and conduct research and interpret the findings is discussed. The topics covered in this course include genomic factors, environmental factors and their interactions involved in diseases, as well as human adaptation to environment and its medical significance. The students are requested to present their own research plans and findings, followed by discussion by staff members and all attending students. In some laboratories, lectures pertinent to these issues will be given.</p> <p>Each student is required to attend the classes given by his/her research supervisor, as well as at least one series of classes given by other laboratories belonging to the Doctoral Program in Biomedical Sciences (not restricted to the laboratories who hold the lectures for the genome and environmental medicine). Attendance at 20 classes is required to earn 2 credits each semester.</p> <p>Please be sure to contact the responsible faculty members when attending the lectures held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW429 | Practice in Genome and Environmental Medicine I | 3 | 2.0 | 1, 2 | Spr/ABC | by appointment | | Naoyuki Tsuchiya, Yoshito Kumagai, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada | <p>In this course, each laboratory opens a workshop on basic principles and methods in experimental or laboratory analyses related to the genomic factors, environmental factors and their interactions.</p> <p>Each student is required to attend the workshop given by his/her research supervisor. In addition, he/she can take other workshop(s) given by other laboratories belonging to the Doctoral Program in Biomedical Sciences.</p> <p>Please be sure to contact the responsible faculty members when attending the workshops held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW430 | Practice in Genome and Environmental Medicine II | 3 | 2.0 | 1, 2 | Fall/ABC | by appointment | | Naoyuki Tsuchiya, Yoshito Kumagai, Makoto Kobayashi, Emiko Noguchi, Katsuya Honda, Masafumi Muratani, Tomoko Yamada | <p>In this course, each laboratory opens a workshop on basic principles and methods in experimental or laboratory analyses related to the genomic factors, environmental factors and their interactions.</p> <p>Each student is required to attend the workshop given by his/her research supervisor. In addition, he/she can take other workshop(s) given by other laboratories belonging to the Doctoral Program in Biomedical Sciences.</p> <p>Please be sure to contact the responsible faculty members when attending the workshops held by laboratories other than yours, and to submit a required form to the Majors of Medical Sciences administration office by the deadline.</p> | Open to Day/Evening course students. 昼夜制学生に限る |

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|---------------|---|-------------|---------|------------------------|----------------------|--------------------|-----------|--|--|---------|
| 02EW431 | Lecture and Discussion in Medical Science of Sleep I | 1 | 2.0 | 1, 2 | SprABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | <p>To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology.</p> <p>This lecture is aimed to take comprehensive knowledge required for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology, Molecular sleep biology, and medical physics through a presentation and discussion of the latest research results obtained in the affiliated laboratories.</p> | |
| 02EW432 | Lecture and Discussion in Medical Science of Sleep II | 1 | 2.0 | 1, 2 | FallABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | <p>To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology.</p> <p>This lecture is aimed to take comprehensive knowledge required for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology, Molecular sleep biology, and medical physics through a presentation and discussion of the latest research results obtained in the affiliated laboratories.</p> | |
| 02EW433 | Seminar in Medical Science of Sleep I | 2 | 2.0 | 1, 2 | SprABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | <p>This seminar is aimed to understand the purpose, methods, and results of latest articles related to Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology, Molecular sleep biology. They also discuss the significances, problems, and future directions of the study.</p> | |
| 02EW434 | Seminar in Medical Science of Sleep II | 2 | 2.0 | 1, 2 | FallABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | <p>This seminar is aimed to understand the purpose, methods, and results of latest articles related to Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology, Molecular sleep biology. They also discuss the significances, problems, and future directions of the study.</p> | |
| 02EW435 | Practice in Medical Science of Sleep I | 3 | 2.0 | 1, 2 | SprABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | <p>This course is aimed to learn the principles and methods of experiments and analysis for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology and Molecular sleep biology.</p> | |

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|---------------|---|-------------|---------|------------------------|----------------------|--------------------|-----------|--|---|--|
| 02EW436 | Practice in Medical Science of Sleep II | 3 | 2.0 | 1, 2 | Fall IABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | This course is aimed to learn the principles and methods of experiments and analysis for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology and Molecular sleep biology. | |
| 02EW437 | Lecture and Discussion in Medical Science of Sleep I | 1 | 2.0 | 1, 2 | SprABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology. This lecture is aimed to take comprehensive knowledge required for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology, Molecular sleep biology, and medical physics through a presentation and discussion of the latest research results obtained in the affiliated laboratories. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW438 | Lecture and Discussion in Medical Science of Sleep II | 1 | 2.0 | 1, 2 | Fall IABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | To conduct research on development of prevention, diagnoses and treatments for human diseases, students should understand regulatory mechanisms of vital phenomena and pathogenic mechanisms at the individual and/or cellular levels based on concept of molecular biology. This lecture is aimed to take comprehensive knowledge required for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology, Molecular sleep biology, and medical physics through a presentation and discussion of the latest research results obtained in the affiliated laboratories. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW439 | Practice in Medical Science of Sleep I | 3 | 2.0 | 1, 2 | SprABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | This course is aimed to learn the principles and methods of experiments and analysis for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology and Molecular sleep biology. | Open to Day/Evening course students. 昼夜制学生に限る |
| 02EW440 | Practice in Medical Science of Sleep II | 3 | 2.0 | 1, 2 | Fall IABC | by appointment | | Masashi Yanagisawa, Hiroshi Nagase, Noriki Kutsumura, Qinghua Liu, Masanori Sakaguchi, Michael Lazarus, Kaspar Vogt, Takeshi Sakurai | This course is aimed to learn the principles and methods of experiments and analysis for research on Molecular Pharmacology, Functional neuroanatomy, Medicinal Chemistry, Organic Chemistry, Biochemistry /Chemical Biology /Genetics, Sleep and Memory, Systems Sleep Biology and Molecular sleep biology. | Open to Day/Evening course students. 昼夜制学生に限る |