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| Specialized basic subjects | | | Class style | Lecture | 2 credits | |
| Course title | | Orthopaedic Surgery | | | | |
| Theme | | Basic research methods to develop innovative treatments based on the pathophysiology of musculoskeletal and neuro-functional diseases in spine and extremities. | | | | |
| Semester | | Monday 6th period, the first and second semester | | | | |
| Location | | Conference room at Department of Orthopaedic Surgery | | | | |
| Couse director | | Satoshi Nagano | | | | |
| GIO | | Understand pathophysiology of musculoskeletal and neuro-functional diseases in spine and extremities. Learn basic research methods to develop innovative treatments. | | | | |
| SBO |  | Learn basic knowledges and research methods for anatomy, physiology, biochemistry, biomechanics, molecular biology, molecular pharmacology and gene therapy of musculoskeletal and neuro-functional systems. | | | | |
| Course descriptions | | | | | | instructors |
| 1. Introduction to bone metabolism I (Anatomy, chemistry and bone metabolic diseases)  2. Introduction to bone metabolism II (Molecular biology, regulation of bone formation/resorption and molecular pharmacology)  3. Introduction to bone metabolism III (Differentiation of osteoclast, regulation of bone resorption and molecular pharmacology)  4. Introduction to orthopaedics (Anatomy, biochemistry, molecular biology, diagnosis and treatment for joint diseases)  5. Introduction to musculoskeletal tumors I (Carcinogenesis, molecular diagnosis and mechanism of metastasis)  6. Introduction to musculoskeletal tumors II (Gene therapy)  7. Introduction to neurological diseases (Anatomy, biochemistry and molecular biology of spinal cord)  8. Research in regeneration for spinal cord (Molecular regulation)  9. Introduction to rheumatoid arthritis I (Pathology, surgical and pharmacological treatment)  10. Introduction to rheumatoid arthritis II (Etiology and molecular treatment)  11. Introduction to pediatric orthopaedics (Disease classification, pathology, etiology, preventive medicine and treatment)  12. Introduction to biomechanics in spine (Pathology of age-related degeneration)  13. Introduction to peripheral nerves (Physiology, degeneration, regeneration and molecular pharmacology)  14. Introduction to health sciences (Sports medicine)  15. Introduction to recovery medicine (Musculoskeletal physiology, cell and tissue repair, medicine for early postoperative recovery) | | | | | | Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  Satoshi Nagano  (To be announced)  Satoshi Nagano  (To be announced)  Satoshi Nagano  Satoshi Nagano |
| Course materials | | 図解　整形外科　金芳堂 (Japanese), Presentation hand-outs (English) | | | | |
| Evaluation scheme | | Ability of presentation, discussion, problem-solving and paper-reading | | | | |
| Office hour | | 8:30 ~ 17:15 | | | | |
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| After class | |  | | | | |
| remarks | |  | | | | |