

Osaka University Virtual Study Abroad Program 2021 Course List



| Course Code | Offering Department | Course Title | Credits | ECTS | Targeted Students | Language | Syllabus Page |
|-------------|--|---|---------|------|---------------------------|----------|---------------|
| 003024 | School of Letters | History of Japanese Thought L. | 2 | 3.6 | Undergraduate Graduate | Japanese | 3 |
| 003209 | School of Letters | Regional Geography | 2 | 3.6 | Undergraduate Graduate | Japanese | 5 |
| 13A415 | International College | Religion in Japanese Society | 2 | 3.6 | Undergraduate | English | 6 |
| 100496 | School of Foreign Studies | Hindi Language Ib | 2 | 3.6 | Undergraduate Graduate | Japanese | 8 |
| 100510 | School of Foreign Studies | Language of South Asia Ib | 2 | 3.6 | Undergraduate Graduate | Japanese | 9 |
| 305066 | Graduate School of Language and Culture | Structures of Asian Languages XV B | 2 | 3.6 | Undergraduate Graduate | Japanese | 10 |
| 020643 | School of Law | Special Lecture (Focal Points of Public Law and Private Law in Japan) | 2 | 3.6 | Undergraduate | English | 12 |
| 881218 | School of Law | Topics in Japanese Law | 2 | 3.6 | Undergraduate | English | 13 |
| 881217 | School of Law | Topics in Comparative Law | 2 | 3.6 | Undergraduate | English | 14 |
| 3B1528 | CO Design Center | Special Lecture: Climate Change in Asia Pacific - Science and Solutions | 2 | 3.6 | Undergraduate Graduate | English | 15 |
| 3B1529 | CO Design Center | Art of Collaboration: Creative Media Project | 2 | 3.6 | Undergraduate Graduate | English | 17 |
| 88V009 | CO Design Center | Reading Zizek in Japanese | 2 | 3.6 | Undergraduate Graduate | Japanese | 19 |
| 88V010 | Center for Global Initiatives | Industry and development in the modernization of Japan: university-industry collaboration | 1 | 1.8 | Undergraduate Graduate | English | 20 |
| 88V011 | Center for Global Initiatives | Social development in modernization of Japan: modernization of health and university | 1 | 1.8 | Undergraduate Graduate | English | 21 |
| 88V012 | Center for Global Initiatives | Writing Culture II | 2 | 3.6 | Undergraduate Graduate | Japanese | 22 |
| 3B1221 | CO Design Center | Literacy : Anthropological Theories | 2 | 3.6 | Undergraduate | Japanese | 24 |
| 201106 | Graduate School of Letters | History of Japanese Thought L. | 2 | 3.6 | Graduate | Japanese | 25 |
| 311606 | Graduate School of International Public Policy | Lectures:International Relations of East Asia | 2 | 3.6 | Graduate | English | 27 |
| 88V002 | Graduate School of Science | Structural Organic Chemistry (I) | 1 | 1.8 | Undergraduate Graduate | English | 29 |
| 081250 | School of Engineering | Control System Design | 2 | 3.6 | Undergraduate Graduate | Japanese | 30 |
| 88V003 | Graduate School of Engineering | Molecular Thermo-Fluid Engineering | 2 | 3.6 | Undergraduate Graduate | Japanese | 31 |
| 090653 | School of Engineering Science | Informatics for Engineering Science 1 | 1 | 1.8 | Undergraduate Graduate | Japanese | 32 |
| 090474 | School of Engineering Science | Mathcomp B | 2 | 3.6 | Undergraduate Graduate | Japanese | 33 |

Osaka University Virtual Study Abroad Program 2021 Course List



| Course Code | Offering Department | Course Title | Credits | ECTS | Targeted Students | Language | Syllabus Page |
|-------------|---|--|---------|------|---------------------------|----------|---------------|
| 88V001 | School of Engineering Science | Introduction to Chemical Engineering Science : Basic and Bio-Inspired Approach | 1 | 1.8 | Undergraduate Graduate | English | 34 |
| 13A718 | International College | Introductory Chemistry B I | 1 | 1.8 | Undergraduate | English | 35 |
| 13A719 | International College | Introductory Chemistry B II | 1 | 1.8 | Undergraduate | English | 36 |
| Z20019 | International College | Biochemistry 2 | 2 | 3.6 | Undergraduate | English | 37 |
| Z20067 | International College | Exercise Session (Biochemistry 2) | 2 | 3.6 | Undergraduate | English | 38 |
| 280206 | Graduate School of Engineering | Photonic Engineering | 2 | 3.6 | Graduate | English | 40 |
| 280476 | Graduate School of Engineering | Surface and Interface Science | 2 | 3.6 | Graduate | English | 41 |
| 290851 | Graduate School of Engineering Science | Bio-Inspired Chemical Engineering 1 | 1 | 1.8 | Graduate | English | 42 |
| 290852 | Graduate School of Engineering Science | Bio-Inspired Chemical Engineering 2 | 1 | 1.8 | Graduate | English | 44 |
| 29J833 | Graduate School of Engineering Science | Vibrations and Waves | 2 | 3.6 | Graduate | Japanese | 46 |
| 290452 | Graduate School of Engineering Science | Strength of Structure | 2 | 3.6 | Graduate | Japanese | 47 |
| 29J719 | Graduate School of Engineering Science | Mixed Reality Systems | 2 | 3.6 | Graduate | Japanese | 48 |
| 331308 | Graduate School of Information Science and Technology | Theory of Distributed System Software | 2 | 3.6 | Graduate | English | 50 |
| 331525 | Graduate School of Information Science and Technology | Advanced Introduction to Information Networking | 2 | 3.6 | Graduate | English | 51 |
| 885013 | Graduate School of Frontier Biosciences | Introduction to Nanobiology I | 0.5 | 0.9 | Undergraduate Graduate | English | 52 |
| 885015 | Graduate School of Frontier Biosciences | Introduction to Biomolecular Networks | 0.5 | 0.9 | Undergraduate Graduate | English | 53 |
| 885016 | Graduate School of Frontier Biosciences | Introduction to Integrated Biology | 0.5 | 0.9 | Undergraduate Graduate | English | 54 |
| 885017 | Graduate School of Frontier Biosciences | Introduction to Biophysical Dynamics | 0.5 | 0.9 | Undergraduate Graduate | English | 55 |
| 885014 | Graduate School of Frontier Biosciences | Introduction to Biomolecular Networks | 0.5 | 0.9 | Graduate | English | 56 |
| 88V005 | Graduate School of Child Development | Human Movement and Health 1 | 1 | 1.8 | Undergraduate Graduate | Japanese | 57 |
| 88V006 | Graduate School of Child Development | Human Movement and Health 2 | 1 | 1.8 | Undergraduate Graduate | Japanese | 58 |
| 271280 | Graduate School of Pharmaceutical Sciences | Special Lecture on Organic Chemistry for Drug Development | 1 | 1.8 | Graduate | English | 60 |

| | |
|---|--|
| Course Code | 003024 |
| Offering Department | School of Letters |
| Course Title | History of Japanese Thought L. |
| Course Name (Sub Title) | History of Confucianism in the 17th and 18th Century Japan |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 16:20-17:50 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | The aim of this course is to rethink the development of Confucianism in the 17th and 18th century Japan. Special emphasis will be placed on the most important figure Ogyu Sorai. |
| Learning Goals | At the end of this course, students should be able to 1)point out and explain important figures and texts of Japanese Confucianism in the 17th and 18th century. 2)briefly explain the history of Japanese Confucianism in the 17th and 18th Century. 3)explain the relations between Confucianism and society in the 17th and 18th Century Japan. |
| Independent Study Outside of Class | Students should read assigned readings in advance each week. |
| Textbooks | No textbook in this course. Relevant materials will be provided during the course. |
| | 『日本思想史事典』(丸善出版、2020年) 丸山真男『日本政治思想史研究』, 東京大学出版会, 1952年 * 新装版1983年 渡辺浩『近世日本社会と宋学』, 東京大学出版会, 1985年 * 増補新装版2010年 子安宣邦『「事件」としての徂徠学』, 青土社, 1990年 * ちくま学芸文庫版2000年 尾藤正英『日本封建思想史研究: 幕藩体制の原理と朱子学的思惟』青木書店, 1961年 吉川幸次郎『仁斎・徂徠・宣長』岩波書店, 1975年 衣笠安喜『近世儒学思想史の研究』法政大学出版局, 1976年 本郷隆盛, 深谷克己編『講座日本近世史9 近世思想論』有斐閣, 1981年 渡辺浩『東アジアの王権と思想』東京大学出版会, 1997年 * 増補新装版2016年 子安宣邦『伊藤仁斎: 人倫的世界の思想』東京大学出版会, 1982年 同 『「事件」としての徂徠学』, 青土社, 1990年 * ちくま学芸文庫版2000年 同 『鬼神論: 儒家知識人のディスカール』福武書店, 1992年 * 新版2002年 同 『江戸思想史講義』岩波書店, 1998年 * 岩波現代文庫版2010年 同 『方法としての江戸: 日本思想史と批判的視座』ぺりかん社, 2000年 同 『伊藤仁斎の世界』ぺりかん社, 2004年 同 『徂徠学講義: 『弁名』を読む』岩波書店, 2008年 同 『仁斎学講義: 『語孟字義』を読む』ぺりかん社, 2015年 同 『仁斎論語: 論語古義現代語訳と評釈』(上)(下)ぺりかん社, 2017年 前田勉『近世日本の儒学と兵学』ぺりかん社, 1996年 同 『近世神道と国学』ぺりかん社, 2002年 同 『兵学と朱子学・蘭学・国学: 近世日本思想史の構図』ぺりかん社, 2006年 同 『江戸後期の思想空間』ぺりかん社, 2009年 同 『江戸の読書会: 会読の思想史』平凡社, 2012年 * 平凡社ライブラリー版2018年 同 『江戸教育思想史研究』思文閣出版, 2016年 田尻祐一郎『山崎闇斎の世界』ぺりかん社, 2006年 荻生茂博『近代・アジア・陽明学』ぺりかん社, 2008年 中村春作『思想史のなかの日本語: 訓読・翻訳・国語』勉誠出版、2017年 |

| | |
|----------------|--|
| Reference | <p>同 『徂徠学の思想圏』ベリかん社, 2019年</p> <p>辻本雅史『近世教育思想史の研究：日本における「公教育」思想の源流』思文閣出版, 1990年</p> <p>同 『「学び」の復権：模倣と習熟』角川書店, 1999年 * 岩波現代文庫版2012年</p> <p>同 編『論集現代日本の教育史7 身体・メディアと教育』日本図書センター, 2014年</p> <p>同 『思想と教育のメディア史：近世日本の知の伝達』ベリかん社, 2011年</p> <p>頼祺一『近世後期朱子学派の研究』溪水社, 1986年</p> <p>小島康敬『徂徠学と反徂徠』ベリかん社, 1987年, 増補版1994年</p> <p>高島元洋『山崎闇斎：日本朱子学と垂加神道』ベリかん社, 1992年</p> <p>片岡岡『16世紀後半から19世紀はじめの朝鮮・日本・琉球における「朱子学」遷移の諸相』春風社, 2020年</p> <p>陶徳民『懷徳堂朱子学の研究』大阪大学出版会, 1994年</p> <p>同 『日本漢学思想史論考：徂徠・仲基および近代』関西大学出版部, 1999年</p> <p>源了圓編『江戸の儒学：『大学』受容の歴史』思文閣出版, 1988年</p> <p>小島毅監修, 中村春作, 市来津由彦, 田尻祐一郎, 前田勉編『江戸儒学の中庸注釈』汲古書院, 2012年</p> <p>中村春作, 市来津由彦, 田尻祐一郎, 前田勉編『訓読論：東アジア漢文世界と日本語』勉誠出版, 2008年</p> <p>中村春作, 市来津由彦, 田尻祐一郎, 前田勉編『続「訓読」論：東アジア漢文世界の形成』勉誠出版, 2010年</p> <p>小島毅監修, 中村春作編『訓読から見なおす東アジア』東京大学出版会, 2014年</p> <p>横田冬彦『日本近世書物文化史の研究』岩波書店, 2018年</p> <p>鈴木健一編『浸透する教養：江戸の出版文化という回路』勉誠出版, 2013年</p> <p>鈴木俊幸編『江戸の読書熱：自学する読者と書籍流通』平凡社, 2007年</p> <p>八鍬友広ほか編『識字と読書：リテラシーの比較社会史』昭和堂, 2010年</p> <p>八鍬友広ほか編『識字と学びの社会史』思文閣出版, 2014年</p> <p>柴田純『江戸武士の日常生活』講談社, 2000年</p> <p>同 『日本幼児史：子どもへのまなざし』吉川弘文館, 2013年</p> <p>同 『江戸のパスポート：旅の不安はどう解消されたか』吉川弘文館, 2016年</p> <p>同 『考える江戸の人々：自立する生き方をさぐる』吉川弘文館, 2018年</p> <p>源了圓, 玉懸博編『国家と宗教：日本思想史論集』思文閣出版, 1992年</p> <p>江藤茂博, 町泉寿郎編『講座近代日本と漢学2 漢学と漢学塾』戎光祥出版, 2020年</p> <p>小沢栄一『近世史学思想史研究』吉川弘文館, 1974年</p> <p>末木文美士『日本仏教史』新潮社, 1992年 * 新潮文庫版1996年</p> <p>同 編『新アジア仏教史13 日本Ⅲ 民衆仏教の定着』佼成出版会, 2010年</p> <p>同 編『妙貞問答を読む：ハビアンへの仏教批判』法蔵館, 2014年</p> <p>大桑齊『寺壇の思想』教育社歴史新書, 1979年</p> <p>同 『日本近世の思想と仏教』法蔵館, 1989年</p> <p>同 『日本仏教の近世』法蔵館, 2003年</p> <p>同 『民衆仏教思想史論』ベリかん社, 2013年</p> <p>同 『近世の王権と仏教』思文閣出版, 2015年</p> <p>同 『江戸真宗門徒の生と死』方丈堂出版, オクターブ (発売), 2019年</p> <p>大桑齊, 前田一郎編『羅山・貞徳『儒仏問答』：註解と研究』ベリかん社, 2006年</p> <p>真宗史料刊行会編『大系真宗史料 文書記録編15 大系真宗史料 近世倫理書』法蔵館, 2010年</p> <p>曾根原理『徳川家康神格化への道：中世天台思想の展開』吉川弘文館, 1996年</p> <p>同 『神君家康の誕生：東照宮と権現様』吉川弘文館, 2008年</p> <p>同 『徳川時代の異端的宗教：戸隠山別当乗因の挑戦と挫折』岩田書院, 2018年</p> <p>西村玲『近世仏教思想の独創：僧侶普寂の思想と実践』トランスビュー, 2008年</p> <p>同 『近世仏教論』法蔵館, 2018年</p> <p>引野亨輔『近世宗教世界における普遍と特殊：真宗信仰を素材として』法蔵館, 2007年</p> |
| Grading Policy | Class participation 15%, Quiz 30%, Final exam 55% |

| | |
|---|--|
| Course Code | 003209 |
| Offering Department | School of Letters |
| Course Title | Regional Geography |
| Course Name (Sub Title) | Regional geography of Asia and Africa |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | This course introduces various approaches of regional geography, focusing on small scale societies in Asia and Africa. |
| Learning Goals | To know how to approach to regional geography. |
| Class Plan | Following introduction, case studies on regional geography are shown. |
| Independent Study Outside of Class | Use handouts. |
| Textbooks | None |
| Reference | Shown during lecture. |
| Grading Policy | By final exam. |
| Other Remarks | This Course is also categorized as one of “Advanced Global Literacy Education”. |
| Keywords | Human-Environment Relations, Southeast Asia, Northeast Africa, Inland China |

| | |
|---|---|
| Course Code | 13A415 |
| Offering Department | International College |
| Course Title | Religion in Japanese Society |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Friday 13:30-15:00 or asynchronous |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | <p>This course explores contemporary Japanese religion and society through the exploration of common themes in worldview of the Japanese people and its changing patterns in contemporary Japan. The course will be divided into thematic modules: the pervasiveness of religion in everyday life; the meaning of 'religion' in the Japanese context; the intimate bond between religion and the nation; and the gendered aspects of Japanese religions. We will consider a variety of issues, including how religious ideas may tell us about Japanese families today; what the importance of purification, specific rituals, and amulets reveal about the everyday lived religion; how religions have been adopting new strategies to meet individuals' needs (marketing strategies and media); and how gender norms are shifting in contemporary Japanese religious institutions as they are in contemporary Japanese society. Students will not only gain broad knowledge of core aspects of Japanese religions and culture but will also be encouraged to think critically and compare these themes with similar situations abroad. Although some background knowledge of Japan is helpful, it is not required.</p> |
| Learning Goals | <p>Knowledge and Understanding. After studying this course you should be able to:</p> <ul style="list-style-type: none"> - become familiar with some of the main themes in Japanese religions and society; - to gain some fundamental knowledge about Japanese culture and society through the lens of religion - Understand the level of religiosity of Japanese people and how it is expressed everyday life - Think critically and creatively about religion and society considering the importance of rituals and amulets in Japanese's everyday life. - Identify key cultural ideals and social values within Japanese religions. <p>Skills, Qualities and Attributes. After studying this course you should be able to:</p> <ul style="list-style-type: none"> - Reconsider the image of Japan by reflecting on the everyday experiences and religious culture. - Reflect on religious narratives that help challenging gendered cultural values and ideals. - Reflect on how the religious traditions change over time and how they meet the cultural and societal changes. - Explore the intersection of religion and society and acquire first-hand knowledge of the relationship between society and religion through projects requiring fieldwork/interviews. |
| Requirement / Prerequisite | This is not a course on History of Japanese religions. Therefore, some familiarity with main Japanese religious traditions and related religious doctrines is required. |

| | |
|------------------------------------|---|
| Class Plan | <ol style="list-style-type: none"> 1. Introduction and Overview: Getting started – Religious life in Contemporary Japan Symbols, Practices, Beliefs and Japanese everyday life 2. The Religiosity of the Japanese 3. The Concept of Religion in Modern Japan Imposition, Invention, or Innovation? 4. The Postwar Constitution and Religion: The bond between religion and the nation 5. The public image of Religion in Contemporary Japan: religious violence and new religious movements in twenty-first century Japan 6. The Rise of the New Spirituality 7. Japanese Religions and gender 8. Traditions and modern transformations: New Religions in Japan - Adaptations and Transformations in Contemporary Society 9. Midterm exam 10. Seminar Topic Presentation Traditions and modern transformations: Shinto 11. Seminar Topic Presentation Traditions and modern transformations: Buddhism 12. Seminar Topic Presentation Traditions and modern transformations: Christianity 13. Seminar Topic Presentation: The religious character of daily life: The importance of purification, specific rituals and amulets 14. Seminar Topic Presentation: Traditions and modern transformations: New Religions in Japan - Adaptations and Transformations in Contemporary Society 15. Seminar Topic Presentation: Religion and the Media; Presentation of Field Study Paper and Submission of portfolio |
| Independent Study Outside of Class | <p>Each student will select a contemporary religious institution, community or movement of interest to them. It must have some physical presence or activities in the area around Osaka University or the place they live. This religious community will provide the focus for your Seminar Topic Presentation the Fieldwork Report, which should allow students both to learn about a religious community from several angles, and to apply the themes of the course to a concrete social setting. Students will submit a 2-3 page report (~2000 words) identifying a chosen religious community for their Seminar Topic Presentation. In addition to describing the religious community, explain why Students chose it and what they think will be interesting about it as related to the Seminar Topic. Students should also give a preliminary list of possible sources of information about the community (e.g. reading group web pages, searching popular news media sources, finding previous academic studies. The selection of the religious organization must be discussed with Dr. Cavaliere.</p> |
| Textbooks | <p>During the semester, I will announce/distribute reading assignments (e.g., copies of articles/chapters, web addresses). Students are expected to complete reading assignments before class starts.</p> |
| Reference | <p>Michiko Yusa, Japanese religious traditions, 2002, Prentice hall Ama Toshimaro, (2005) Why are the Japanese non-religious?, University Press of America Inken Prohl and John Nelson (2012), Handbook of Contemporary Japanese Religions, Leiden: Brill</p> |
| Grading Policy | <p>Assessment is based on Coursework portfolio, Attendance and Participation.</p> <p>Portfolio Requirements The Critical Reading Note, the Seminar Topic Presentation and the Field Study Report must be collected in the Coursework Portfolio. The Portfolio must be completed in all its parts in order to receive a passing grade. If you do not perform the class and written requirements, you cannot receive a passing grade.</p> <p>Religious Group Memo 30% Field Study Report 40% Attendance and active class participation 10%</p> |
| Other Remarks | <p>Field Study Report In order to prepare for their Seminar Topic Presentation, students will be required to conduct an investigation of a Japanese religious community. The selection of the religious organization must be discussed with Dr. Cavaliere. They will be asked to collect information to support their argument on Seminar topic Presentation. The student will then asked to write a research report (2-3 pages, ~2000 words) based on their observations.</p> |
| Messages to Prospective Students | <p>NOTE: Given the current COVID-19 situation and in compliance with Osaka University policy, during the Autumn-Winter 2020-21 classes will be held online with a mix of Zoom meetings and content-on-demand. Details of the course schedule will be made available to students enrolled on the CLE course page. Please note the course schedule and teaching modality may change during the semester in order to comply with Osaka University policy. You will be informed of any change in due course.</p> |

| | |
|---|--|
| Course Code | 100496 |
| Offering Department | School of Foreign Studies |
| Course Title | Hindi Language Ib |
| Course Name (Sub Title) | Aspects of Hindi advanced grammar-2 |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Friday 10:30-12:00 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | This course provides students with the specialized knowledge that will allow them to make a comparative study of Hindi and Japanese. |
| Learning Goals | By the end of this course students will be able to: 1. read an academic paper with the specific technical terms used in Hindi language study; 2. have a viewpoint of comparative language studies especially with Japanese. |
| Requirement / Prerequisite | Students who successfully completed Hindi language Ia as well as the primary and intermediate Hindi courses (or equivalent) will be eligible to attempt this course. In addition, they are expected to have completed a general linguistic course before attempting this course. |
| Class Plan | Week: 1-5 (Hindi grammar: kaal, vaachya, dhaatu, Hindi vartanii, nipaata, viraam chihna) Week: 6-8 (upsarg, pratyay, sandhi, samaas) Week: 9-10 (The system of Hindi pronouns-1: Introduction to Pragmatics) Week: 11-14 (The system of Hindi pronouns-2) Week: 15 (Feedback) Note: The schedule may change in accordance with the students' level of comprehension. Classes will be held online later in the semester (8th to 14th). |
| Independent Study Outside of Class | 1. Pre-class preparation is essential for class participation. Students are expected to read the textbook and to understand the content BEFORE the class. 2. Students should read relative books on written in Japanese as needed. |
| Textbooks | Handouts will be distributed in class. |
| Reference | V. R. Jagannathan. Prayog aur prayog, Oxford University Press, New Delhi, 1981. Other reference materials for the course may be announced in class as needed |
| Grading Policy | Evaluation (100%) will be based on daily attendance and active participation in discussion (30%) and also on the mid-term and the final exams (70%). Attendance is essential in this class. NOTE: The final exams can be replaced with several mini exams depending on the situation. |
| Other Remarks | 1. If a student has a valid excuse for missing a examination and wants to take a makeup exam, he/she must communicate with the office of academic affairs of the Faculty. Make-up exams will be given only in case of an emergency or unavoidable problems such as personal illness (requires verification). 2. Attendance only is not sufficient for earning credit for 30% of the total evaluation. If a student comes to class late without a valid excuse, he/she will be deducted 0.5 percent of his/her grade at the end of the course. |
| Office Hour | Monday: 16:20-17:50 (5th period) [Reservation is required] |

| | |
|---|--|
| Course Code | 100510 |
| Offering Department | School of Foreign Studies |
| Course Title | Language of South Asia Ib |
| Course Name (Sub Title) | Introduction to Studies of South Asian Languages-2 |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Monday 15:10-16:40 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | This course provides students with basic knowledge of the historical context and development of Indo-Aryan languages. |
| Learning Goals | By the end of this course students will be able to: 1. gain knowledge about the historical aspects of Indo-Aryan languages; 2. understand the complicated situation of languages in Indian subcontinent. |
| Requirement / Prerequisite | Students are expected to have gained foundational knowledge and skills in the discipline of linguistics before attempting this course. |
| Class Plan | Week: 1-2 ('Genetic connections' and discussion) Week: 3-4 ('The traditional Indian view' and discussion) Week: 5-7 ('The new linguistic environment' and discussion) Week: 8-10 ('Subsequent spread of Indo-Aryan in the subcontinent and beyond' and discussion) Week: 11 ('Foreign influences and contacts' and discussion) Week: 12 ('The historical stages of Indo-Aryan' and discussion) Week: 13 ('Sociolinguistic aspects of the history of Indo-Aryan') Week: 14 ('Comparative reconstruction' and discussion) Week: 15 (Feedback) Note: The schedule may change in accordance with the students' level of comprehension. Classes will be held online later in the semester (8th to 14th). |
| Independent Study Outside of Class | 1. Pre-class preparation is essential for class participation. Students are expected to read the textbook and to understand the content BEFORE the class. 2. Students should read relative books on written in Japanese as needed. |
| Textbooks | Colin P. Masica. The Indo-Aryan Languages. Cambridge University Press, 1991. Handouts will be provided in class accordingly. |
| Reference | George Cardona and Dhanesh Jain (ed.). The Indo-Aryan Languages. Routledge, 2003. Other reference materials for the course may be announced in class as needed. |
| Grading Policy | Evaluation (100%) will be based on daily attendance and active participation in discussion (30%) and also on the mid-term and the final exams (70%). Attendance is essential in this class. NOTE: The final exams can be replaced with several mini exams depending on the situation. |
| Other Remarks | 1. If a student has a valid excuse for missing a examination and wants to take a makeup exam, he/she must communicate with the office of academic affairs of the Faculty. Make-up exams will be given only in case of an emergency or unavoidable problems such as personal illness (requires verification). 2. Attendance only is not sufficient for earning credit for 30% of the total evaluation. If a student comes to class late without a valid excuse, he/she will be deducted 0.5 percent of his/her grade at the end of the course. |
| Office Hour | Monday: 16:20-17:50 (5th period) [Reservation is required] |

| | |
|---|---|
| Course Code | 305066 |
| Offering Department | Graduate School of Language and Culture |
| Course Title | Structures of Asian Languages XV B |
| Course Name (Sub Title) | Introduction to the study of South Asian languages-2 |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Friday 13:30-15:00 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | This course provides students with the specialized knowledge of verbal forms and categories of modern Indo-Aryan languages on the basis of Hindi grammar. This will allow the students to make a comparative study of Hindi and another language (mainly Japanese). |
| Learning Goals | By the end of this course students will be able to: 1. extend their knowledge about morpho-syntactic features of modern Indo-Aryan languages (including Hindi dialects); 2. gain knowledge based on comparative studies; 3. practice a linguistic comparative study. |
| Requirement / Prerequisite | Students who successfully completed Advanced Hindi, Hindi Language Ia&Ib and South Asian Language Ia&Ib, or who have verifiable equivalent knowledge will be eligible to attempt this course. |
| Class Plan | The course schedule is as follows. Week: 1- 4 (Discussion on Complementation [6.1-6.3]) Week: 5-10 (Discussion on Complementation [6.4-6.8]) Week: 11-14 (Discussion on South Asian languages: a preview [Chapter 2]) Week: 15 (Exam: Oral presentation) Note: The schedule and course content may change in accordance with the students' level of comprehension. Feedback will be provided at the end of each unit. Classes will be held online later in the semester (8th to 14th). |
| Independent Study Outside of Class | 1. Pre-class preparation is essential for class participation. Students are expected to read the textbook and to understand the content BEFORE the class. 2. Students should read relative books on written in Japanese as needed. |
| Textbooks | Karumuri V. Subbarao. South Asian Languages: A Syntactic Typology. Cambridge University Press, 2012. [main textbook] Colin P. Masica. The Indo-Aryan Languages. Cambridge University Press, 1991. Danesh Jain, George Cardona. The Indo-Aryan Languages, 2007. |
| Reference | Colin P. Masica. Defining A Linguistic Area: South Asia. The University of Chicago Press, 1976. Yamuna Kacharu. Aspects of Hindi Grammar, 1980. Kamta Prasad Guru. Hindi vyaakaran (Hindi Edition), 2018 [Kindle Edition]. Saartje Verbeke. Alignment and Ergativity in New Indo-Aryan Languages, 2013. B.R. Saksena. Evolution of Awadhi, 1971. (बाबू राम सक्सेना। अवधी का विकास, 1972.) Other reference materials for the course may be announced in class as needed. |
| Grading Policy | Evaluation (100%) will be based on daily attendance and active participation in discussion (30%) and also on oral presentation or report assignment. (70%). Attendance is essential in this class. |

| | |
|---------------|---|
| Other Remarks | <p>1. If a student has a valid excuse for missing a examination and wants to take a makeup exam, he/she must communicate with the office of academic affairs of the Faculty. Make-up exams will be given only in case of an emergency or unavoidable problems such as personal illness (requires verification).</p> <p>2. Attendance only is not sufficient for earning credit for 30% of the total evaluation. If a student comes to class late without a valid excuse, he/she will be deducted 0.5 percent of his/her grade at the end of the course.</p> |
| Office Hour | Monday: 16:20-17:50 (5th period) |

| | |
|---|---|
| Course Code | 020643 |
| Offering Department | School of Law |
| Course Title | Special Lecture (Focal Points of Public Law and Private Law in Japan) |
| Course Name (Sub Title) | A course of Japanese law collaborated between scholars of Public law, Private Law, Legal History and Sociology of Law. |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Monday 18:30-20:00 |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | In this course, Japanese professors for legal studies give classes in English on the focal issues in the areas of public and private law. In the class, professors give a presentation, and then, students have a discussion on the given issue. This course aims to make Japanese students think legal issues and present them in English, and to give an opportunity to communicate with Japanese professors in legal areas to international students. This course is given jointly by professors of constitutional law, private international law, Roman law and sociology of law. Each professor picks up the legally relevant issues, which she/he likes to discuss in her/his class. |
| Learning Goals | To have an opinion on Japanese legal issues. To discuss various topics in Public Law and Private Law in English. |
| Requirement / Prerequisite | There are no prerequisites for this course. However, since the classes will be conducted in English, and all reading materials will be in English, a TOEIC score 650 or a TOEFL score of iBT 60 or above is recommended for non-native speakers of English. |
| Class Plan | <ol style="list-style-type: none"> 1. (04/10/2021) Course Overview (All Professors) 2. (11/10/2021) Litigation and Alternative Dispute Resolution in Japan (FUKUI) 3. (18/10/2021) Transformation of Legal Profession in Japan (FUKUI) 4. (25/10/2021) Corporate Culture and Law in Japan: On Corporate Misconduct (FUKUI) 5. (01/11/2021) Article 9 of the Japanese Constitution and the Constitutional Amendment Controversy (TAKAI) 6. (15/11/2021) Freedom of Speech and Religion in Japan (TAKAI) 7. (22/11/2021) Courts and Judicial Review in Japan (TAKAI) 8. (29/11/2021) An Overview of the Japanese Traditional Law before the Meiji Restoration (HAYASHI) 9. (06/12/2021) The Reception of Western Law and Jurisprudence in the Meiji Era (HAYASHI) 10. (13/12/2021) Japanese Contract Law: Peculiarities and Recent Developments (EL BALTI) 11. (20/12/2021) Conflicts of laws in Japan (EL BALTI) 12. (17/01/2022) International Dispute Resolution in Japan (EL BALTI) 13. (24/01/2022) Introduction to Japanese Family Law (NAGATA) 14. (31/01/2022) Recent Problems concerning International Family Law (NAGATA) 15. (07/02/2022) Reflection and Discussion (Fukui) |
| Independent Study Outside of Class | Read the materials circulated or uploaded on the website of Osaka University "CLE" in advance. If the professor in charge give an assignment, you have to do it. |
| Textbooks | Materials (readings and cases) will be provided by each professor. Materials will be located on the website of Osaka University's CLE. |
| Reference | Each professor assigns |
| Grading Policy | Attendance and Participation: 30%. Report: 70%. Participants select one of the class topics which is discussed in this course and write a report (short essay). The expected word number is about 2000. |
| Other Remarks | So far, this course will be given in person. But in case of spreading COVID-19, classes will be given online. Zoom meeting invitation, ID and Passcode will be informed on CLE's web page. Endurance makes you stronger. Please continue this course until the end. |

| | |
|---|---|
| Course Code | 881218 |
| Offering Department | School of Law |
| Course Title | Topics in Japanese Law |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 10:30-12:00 |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | If law is the product of a country's history and culture, then there is no better way to understand a society in its complexity than studying the way that society organizes itself and the relations of its members. In this perspective, this course main objective is to provide students with basic knowledge on Japanese law and the Japanese legal system with special focus on aspects of private law. It discusses the current status of Japanese law and highlights its most recent developments in various areas of law including civil law, civil procedure law, constitutional law and private international law. |
| Learning Goals | This class aims at giving students a general overview of the law and the legal system of Japan. Upon completion of this class, students will become more familiar with the peculiarities of Japanese law in various fields of law. |
| Requirement / Prerequisite | There are no requisites for this course. However, good English language skills are necessary to be able to follow the lectures and take part in the discussions. |
| Class Plan | Subject to some eventual modifications when necessary (especially in case a guest lecturer is invited to introduce other areas of law), the course will consist of a general introductory part and a special part that deals with a number of areas of Japanese law, with special focus on private (civil) law. It will be organized as follows: |
| Independent Study Outside of Class | Materials on each of the topics that will be handled during the class will be provided to the students. Students are expected to review the materials in advance. |
| Textbooks | None in particular. Necessary materials will be provided by the lecturer. |
| Reference | Hiroshi Oda, Japanese Law (3rd, 2011) Colin P.A. Jones and Frank S. Ravitch, The Japanese Legal System (2018) Luis Maria Pedriza, Lectures on Japanese Law from Comparative Perspective (Osaka University Press, 2017) |
| Grading Policy | Attendance 40%, final report 60%. Attendance is mandatory unless excused. No more than three absences are permitted. |
| Other Remarks | Zoom meeting invitation, ID and Password will be first circulated on CLE and KOAN. Students will be required to observe a number of rules that will be explained in due course. Students are encouraged to participate actively in the lessons. Students are also welcomed to consult with the instructor when necessary. |
| Office Hour | Reservation by email at any time |

| | |
|---|---|
| Course Code | 881217 |
| Offering Department | School of Law |
| Course Title | Topics in Comparative Law |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Wednesday 10:30-12:00 |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | In a globalized world, the understanding and the knowledge about the world's different foreign legal systems has become a necessity. The main objective of this course is to initiate students to general methodology and notions pertaining to comparative law as well as the major legal systems of the world. It will provide students with the basic knowledge and understanding as well as insights useful for further studies on comparative law or related subjects. |
| Learning Goals | Upon completion of the course, students will be expected to acquire a workable knowledge of the notions and methodology of comparative law and a general idea about the similarities and differences among major legal systems both in term of general organization and specific areas of law. |
| Requirement / Prerequisite | There are no requisites for this course. However, good English language skills are necessary to be able to follow the lectures and take part in the discussions. |
| Class Plan | Subject to some eventual modifications when necessary (especially in case a guest lecturer is invited to introduce other areas of law), the course will consist of three parts: (I) A general introductory part; (II) Introduction to Major Legal Families; (III) Aspects of Comparative law. It will be organized as follows: |
| Independent Study Outside of Class | Materials on each of the topics that will be handled during the class will be provided to the students. Students are expected to review the materials in advance. |
| Textbooks | None in particular. Materials will be provided by the lecturer. |
| Reference | Jan M. Smit (ed.), Elgar Encyclopedia of Comparative law (Edward Elgar, 2nd ed., 2012) Mathias Reimann and Reinhard Zimmermann (ed.), The Oxford handbook of comparative law (2nd, ed. OUP, 2019) |
| Grading Policy | Attendance 40%, final report 60%. Attendance is mandatory unless excused. No more than three absences are permitted. |
| Other Remarks | Zoom meeting invitation, ID and Password will be first circulated on CLE and KOAN. Students will be required to observe a number of rules that will be explained in due course. Students are encouraged to participate actively in the lessons. Students are also welcomed to consult with the instructor when necessary. |
| Office Hour | Reservation by email at any time |

| | |
|---|--|
| Course Code | 3B1528 |
| Offering Department | CO Design Center |
| Course Title | Special Lecture: Climate Change in Asia Pacific - Science and Solutions |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Friday 13:30-15:00 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | This course connects classrooms at university partners across Asia Pacific via videoconference. Students are introduced to the theory and practice of urban socio-technical and socio-ecological transformations. The focus is on the development of socially, ecologically and economically resilient strategies and solutions designed to respond to the mega-challenges of today including climate change and energy security. Students apply their learning through the examination of decarbonization strategies for low carbon cities in the region and explore a range of issues including the impact of sea level rise, the transition to renewable energy and climate change adaptation. |
| Learning Goals | Upon successful completion of the course students will be able to: Critically analyze, synthesize and reflect on recent trends and scholarly analysis of the effects and consequences of urbanization internationally, including the interplay of ecological, economic, political, social and cultural factors. Apply specialist knowledge and technical skills required to implement locally inspired solutions to a range of environmental and other consequences of urbanization. |
| Requirement / Prerequisite | None |
| Class Plan | A tentative course outline is shared below. This could be subject to change: Session 1: Course Introduction Session 2: Climate Science and Expected Impacts/Australian Bushfires of 2019/2020 Session 3: IPCC - History and Current Science Session 4: Accelerating Decarbonisation Session 5: Climate Change, Sea Level Rise and Coastal Cities & Coral Reefs Session 6: Renewable Energy in Samoa Session 7: Carbon Neutral Hawaii by 2045 Session 8: Carbon Divestment and Stranded Assets Session 9: Climate Policy in Japan Session 10: Climate Change and Asian Cities Session 11: Student Presentations (Pecha-kucha format) Session 12: Water Resource Issues in the Context of Climate Change Session 13: Climate induced Migration Session 14: Student Planned Session |
| Independent Study Outside of Class | Students will participate in online collaborations using Zoom video conference. They will prepare a short essay on the student collaboration. They will also work in groups to prepare a presentation on the decarbonization strategy of a specific city. The final assignment will be a major essay on the implications of a pressing global problem (food security, energy, climate change) for a city of their choice in the context of urban transition theory. |

| | |
|----------------------------------|---|
| Grading Policy | Student Collaboration: 15% Short Reflection Essay (800 words): 20% Group Presentations: 30% Major Essay (1,500 words): 35% |
| Other Remarks | The course syllabus has been jointly developed by faculty at the Osaka University Center for the Study of Co*Design, the University of Hawaii (USA), Waseda University, the University of Tsukuba and the National University of Samoa. Lectures will be delivered by faculty at these universities and by guest lecturers. |
| Keywords | Climate change, energy, low carbon economy, Asia Pacific, urbanisation |
| Messages to Prospective Students | This course takes place via Zoom and you will connect individually. During the class, you will interact with the student from our partner universities. Additional informal sessions may be organized just for Osaka University students in order to discuss administrative matters or to obtain student feedback on the course, etc. |

| | |
|---|---|
| Course Code | 3B1529 |
| Offering Department | CO Design Center |
| Course Title | Art of Collaboration: Creative Media Project |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 13:30-15:00 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | <p>In this course students will collaborate to develop a small creative work/media production project (short-form documentary of 5-6 minutes) around a contemporary social issue or theme.</p> <p>Learning about the entire production process (pre-production, production and post-production), students will respond to a professional client brief, undertake research and develop a project plan, including identification of the target audience and dissemination strategy.</p> <p>Professional practitioners and lecturers from our partner university (RMIT in Australia) will help by providing insights on contemporary practice involved with media production and support with technical and production issues.</p> <p>In addition, two technical workshops will be organized on production (how to use a camera, etc.) and post-production (video editing).</p> |
| Learning Goals | <p>Demonstrate knowledge of the practice and techniques of media production, including how to disseminate the creative work by YouTube and other channels..</p> <p>Employ technical skills and theoretical knowledge in solving problems associated with creative work.</p> <p>Work collaboratively with other students to plan and produce the creative work.</p> <p>Undertake research into contemporary media theory and practise.</p> <p>Presentation of the creative work to clients.</p> |
| Requirement / Prerequisite | None |
| Class Plan | <p>The tentative class schedule is shown below but may be subject to change due to unforeseen circumstances (i.e., availability of practitioners). Some out of classroom activities will also be required during the shooting of video.</p> <p>Session 1 — Introduction and Overview Session 2 — Project Briefing Session 3 — Research and Story Development Session 4 — Production Management and Planning Session 5 — In-Class Project Presentations - Pitching Session 6 — Camera Workshop Session 7 — Project Editing Session 8 — Production Research Session 9 — Production Session 10 — Workshop on Post-Production Session 11 — In Class Project Reviews Session 12 — Editing and Production Session 13 — Fine Edit – Responding to Feedback Session 14 — Editing and Production Session 15 — Final Project Screenings and Wrap Up</p> |

| | |
|------------------------------------|--|
| Independent Study Outside of Class | Students will participate in some lectures and workshops using Zoom video conference. You will also be required to film on location and to spend time at the Co*Design Center editing your videos. |
| Textbooks | Michael Rabiger and Courtney Hermann, 2020, Directing the Documentary - 7th Edition. |
| Grading Policy | Assignment 1: Project Pitch 25% Assignment 2: Project Review 25% Assignment 3: Project Screening 50% |
| Other Remarks | <p>Time Requirement: Since this course requires filming on location and video editing in the studio it is important that students are willing to make a significant time commitment.</p> <p>Class Attendance: As a participant in this course, you will be expected to attend all classes (whether online or face to face). If you cannot attend class because of illness, an emergency, or another legitimate reason, please email the instructors ahead of time.</p> <p>Participation: Your participation in discussions, activities and group work is critical to the success of the class.</p> |
| Keywords | Professional media production, video documentary, dissemination, social issues |
| Messages to Prospective Students | The course is designed for students who wish to develop new skills around video production. You do not need prior experience with the use of cameras and other technical equipment. Instead, workshops will be organized to help improve your skills. All equipment will be provided by the Co*Design Center. |

| | |
|---|--|
| Course Code | 88V009 |
| Offering Department | CO Design Center |
| Course Title | Reading Zizek in Japanese |
| Course Name (Sub Title) | Reading Slavoj Zizek in Japanese |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | Tuesday 18:30-21:40 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | This class is offered as part of the "Virtual Study Abroad Program" for both foreign students and Japanese students to read (parts of) the works of the philosopher and contemporary thinker Slavoj Zizek and to understand the process of international circulation of philosophical ideas in Japanese. The content of the course will be a preliminary reading of the assigned literature and discussion based on it. |
| Learning Goals | <ol style="list-style-type: none"> 1. To understand the person Slavoj Zizek by speaking Japanese. In other words, you are required to be able to outline for a third party what kind of person Zizek is. 2. To be able to use Zizek's writings as a clue to understand the significance of reading Zizek in the current COVID-19 pandemic situation. In other words, You can introduce Zizek's ideas to a third party. 3. Students will be able to formulate their own hypothesis as to why this teacher held such a class and what his motives were. |
| Requirement / Prerequisite | The professional knowledge is not required for the course. We study to read and discuss in Japanese (English also may be included). |
| Class Plan | We will read the textbook and reference books together. Assuming you've read it, we'll discuss it together. |
| Independent Study Outside of Class | The Standards for the Establishment of Universities by the MEXT stipulate that the total lecture time for a two-credit class should be required for at least 30 hours real coursework, and the study time outside of class (i.e., preparation and review) should be at least for 60 hours. Following this logic, this standard (guideline) would be met by having a list of references that is at least twice as long as the materials used in class time. In other words, students should refer to the bibliography of this course explanation. Thanks. |
| Textbooks | Zizek, Slavoj / Pandemic!: COVID-19 Shakes the World / Polity / 9781509546114 |
| Reference | Zizek, Slavoj / Pandemic! 2: Chronicles of a Time Lost / Polity / 9781509549078 Zizek, Slavoj / The Courage of Hopelessness: Chronicles of a Year of Acting Dangerously / Penguin / 9780141986098 |
| Grading Policy | Class participation (50%), several mini-reports (40%), evaluation of the presentation in the final class (10%) |
| Other Remarks | None in particular. If you have any questions, please email: rosaldo@cscd.osaka-u.ac.jp |
| Office Hour | I am also available for consultations via zoom, although this is not specifically stipulated. To make an appointment, please email: rosaldo@cscd.osaka-u.ac.jp |
| Keywords | Slavoj Zizek, pandemic, modern thought, philosophy, social meaning of pandemic |
| Messages to Prospective Students | If you don't know anything about Slavoj Zizek, please watch the program (mostly in English) on YouTube. If you have any questions about what he says in English, please feel free to ask me in class. Although I have never met him in person, Slavoj Zizek is one of the best and brightest persons who have taught me that to "philosophing" can be fun and exciting. |

| | |
|---|---|
| Course Code | 720564 |
| Offering Department | Center for Global Initiatives |
| Course Title | Industry and development in the modernization of Japan: university-industry collaboration |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | To understand about Industry and development in the modernization of Japan |
| Learning Goals | To gain knowledge about Industry and development in the modernization of Japan |
| Requirement / Prerequisite | not specified |
| Class Plan | <ol style="list-style-type: none"> 1. What is the modernization and industry? 2. Modernization and industry 3. Modernization and technology 4. University industry collaboration: Case study 1 5. University industry collaboration: Case study 2 6. Critical thinking on modernization and industry 7. To think about your research from the point of view "New industry" |
| Independent Study Outside of Class | To collect information about Industry and development |
| Textbooks | announced on CLE |
| Reference | announced on CLE |
| Grading Policy | announced on CLE |
| Office Hour | By email. Assoc Prof. Sumimura Yoshinori: sumimura@cgin.osaka-u.ac.jp |

| | |
|---|---|
| Course Code | 88V011 |
| Offering Department | Center for Global Initiatives |
| Course Title | Social development in modernization of Japan: modernization of health and university |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | To gain knowledge about Social development in the modernization of Japan |
| Learning Goals | To understand about Social development in the modernization of Japan |
| Requirement / Prerequisite | not specified |
| Class Plan | <ol style="list-style-type: none"> 1. What is the modernization of health? 2. Modernization of health and society development 3. Modernization of health and university: Case study 1 4. Modernization of health and university: Case study 2 5. Modernization of health and university: Case study 3 6. Critical thinking on modernization of health 7. To think about your research from the point of view "modernization of health" |
| Independent Study Outside of Class | To collect information about Social development in the modernization of Japan |
| Textbooks | announced on CLE |
| Reference | announced on CLE |
| Grading Policy | announced on CLE |
| Office Hour | By email. Assoc Prof. Sumimura Yoshinori: sumimura@cgin.osaka-u.ac.jp |

| | |
|---|--|
| Course Code | 88V012 |
| Offering Department | Center for Global Initiatives |
| Course Title | Writing Culture |
| Course Name (Sub Title) | 文化を書く |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Wednesday 15:10-16:40 |
| Targeted Students | Undergraduate Graduate |
| 開講言語 | 日本語 |
| 授業の目的と概要 | <p>「文化を書く」という営み、すなわち、ある社会集団の生活や社会活動が当事者にとってどのような意味をもっているのかを記述し、考察するという営みは、地域研究・人類学・社会学など幅広い学問分野において行われています。</p> <p>この授業では、履修者が各自で実際に、文化を書くことを実践しながら、対話し、省察することを通じて、それに必要な技法やスキルを学んでいきます。</p> <p>授業は演習形式で行い、以下の活動をつうじて進めていきます。</p> <p>(1) 履修者が、各自、具体的な質的調査を実施する (2) 概念を用いて事例記述と考察からなる作品を提出する (3) それにもとづいて教員や他の履修者とディスカッションする</p> |
| 学習目標 | <ul style="list-style-type: none"> ・質的調査にもとづいた一次資料を作成できる ・一次資料にもとづいて、事例記述ができる。 ・概念を用いて、事例の考察が展開できる。 |
| 履修条件・受講条件 | 地域研究・人類学・社会学などを専攻とする大学院生に限らず、エスノグラフィーに興味をもった学生の授業を歓迎します。 |
| 授業計画 | 以下の2つの形式を相互に行うことで授業を進めていく。 (1) テキストの該当箇所を読む発表をする 1回 (2) 事例発表とそのディスカッション、2～3回 |
| 授業外における学習 | 時間外に、具体的な質的調査を実施し、一次資料を作成・収集し、それにもとづいた事例記述を行うこと(3～4週間に1回程度)が求められます。 現在の研究において実施している調査にもとづいた作品を提出したり、すでに、執筆した修士論文や博士論文の中間報告、草稿の一部などでも構いません。 |
| 教科書・教材 | バーク、ピーター (2005)『歴史学と社会理論』第2版、佐藤公彦訳、慶應義塾大学出版会 Atkinson, Paul (2017) Thinking Ethnographically, SAGE Publication |
| 参考文献 | 主に教員が作成した教材を使用しますが、授業内容を理解し、さらに勉強するための書籍として以下のものをあげます。 エマーソン、ショウ、フレッツ (1998)『方法としてのフィールドノート—現地取材から物語作成まで』新曜社。 佐藤郁哉 (2002)『フィールドワークの技法—問いを育てる、仮説をきたえる』新曜社。 佐藤郁哉(2008)質的データ分析法—原理・方法・実践』新曜社。 Atkinson, Paul (2017) Thinking Ethnographically, SAGE Publication. Delamont, Sara & Atkinson, Paul (2021) Ethnographic Engagements: Encounters with the Familiar and the Strange, Routledge. |
| 成績評価 | 課題の提出(50%) ディスカッションへの参加・貢献(50%) |
| オフィスアワー | 月曜日 3限目 共創イノベーション棟 5 F 504B 島蘭洋介研究室 |

| | |
|------------|--|
| キーワード | エスノグラフィー 質的調査方法 地域研究 |
| 受講生へのメッセージ | 地域研究・人類学・社会学などを専攻とする大学院生に限らず、エスノグラフィーに興味をもった学生の授業を歓迎します。 |

| | |
|---|---|
| Course Code | 3B1221 |
| Offering Department | CO Design Center |
| Course Title | Literacy : Anthropological Theories |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | Wednesday 13:30-16:40 |
| Targeted Students | Undergraduate |
| Language of the Course | Japanese |
| Course Objective | What is cultural anthropology? How do cultural anthropologists investigate on a certain of society? This course will be particularly attentive to these questions. |
| Learning Goals | 1. Explain the difference between "Culture" and "cultures." 2. Critical analyze the strengths and weakness of cultural analysis. 3. Explain the present situation of global culture. 4. Understanding the difference between "common Culture" and "local cultures" |
| Requirement / Prerequisite | Both undergraduate and postgraduate students will be welcomed! |
| Class Plan | Part I (4 lectures) will show how "understanding other culture" experience can be compared to our way of appreciation of artistic works Part II (3 lectures) will deal with rather a unique kind of appreciating artistic works (like watching B-movies etc and compare it to a special kind of experiencing "other culture" (tourims). Part III (4 lectures) will show the way of applying the concept of "ostranenie" to those materials discussed in Part II. Part IV (4 lectures) concludes the whole argment by analysing the concept "representation" both in appreciating works of arts and in experiencing other cultures. |
| Independent Study Outside of Class | Matters such as the downloading of materials for revision and changes to the schedule will be notified on the "Qualitative research design and ethnography" page linked to on the web page as URL https://goo.gl/xPqYKz |
| Textbooks | Extracts from, Engaging anthropological theory : a social and political history / Mark Moberg, Routledge , 2013, and Anthropology as cultural critique : an experimental moment in the human sciences / George E. Marcus and Michael M.J. Fischer, Chicago : University of Chicago Press , 1986 |
| Reference | Clifford, James. 1988. The predicament of culture : twentieth-century ethnography, literature , and art . Harverd: Harvard University Press. After beginning the lecture, the useful information for students will be opened as URL https://goo.gl/xPqYKz |
| Grading Policy | Comprehensive judgment based on the class participation (60%) and report (40%) with consideration of the class participation (= spoken contribution to classes). |
| Other Remarks | After beginning the lecture, the useful information for students will be opened as URL https://goo.gl/xPqYKz |
| Office Hour | ask lecturer's by e-mail, rosaldod[at]csed.osaka-u.ac.jp |
| Keywords | anthropological theories, culture, society, critical theory, post-colonial, post-modernism |
| Messages to Prospective Students | Do you know the motto printed in T-shirt of a used book store in Berkeley, California, "Moe's" that I found ? - "Reading is Sexy." It's Great that I think. I will add in our class, "Doing anthropology is also Sexy, Philo-Sophies." This is my motto of objectivity of this class |

| | |
|---|---|
| Course Code | 201106 |
| Offering Department | Graduate School of Letters |
| Course Title | History of Japanese Thought L. |
| Course Name (Sub Title) | History of Confucianism in the 17th and 18th Century Japan |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 16:50-18:20 |
| Targeted Students | Graduate |
| Language of the Course | Japanese |
| Course Objective | The aim of this course is to rethink the development of Confucianism in the 17th and 18th century Japan. Special emphasis will be placed on the most important figure Ogyu Sorai. |
| Learning Goals | At the end of this course, students should be able to 1) point out and explain important figures and texts of Japanese Confucianism in the 17th and 18th century. 2) briefly explain the history of Japanese Confucianism in the 17th and 18th Century. 3) explain the relations between Confucianism and society in the 17th and 18th Century Japan. |
| Independent Study Outside of Class | Students should read assigned readings in advance each week. |
| Textbooks | No textbook in this course. Relevant materials will be provided during the course. |
| | 『日本思想史事典』(丸善出版、2020年) 丸山真男『日本政治思想史研究』, 東京大学出版会, 1952年 * 新装版1983年 渡辺浩『近世日本社会と宋学』, 東京大学出版会, 1985年 * 増補新装版2010年 子安宣邦『「事件」としての徂徠学』, 青土社, 1990年 * ちくま学芸文庫版2000年 尾藤正英『日本封建思想史研究: 幕藩体制の原理と朱子学的思惟』青木書店, 1961年 吉川幸次郎『仁斎・徂徠・宣長』岩波書店, 1975年 衣笠安喜『近世儒学思想史の研究』法政大学出版局, 1976年 本郷隆盛, 深谷克己編『講座日本近世史9 近世思想論』有斐閣, 1981年 渡辺浩『東アジアの王権と思想』東京大学出版会, 1997年 * 増補新装版2016年 子安宣邦『伊藤仁斎: 人倫的世界の思想』東京大学出版会, 1982年 同 『「事件」としての徂徠学』, 青土社, 1990年 * ちくま学芸文庫版2000年 同 『鬼神論: 儒家知識人のディスカール』福武書店, 1992年 * 新版2002年 同 『江戸思想史講義』岩波書店, 1998年 * 岩波現代文庫版2010年 同 『方法としての江戸: 日本思想史と批判的視座』ぺりかん社, 2000年 同 『伊藤仁斎の世界』ぺりかん社, 2004年 同 『徂徠学講義: 『弁名』を読む』岩波書店, 2008年 同 『仁斎学講義: 『語孟字義』を読む』ぺりかん社, 2015年 同 『仁斎論語: 論語古義現代語訳と評釈』(上)(下)ぺりかん社, 2017年 前田勉『近世日本の儒学と兵学』ぺりかん社, 1996年 同 『近世神道と国学』ぺりかん社, 2002年 同 『兵学と朱子学・蘭学・国学: 近世日本思想史の構図』ぺりかん社, 2006年 同 『江戸後期の思想空間』ぺりかん社, 2009年 同 『江戸の読書会: 会読の思想史』平凡社, 2012年 * 平凡社ライブラリー版2018年 |

| | |
|----------------|---|
| Reference | <p>同 『江戸教育思想史研究』思文閣出版, 2016年 田尻祐一郎『山崎闇斎の世界』ペリカン社, 2006年 荻生茂博『近代・アジア・陽明学』ペリカン社, 2008年 中村春作『思想史のなかの日本語：訓読・翻訳・国語』勉誠出版, 2017年 同 『徂徠学思想圏』ペリカン社, 2019年 辻本雅史『近世教育思想史の研究：日本における「公教育」思想の源流』思文閣出版, 1990年 同 『「学び」の復権：模倣と習熟』角川書店, 1999年 *岩波現代文庫版2012年 同 編『論集現代日本の教育史7 身体・メディアと教育』日本図書センター, 2014年 同 『思想と教育のメディア史：近世日本の知の伝達』ペリカン社, 2011年 頼祺一『近世後期朱子学派の研究』溪水社, 1986年 小島康敬『徂徠学と反徂徠』ペリカン社, 1987年, 増補版1994年 高島元洋『山崎闇斎：日本朱子学と垂加神道』ペリカン社, 1992年 片岡龍『16世紀後半から19世紀はじめの朝鮮・日本・琉球における「朱子学」遷移の諸相』春風社, 2020年 陶徳民『懐徳堂朱子学の研究』大阪大学出版会, 1994年 同 『日本漢学思想史論考：徂徠・仲基および近代』関西大学出版部, 1999年 源了圓編『江戸の儒学：『大学』受容の歴史』思文閣出版, 1988年 小島毅監修, 中村春作, 市来津由彦, 田尻祐一郎, 前田勉編『江戸儒学の中庸注釈』汲古書院, 2012年 中村春作, 市来津由彦, 田尻祐一郎, 前田勉編『訓読論：東アジア漢文世界と日本語』勉誠出版, 2008年 中村春作, 市来津由彦, 田尻祐一郎, 前田勉編『続「訓読」論：東アジア漢文世界の形成』勉誠出版, 2010年 小島毅監修, 中村春作編『訓読から見なおす東アジア』東京大学出版会, 2014年 横田冬彦『日本近世書物文化史の研究』岩波書店, 2018年 鈴木健一編『浸透する教養：江戸の出版文化という回路』勉誠出版, 2013年 鈴木俊幸編『江戸の読書熱：自学する読者と書籍流通』平凡社, 2007年 八鍬友広ほか編『識字と読書：リテラシーの比較社会史』昭和堂, 2010年 八鍬友広ほか編『識字と学びの社会史』思文閣出版, 2014年 柴田純『江戸武士の日常生活』講談社, 2000年 同 『日本幼児史：子どもへのまなざし』吉川弘文館, 2013年 同 『江戸のパスポート：旅の不安はどう解消されたか』吉川弘文館, 2016年 同 『考える江戸の人々：自立する生き方をさぐる』吉川弘文館, 2018年 源了圓, 玉懸博編『国家と宗教：日本思想史論集』思文閣出版, 1992年 江藤茂博, 町泉寿郎編『講座近代日本と漢学2 漢学と漢学塾』戎光祥出版, 2020年 小沢栄一『近世史学思想史研究』吉川弘文館, 1974年 末木文美士『日本仏教史』新潮社, 1992年 *新潮文庫版1996年 同 編『新アジア仏教史13 日本Ⅲ 民衆仏教の定着』佼成出版会, 2010年 同 編『妙貞問答を読む：ハビアン仏教批判』法蔵館, 2014年 大桑齊『寺壇の思想』教育社歴史新書, 1979年 同 『日本近世の思想と仏教』法蔵館, 1989年 同 『日本仏教の近世』法蔵館, 2003年 同 『民衆仏教思想史論』ペリカン社, 2013年 同 『近世の王権と仏教』思文閣出版, 2015年 同 『江戸真宗門徒の生と死』方丈堂出版, オクターブ(発売), 2019年 大桑齊, 前田一郎編『羅山・貞徳『儒仏問答』：註解と研究』ペリカン社, 2006年 真宗史料刊行会編『大系真宗史料 文書記録編15 大系真宗史料 近世倫理書』法蔵館, 2010年 曾根原理『徳川家康神格化への道：中世天台思想の展開』吉川弘文館, 1996年 同 『神君家康の誕生：東照宮と権現様』吉川弘文館, 2008年 同 『徳川時代の異端的宗教：戸隠山別当乗因の挑戦と挫折』岩田書院, 2018年 西村玲『近世仏教思想の独創：僧侶普寂の思想と実践』トランスビュー, 2008年 同 『近世仏教論』法蔵館, 2018年 引野亨輔『近世宗教世界における普遍と特殊：真宗信仰を素材として』法蔵館, 2007年</p> |
| Grading Policy | Class participation 15%, Quiz 30%, Final exam 55% |
| Office Hour | Tuesday 12:00-13:00 |

| | |
|---|---|
| Course Code | 311606 |
| Offering Department | Graduate School of International Public Policy |
| Course Title | International Relations of East Asia |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Wednesday 13:30-15:00 |
| Targeted Students | Graduate |
| Language of the Course | English |
| Course Objective | (IMPORTANT: Please read carefully the detailed syllabus uploaded on CLE one week before the first class meeting) This graduate seminar aims to foster historical and policy understanding of contemporary East Asia through reading, writing, and discussion. Students gain exposure to a broad range of perspectives into major events and themes in the region after WWII, and these perspectives encourage students to contemplate how the past can inform the future in East Asia. Weekly readings and writings help students develop critical thinking and academic writing skills. The final project—a policy memorandum—offers an opportunity for students to learn research, writing, and presentation skills essential for scholars, policymakers, and professionals. Basic knowledge about postwar East Asia is desired but not required. |
| Learning Goals | <ol style="list-style-type: none"> 1. Students gain broad knowledge about main events and themes in postwar East Asia. 2. Students gain wisdom to use history to better understand contemporary East Asia. 3. Students gain essential skills in academic reading, writing, and discussion. |
| Requirement / Prerequisite | N/A |
| Class Plan | Week 1: Introduction Week 2: Hiroshima and Nagasaki Week 3: American Occupation of Japan Week 4: Chinese Communist Revolution Week 5: Korean War Week 6: Cold War in Asia Week 7: Sino-Soviet Split Week 8: U.S.-Japan Alliance Week 9: Vietnam Week 10: Nixon Shock Week 11: North Korea Week 12: End of the Cold War in East Asia Week 13: The Rise of China Week 14: East Asia in the Age of Trump Week 15: Policy Briefings |
| Independent Study Outside of Class | <ol style="list-style-type: none"> 1. Weekly Readings and Response Papers 2. Policy Memorandum and Presentation |
| Textbooks | <ol style="list-style-type: none"> 1. Chen Jian, Mao's China and the Cold War (Chapel Hill: University of North Carolina Press, 2001). 2. Jennifer Miller, Cold War Democracy: The United States and Japan (Cambridge: Harvard University Press, 2019). 3. Additional readings will be uploaded on the course website. |
| Reference | The instructor will introduce students to further readings every week. |

| | |
|----------------------------------|---|
| Grading Policy | 1. Attendance and Participation (30%) 2. Weekly Response Papers (30%) 3. Policy Memorandum and Presentation (40%) |
| Other Remarks | IMPORTANT: Please read carefully the detailed syllabus uploaded on CLE one week before the first class meeting. (FYI, here is the syllabus from last year: https://www.dropbox.com/s/8gqyge931dsnb5h/Syllabus.pdf?dl=0) |
| Special Note | Students with disabilities who need special accommodations should contact the instructor and the OSIPP main office as early as possible. |
| Messages to Prospective Students | I welcome and accommodate students with all levels of English proficiency. If you have any questions or concerns about the course, I am happy to discuss them during office hours. |

| | |
|---|---|
| Course Code | 88V002 |
| Offering Department | Graduate School of Science |
| Course Title | Structural Organic Chemistry (I) |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | This course provides a overview of the fundamental principles of organic structure and property. |
| Learning Goals | You can understand physical organic aspects of organic compounds. |
| Class Plan | Lectures regarding the following topics are provided. 1. Chemical bonds 2. Conjugation 3. Steric hindrance 4. Aromaticity 5. Charge transfer complexes and electro-conductive materials 6. Free radicals and magnetic materials |
| Independent Study Outside of Class | Read textbooks and solve questions. |
| Textbooks | Modern Physical Organic Chemistry, Eric V. Anslyn, Dennis A. Dougherty, Univ Science Books |
| Grading Policy | Grading will be done based on the results of attendance and examination. |

| | |
|---|---|
| Course Code | 081250 |
| Offering Department | School of Engineering |
| Course Title | Control System Design |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | The lecture covers the design methods of feedback systems and the computational algorithm. This includes loop shaping design, the use of observers, and the linear quadratic optimal control. |
| Learning Goals | Students can acquire basic techniques and theoretical backgrounds for modern control design. |
| Requirement / Prerequisite | Prerequisite: Modeling and Control of Dynamic Systems, linear algebra and complex analysis |
| Class Plan | <ul style="list-style-type: none"> * Fundamental notions for feedback control (2) * Feedback control design (4) * Controllability and Observability (1) * Observer and feedback control (2) * State feedback controller design by pole assignment (1) * Optimal control and linear quadratic regulator (2) * Servo system (1) * Design of Kalman filter based on stochastic modeling (1) * Some topics on advanced control systems design (1) * Final examination (1) |
| Independent Study Outside of Class | Any computer-aided controller design software (such as Python-control, Scilab, MaTX, MATLAB(R)) would be quite helpful for efficient learning. |
| Reference | T.Sugie and M.Fujita, Basic feedback control (in Japanese), T.Yoshikawa and J.Imura, Modern Control Theory (in Japanese). |
| Grading Policy | Reports and the final examination |

| | |
|---|--|
| Course Code | 88V003 |
| Offering Department | Graduate School of Engineering |
| Course Title | Molecular Thermo-Fluid Engineering |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | It is important to understand various transport phenomena from the principle to develop the high efficiency thermal machines. The objective of this lecture is to understand various transport phenomena from the phenomena at the atomic and molecular scales and the relationships between the microscopic transport phenomena and the meso-macroscopic ones. |
| Learning Goals | to understand basic physics and chemistry for transport phenomena at molecular scale to understand numerical simulations for transport phenomena at molecular scale to understand engineering applications of transport phenomena at molecular scale |
| Class Plan | <ol style="list-style-type: none"> 1. Introduction 2. Transport phenomena at atomic and molecular scales 1 3. Transport phenomena at atomic and molecular scales 2 4. Temperature and pressure 5. Molecular dynamics simulation 1 6. Molecular dynamics simulation 2 7. Molecular dynamics simulation 3 8. Schrodinger equation and Newton's equation 9. Intermolecular potential and thermal properties of fluids 10. Phase interface and Phase change 11. Combustion synthesis of nanoparticles 12. Chemical reaction 1 13. Chemical reaction 2 14. Light absorption and emission 1 15. Light absorption and emission 2 |
| Independent Study Outside of Class | Report writing for lecture handout and related journal papers |
| Textbooks | |
| Reference | Molecular Thermo Fluid, Susumu Kotake, Maruzen, 1990. Non-equilibrium Statistical Mechanics, Makoto Katori, Shokabo, 1999. Atomic and Molecular Flows, JSME, Kyoritu Syuppan, 1996. |
| Grading Policy | Reports(35%), presentation(15%) and examination(50%). |
| Office Hour | Anytime. |

| | |
|---|---|
| Course Code | 090653 |
| Offering Department | School of Engineering Science |
| Course Title | Informatics for Engineering Science 1 |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | Network structures frequently arise in Information Science and play important roles for the representation, accumulation, distribution, and search of information. In this lecture, we learn the basics of Network Science. We specifically learn the following basic notions in Network Science; characteristic quantities, real-world examples, generation models, and dynamics taking place in networks. |
| Learning Goals | <ul style="list-style-type: none"> - To be able to list examples of networks - To understand basic notions in Network Science - To be able to relate students' major area and Network Science - To understand major generation models for complex networks |
| Requirement / Prerequisite | None |
| Independent Study Outside of Class | It is encouraged that students spend at least two hours for reviewing the materials in the last class before attending the next class. |
| Textbooks | 増田 直紀, 今野 紀雄 / 複雑ネットワーク—基礎から応用まで / 近代科学社 / 978-4764903630 |
| Reference | 右田 正夫, 今野 紀雄 / マンガでわかる複雑ネットワーク 巨大ネットワークがもつ法則を科学する / SBクリエイティブ / 978-4797356410 |
| Grading Policy | Homework after each class (70 pts) and the final report (30pt). Your grade is determined by the sum of these points on the basis of absolute rating. |
| Other Remarks | The first lecture will be held via Zoom in real time. The subsequent lectures will be provided online but NOT in real time. |
| Office Hour | Wednesday, the fourth period |
| Keywords | Complex networks, Information Science |

| | |
|---|--|
| Course Code | 090474 |
| Offering Department | School of Engineering Science |
| Course Title | Mathcomp B |
| Course Name (Sub Title) | Introduction to Machine learning |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | Machine learning has been getting connected to statistics in the late 1990's, and is now considered to play the most essential role of artificial intelligence. In this course, we understand the basics of (statistical) machine learning as correct as possible. In fact, without understanding the relation between input and output from the bottom, it would be hard to grasp the meaning of the analysis. In this course, not just understanding "what" but also "why" for the basic materials. In addition, we solve various problems using the R language and learn the notions. At the end of the semester, each of us is to make presentations for a given task using actual data. |
| Learning Goals | (1) Understand why each machine learning algorithm should take such a procedure. (2) Be persistent without admitting a statement before seeing its proof. |
| Requirement / Prerequisite | Take the course "Information Mathematics B" as well as this course. |
| Class Plan | <ol style="list-style-type: none"> 1. Introduction: what is machine learning?: Chap. 2 2. Linear Regression (1): Chap. 3 3. Linear Regression (2): Mathematical Derivations 4. Logistic Regression, Maximum Likelihood Estimation, Fisher Information: Chap. 4.3 5. Discrimination Analysis and k-nearest neighbor methods 判別分析: Chaps. 4.4, 4.5 6. Crossvalidation and Bootstrap: Chap. 5 7. Information Criteria: Chap 6.1 8. Ridge and Lasso Regressions: Chap 6.2 9. Principle Component Analysis, Principle Component Regression, and Partial Least Square: Chaps. 6.3, 10.2 10. Spline Regression and Generalized Additive Models: Chap 7. 11. Decision Tree: Chap. 8.1 12. Bagging, Random Forest, and Boosting: Chap. 8.2 13. Support Vector Machine: Chap. 9. 14. Clustering Chap. 10.3 15. Presentation: each is to make a presentation for a given task. |
| Independent Study Outside of Class | Solve the Problems given after each class and review the class. |
| Textbooks | Toukeiteki Kikaigakushu No Suuri 100 Mon (Kyoritsu Shuppan, March 2020). |
| Reference | |
| Grading Policy | will be evaluated mainly based on the presentation and reports (Problems) and the number of attendances will be also considered. |
| Office Hour | Wed 11:00-13:00 |
| Messages to Prospective Students | The students are to consider each statement using various examples. It is never hard to understand the course materials. |

| | |
|---|--|
| Course Code | 88V001 |
| Offering Department | School of Engineering Science |
| Course Title | Introduction to Chemical Engineering Science : Basic and Bio-Inspired Approach |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | The basics of chemical engineering are introduced. By employing chemical process as a case study, students will understand a conventional strategy on "Chemical Engineering": (i) Mass Balance (Unit Operations), (ii) Physico-Chemical Approach (Transport Phenomena / Equilibrium), (iii) Process Design. At the final stage, students will learn (iv) a new strategy utilizing self-organizing system, called as "Bio-Inspired Chemical Engineering". |
| Learning Goals | - Students will be able to understand the basic and conventional strategy of Chemical Engineering - Students will be able to contrast the above strategy and a new strategy with "Bio-Inspired" approach - Students will be able to imagine how they could pioneer a new philosophy of their own |
| Requirement / Prerequisite | Nothing Special (Students do not have to study prior to this lecture. Lecture will focus on "Chemical Process Design" that most of students would not be interested. But, try to understand "Its Strategy" and to think of its application to your study/research. So, please do not hesitate to join us !) |
| Class Plan | (1) Background: What's Chemical Engineering and Chemical Engineering Science ? (2) Scientist's Approach (1) : Transport Phenomena (Mass) (3) Scientist's Approach (2) : Phase Equilibrium (4) Engineer's Approach (1) : Mass Balance for Unit Operations (5) Engineer's Approach (2) : Let's Design Chemical Process [1] Distillation (6) Engineer's Approach (2) : Let's Design Chemical Process [2] Chemical Process (7) Engineering Scientist's Approach : Cutting-edge for NEXT Chemical Process ~Bio-Inspired Chemical Engineering Science~ (8) Small Examination |
| Independent Study Outside of Class | Relating information will be provided at each lecture as a "Further Reading". |
| Textbooks | Relating documents will be provided at each lecture. |
| Reference | References will be provided at each lecture in a "Further Reading" document. |
| Grading Policy | Brief-Report (Lecture (2)-(6)): 40%, Mini-Essay (Lecture (1) and (7)): 40%, Mini-Examination: 20% |
| Other Remarks | Nothing Special. Please enjoy "Cutting-Edge" on "Bio-Inspired Chemical Engineering", but unfortunately only at the final lecture (Lecture (7)). If students would be interested in such fields, they could have chance to register other courses (Bio-Inspired Chemical Engineering 1(Autumn) and 2(Winter) only for graduate students). |
| Office Hour | Friday 17:00-18:00 (JST) But, "commenting" at the "free comment column" at "Brief-Report" and "Mini-Essay" is recommended because this class will be held at "on-demand" style |
| Keywords | Engineering Science, Chemical Engineering, Bio-Inspired, Multi-Phase System, Self-Organizing System, Mass Balance, Process Design |
| Messages to Prospective Students | Please think of "What is Engineering Science?" by learning a "What is Bio-Inspired Approach?" as a case study of "Chemical Engineering Science". |

| | |
|---|---|
| Course Code | 13A718 |
| Offering Department | International College |
| Course Title | Introductory Chemistry BI |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | Monday 8:50-10:20 or asynchronous |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | To give 1st-year science students a solid foundational understanding on how energy interacts with matter: the science of thermodynamics. |
| Learning Goals | Detailed learning goals will be provided at the start of each lesson. |
| Requirement / Prerequisite | Introductory Chemistry AI (or equivalent) |
| Class Plan | <p>Week 1: Introduction to thermodynamics: systems, state quantities, ideal/perfect gases</p> <p>Week 2: Ideal Gas behaviour; Boltzmann distribution; the 0th Law of Thermodynamics</p> <p>Week 3: The 1st Law of Thermodynamics; internal energy, heat capacity, enthalpy</p> <p>Week 4: The 2nd Law of Thermodynamics: entropy</p> <p>Week 5: The 2nd Law of Thermodynamics: Gibbs Energy; phase transitions</p> <p>Week 6: Thermodynamic processes in nature: states of matter, etc.</p> <p>Week 7: Thermodynamic processes in nature: thermochemistry, etc.</p> <p>Week 8: Exam</p> |
| Independent Study Outside of Class | Students will need to work on exercise problems given during class, as well as review the contents of each lesson and prepare for upcoming lessons. |
| Textbooks | "Chemistry: A Molecular Approach", 2nd, 3rd, or 4th edition, Nivaldo Tro; "Atkins' Physical Chemistry", 9th edition; Peter Atkins & Julio de Paula |
| Reference | Physical Chemistry: A Molecular Approach, 1st edition, Donald McQuarries & John Simon |
| Grading Policy | Participation: 5% Exercises: 6 x 5% = 30% Final exam: 65% |
| Other Remarks | "Participation" covers things like how well you contribute to class discussions. |
| Office Hour | I can be contacted, in principal, at any time without special reservations. My office is room 510 of the IRB building, next door to the International College Office. |
| Messages to Prospective Students | This course is designed to roughly correspond to the equivalent Japanese language-taught Introductory Chemistry BI courses offered by the School of Science. |

| | |
|---|---|
| Course Code | 13A719 |
| Offering Department | International College |
| Course Title | Introductory Chemistry BII |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Winter term |
| Course Time JST (UTC+9) | Monday 8:50-10:20 or asynchronous |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | To further expand the foundations of chemistry for physical science major students by studying how matter interacts with energy: the field of physical chemistry. |
| Learning Goals | Detailed learning goals will be provided at the start of each class. |
| Requirement / Prerequisite | Introductory Chemistry BI (or equivalent) |
| Class Plan | <p>Week 1: Multi-component systems and chemical potential</p> <p>Week 2: Chemical potential of mixtures: gases and liquid solutions</p> <p>Week 3: Phase equilibria of two-component systems; colligative properties; phase rule</p> <p>Week 4: Chemical equilibrium 1 - the equilibrium constant</p> <p>Week 5: Chemical equilibrium 2 - ionic dissociation, acidity, redox reactions</p> <p>Week 6: Reaction rates 1 - reaction order</p> <p>Week 7: Reaction rates 2 - reaction rate constants, activation energy, & catalysis</p> <p>Week 8: Exam</p> |
| Independent Study Outside of Class | Students will need to work on exercise problems given during class, as well as review the contents of each lesson and prepare for upcoming lessons. |
| Textbooks | "Chemistry: A Molecular Approach", 2nd, 3rd, or 4th edition, Nivaldo Tro "Atkins' Physical Chemistry", 9th edition; Peter Atkins & Julio de Paula |
| Reference | "Physical Chemistry: A Molecular Approach", 1st edition, Donald McQuarries & John Simon |
| Grading Policy | Participation: 5% Exercises: 6 x 5% = 30% Finale exam: 65% |
| Other Remarks | "Participation" covers things like how well you contribute to class discussions. |
| Office Hour | I can be contacted, in principal, at any time without special reservations. My office is room 510 of the IRB building, next door to the International College Office. |
| Messages to Prospective Students | This course is designed to roughly correspond to the equivalent Japanese language-taught Introductory Chemistry BII courses offered by the School of Science. |

| | |
|---|---|
| Course Code | Z20019 |
| Offering Department | International College |
| Course Title | Biochemistry 2 |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 10:30-12:00 |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | This class is the continuation of Biochemistry 1. Students will learn about enzymes and how they catalyze biochemical processes. Students will also learn about metabolism of biomolecules. |
| Learning Goals | By the end of the course, students should be able to: 1.Explain how enzymes work and able to solve the enzyme kinetics calculations. 2.Explain the organic reactions of biochemical processes and the roles of enzyme in catalyzing them. 3.Apply the thermodynamic concept to assess and explain metabolic reactions. 4.Explain metabolic pathways of sugar, lipid and protein. |
| Requirement / Prerequisite | Biochemistry 1 – talk to the instructor if you have not taken or did not pass Biochemistry 1 |
| Class Plan | Below is the tentative schedule, it may change when necessary. Week 1: Introduction to enzyme Week 2: Rates of enzymatic reactions Week 3: Enzymatic catalysis Week 4: Introduction to metabolism Week 5: Glycolysis Week 6: Glycogen metabolism Week 7: Presentation and Review Week 8: Exam 1 Week 9: Signal transduction Week 10: Transport through membranes Week 11: Citric Acid Cycle Week 12: Electron transport and oxidative phosphorylation Week 13: Lipid Metabolism Week 14: Amino Acid Metabolism Week 15: Presentation and Review Week 16: Exam 2 |
| Independent Study Outside of Class | Read the textbook. Review the slides. |
| Textbooks | Biochemistry. Donald Voet & Judith Voet. 4th edition. John Wiley and Sons, USA. |
| Reference | Stryer Biochemistry is a good textbook that is easy to understand. |
| Grading Policy | Attendance: 10% Two exams: 90% (equal percentage for each exam) |
| Other Remarks | If you are in need of special accommodation due to disabilities and other special conditions, please consult with the International College Office in advance and notify the course instructor promptly. |

| | |
|---|---|
| Course Code | Z20067 |
| Offering Department | International College |
| Course Title | Exercise Session (Biochemistry 2) |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 13:30-15:00 |
| Targeted Students | Undergraduate |
| Language of the Course | English |
| Course Objective | This class is to be taken together with Biochemistry 2. See the syllabus for Biochemistry 2. |
| Learning Goals | By the end of the course, students should be able to: 1.Explain how enzymes work and able to solve the enzyme kinetics calculations. 2.Explain the organic reactions of biochemical processes and the roles of enzyme in catalyzing them. 3.Apply the thermodynamic concept to assess and explain metabolic reactions. 4.Explain metabolic pathways of sugar, lipid and protein. |
| Requirement / Prerequisite | Biochemistry 1 – talk to the instructor if you have not taken or did not pass Biochemistry 1 |
| Class Plan | Below is the tentative schedule, it may change when necessary. Week 1: Introduction to enzyme Week 2: Rates of enzymatic reactions Week 3: Enzymatic catalysis Week 4: Introduction to metabolism Week 5: Glycolysis Week 6: Glycogen metabolism Week 7: Presentation and Review Week 8: Exam 1 Week 9: Signal transduction Week 10: Transport through membranes Week 11: Citric Acid Cycle Week 12: Electron transport and oxidative phosphorylation Week 13: Lipid Metabolism Week 14: Amino Acid Metabolism Week 15: Presentation and Review Week 16: Exam 2 |
| Independent Study Outside of Class | Read the textbook. Review the slides. |
| Textbooks | Biochemistry. Donald Voet & Judith Voet. 4th edition. John Wiley and Sons, USA. |
| Reference | Stryer Biochemistry is a good textbook that is easy to understand. |
| Grading Policy | Attendance: 10% Homework and assignment: 45% Quiz: 45% |
| Other Remarks | If you are in need of special accommodation due to disabilities and other special conditions, please consult with the International College Office in advance and notify the course instructor promptly. |

| | |
|--------------|--|
| Special Note | <ul style="list-style-type: none">• Both the lecture and exercise classes need to be taken together.• There are two types of assignments: calculation/ problem solving/ essays which is paper-based and need to be done in the class and multiple choice which is CLE-based and should be completed within a week.• Quiz is conducted once every two weeks and is aimed to assess students' understanding of two chapters covered in the previous two weeks.• No re-exam for the course.• Students who failed the lecture class, but passed the exercise class previously are encouraged to join the exercise class in addition to retaking the lecture class. Access to CLE is granted and feedback is given to all exercise attempts. The answers to exercise and quiz are discussed during the exercise session. For the CLE exercise, students need to view the exercise within the submission period every week to gain a complete access to the exercise throughout the semester.• Under a circumstance that a student cannot come to do the quiz or take the exam due to sickness or medical condition, a chance to do the quiz and the exam at later date will be given only if the student shows a medical certificate from the doctor. Under other unavoidable circumstances, the student needs to show sufficient and relevant proof stating the reason why he/ she cannot come to do the quiz or to take the exam. Under all circumstances, whenever possible, the student needs to inform the instructor beforehand of his/ her absence.• Attendance point is subtracted for an absence during the semester without prior permission from the instructor. |
|--------------|--|

| | |
|---|---|
| Course Code | 280206 |
| Offering Department | Graduate School of Engineering |
| Course Title | Photonic Engineering |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 8:50-10:20 |
| Targeted Students | Graduate |
| Language of the Course | Japanese/English |
| Course Objective | Nonlinear optical effects, which are the interaction between strong light and materials, become increasingly important not only in basic science but also in bioimaging and optical communications. The aim of the lecture is to learn basic principles of the nonlinear optical effects to apply them to various fields in future for students. If necessary, basic knowledge of linear optics will also be explained. |
| Learning Goals | Students will acquire the basic knowledge of nonlinear optics and its application. |
| Requirement / Prerequisite | It is recommended to have learned the electromagnetism in advance. |
| Class Plan | Brief Overview : 1. Nonlinear optical effects and nonlinear susceptibility (2 times) 2. Second-order nonlinear optical effects (5 times) 3. Third-order nonlinear optical effects (3 times) 4. Induced Raman scattering (3 times) 5. General theory of nonlinear optical process (1 time) |
| Independent Study Outside of Class | homework given in the lectures |
| Textbooks | Introduction to nonlinear optics, by T. Hattori, Shokabo |
| Reference | "Nonlinear Optics," the second edition, by R. W. Boyd (Academic Press, 2003) |
| Grading Policy | Evaluation is made based on the report for the assignment at the end of the semester and the frequency of attendance to the class. |
| Office Hour | 10:00-18:00 |

| | |
|---|---|
| Course Code | 280476 |
| Offering Department | Graduate School of Engineering |
| Course Title | Surface and Interface Science |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Thuesday 13:30-15:00 |
| Targeted Students | Graduate |
| Language of the Course | Japanese/English |
| Course Objective | Surface is different! In this course, I will start from an introduction about the basic of surface science, explain how surface is different from bulk, and show some examples that relate to the creation of next generation devices using materials formed on solid surfaces. |
| Learning Goals | By learning about the peculiar low-dimensional physical phenomena that occur at surfaces and interfaces, students will understand the operating principles of novel quantum devices. |
| Class Plan | 1. Introduction 2. Thermodynamics 3. Structure: symmetry 4. Atomic structure 5. Scanning tunneling microscopy 6. Low-energy electron diffraction 7. Work function 8.9. Electron at surfaces; band dispersion 10. Principle of photoelectron spectroscopy 11. Core-level photoelectron spectroscopy 12. Angle-resolved photoelectron spectroscopy 13. Spin-polarized electron at surfaces 14. Atomic layer materials on solid surfaces 15. Carrier dynamics at surfaces |
| Independent Study Outside of Class | One should consider about applying the content of this lecture to your own research. |
| Textbooks | PDF files distributed at the lecture. |
| Reference | Physics at surfaces, A. Zangwill |
| Grading Policy | report (100%) |
| Office Hour | Please contact by e-mail in advance |

| | |
|---|--|
| Course Code | 290851 |
| Offering Department | Graduate School of Engineering Science |
| Course Title | Bio-Inspired Chemical Engineering 1 |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Graduate |
| Language of the Course | English |
| Course Objective | The bio-system has a variety of efficient and potential functions to adapt itself to the given environment. In the "bio-system", an efficient and selective strategy to produce valuable materials has been employed by utilizing their self-organizing nature, while a strategy with higher consumption of materials and energy must be selected in the "artificial system" utilized in the conventional chemical/bio process. The most essential and important aspect in the "bio-system" is the use of "self-organizing system". In this lecture, review will be given on the new direction of chemical engineering, inspired by the bio-systems through the utilization of nature and function of the self-organizing system. This course includes the lectures for the basic and systematic information on the biofunctional materials design, the pair-work and/or discussion for the creation of new idea to develop their faculty. |
| Learning Goals | At the end of this lecture, students will be able to <ul style="list-style-type: none"> - Explain the basic characteristics of bio-elemental materials and (model) biomembrane. - Contrast the conventional bioseparation using phase-separating system and "bio-inspired" separation utilizing self-organizing system, focusing on their characteristics - Understand the cutting-edge of the conventional and next materials design - Understand the basic concept and strategy of B-ICE for next chemical engineering from both microscopic and macroscopic viewpoints. - Classify the basic and systematic information of B-ICE through the Lectures - Explain the basic concept of B-ICE based on the Individual Case Study - Display their Comment based on the basic skills on discussion / communication in General Discussion |
| Requirement / Prerequisite | Attendance, Presentation and Proposal |
| Class Plan | [1] Guidance (Bio-Chemical Engineering and Bio-Inspired Chemical Engineering, Overview of Bioseparation) [2] Basic Information of Biomaterials [3] Up-stream Process (1) (Cell Disruption, Filtration, Centrifugation) [4] Up-stream Process (2) (Cell Disruption, Filtration, Centrifugation) [5] Down-stream Process (1) (Extraction, Precipitation, Chromatography) [6] Down-stream Process (2) (Extraction, Precipitation, Chromatography) [7] Down-stream Process (3) (Extraction, Precipitation, Chromatography) [8] Examination |
| Independent Study Outside of Class | Reference will be introduced in each lecture. Students should better to read the reference before and after each lecture. |
| Textbooks | Some references will be supplied in each lecture. |
| Reference | Reference will be introduced in each lecture. |
| Grading Policy | 60% Short comment for each lecture, 40% Examination |

| | |
|----------------------------------|---|
| Other Remarks | Be proud of yourself as a Chemical Engineering Scientist. The students should learn how to elucidate the fusion of the different concepts or researches through the case study of his/her individual research field. The lecture on the communication skills will also be given for the completion of their individual concept mapping. |
| Office Hour | 16:00-17:00, Friday C329 Umakoshi 16:20-17:50, Friday C335 Okamoto |
| Keywords | Bio-Inspired, Self-assembly, Bioseparation, Biochemical Engineering, Analytical Chemistry |
| Messages to Prospective Students | Students should begin to think of what's next in chemical engineering. You can check the "COURSE OUTLINE" of B-ICE2020. https://1drv.ms/u/s!AsJWITSxR11shLRgQ1RFb82P7nLwNQ?e=M079ut |

| | |
|---|--|
| Course Code | 290852 |
| Offering Department | Graduate School of Engineering Science |
| Course Title | Bio-Inspired Chemical Engineering 2 |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Winter term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Graduate |
| Language of the Course | English |
| Course Objective | The bio-system has a variety of efficient and potential functions to adapt itself to the given environment. In the "bio-system", an efficient and selective strategy to produce valuable materials has been employed by utilizing their self-organizing nature, while a strategy with higher consumption of materials and energy must be selected in the "artificial system" utilized in the conventional chemical/bio process. The most essential and important aspect in the "bio-system" is the use of "self-organizing system". In this lecture, review will be given on the new direction of chemical engineering, inspired by the bio-systems through the utilization of nature and function of the self-organizing system. This course includes the lectures for the basic and systematic information on the biofunctional materials design, the pair-work and/or discussion for the creation of new idea to develop their faculty. |
| Learning Goals | At the end of this lecture, students will be able to <ul style="list-style-type: none"> - Explain the basic characteristics of bio-elemental materials and (model) biomembrane. - Contrast the conventional bioseparation using phase-separating system and "bio-inspired" separation utilizing self-organizing system, focusing on their characteristics - Understand the cutting-edge of the conventional and next materials design - Understand the basic concept and strategy of B-ICE for next chemical engineering from both microscopic and macroscopic viewpoints. - Classify the basic and systematic information of B-ICE through the Lectures - Explain the basic concept of B-ICE based on the Individual Case Study - Display their Comment based on the basic skills on discussion / communication in General Discussion |
| Requirement / Prerequisite | Attendance, Presentation and Proposal |
| Class Plan | [1] Overview of Bio-Inspired Chemical Engineering [2] Basic Information of Amphiphilic Biomolecules and Their Self-Assemblies [3] Basic Science in "Bio-Inspired Chemical Engineering" (1) (Physicochemical Properties) [4] Basic Science in "Bio-Inspired Chemical Engineering" (2) (Physicochemical Properties) [5] Cutting Edge of "Bio-Inspired Chemical Engineering" (1) (Bioseparation) [6] Cutting Edge of "Bio-Inspired Chemical Engineering" (2) (Bioanalysis) [7] Cutting Edge of "Bio-Inspired Chemical Engineering" (3) (Medical Application) [8] Research Proposal |
| Independent Study Outside of Class | Reference will be introduced in each lecture. Students should better to read the reference before and after each lecture. |
| Textbooks | Some references will be supplied in each lecture. |
| Reference | Reference will be introduced in each lecture. |
| Grading Policy | 45% Comments for Every Weeks 30% Report [(1) Concept Map] and [(2) Other Research] (15% for each) 25% Final Report [(3) Research Proposal] |

| | |
|----------------------------------|---|
| Other Remarks | Be proud of yourself as a Chemical Engineering Scientist. The students should learn how to elucidate the fusion of the different concepts or researches through the case study of his/her individual research field. The lecture on the communication skills will also be given for the completion of their individual concept mapping. |
| Office Hour | 16:00-17:00, Friday C329 Umakoshi 16:20-17:50, Friday C335 Okamoto |
| Keywords | Bio-Inspired, Self-assembly, Bioseparation, Biochemical Engineering, Analytical Chemistry |
| Messages to Prospective Students | Students should begin to think of what's next in chemical engineering. |

| | |
|---|--|
| Course Code | 29J833 |
| Offering Department | Graduate School of Engineering Science |
| Course Title | Vibrations and Waves |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Monday 16:50-18:20 or asynchronous |
| Targeted Students | Graduate |
| Language of the Course | Japanese |
| Course Objective | Acoustic waves propagating in solid materials are widely used in materials science, medical imaging, biosensors, and many electric devices. In this course, we intend to focus on the fundamental physical principle of elastic waves (bulk waves and guided waves) in solid materials and mechanics of acoustic-wave generation by piezoelectric sensors and electromagnetic acoustic sensors. |
| Learning Goals | Understand basic theory of elastic waves and principles of practical ultrasonic sensors. |
| Requirement / Prerequisite | Mathematics (partial differential equations), mechanics of materials, electricity and magnetism |
| Class Plan | <ol style="list-style-type: none"> 1.Introduction 2.Fundamental of acoustics 3.Stress, strain, and Hooke's law 4.Anisotropic materials and elastic symmetry 5.Elastic waves in a solid 6.Reflection, transmission, and refraction 7.Exercise 1 8.Guided waves in a plate 9.SH guided waves: dispersion relationship and nondestructive evaluation 10.Fundamental of dielectric materials 11.Piezoelectric materials 12.Ultrasonics propagating in a piezoelectric material 13.Exercise 2 14.Resonance vibration and electromagnetic acoustic transducer 15.A review of nondestructive testing Above contents are subject to change. |
| Independent Study Outside of Class | Brush the contents of each lecture. |
| Reference | B. A. Auld, "Acoustic Fields and Waves in Solids", Vol.I, Wiley-Interscience, New York, 1973. |
| Grading Policy | Attendance, exercise, and report |
| Office Hour | Questions and discussions are accepted in the office whenever available. |

| | |
|---|---|
| Course Code | 290452 |
| Offering Department | Graduate School of Engineering Science |
| Course Title | Strength of Structure |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Wednesday 13:30-15:00 |
| Targeted Students | Graduate |
| Language of the Course | Japanese |
| Course Objective | Know the cutting-edge science and technology, and understand the role of experts on material strength. |
| Learning Goals | 1. Learn the advanced knowledge of the effects of external fields (light, heat, electric fields) on material strength. 2. Learn the relationship between material strength and human history. 3. Learn the state-of-the-art experimental equipments. |
| Requirement / Prerequisite | It is desirable to have had the basic knowledges of material strength. |
| Independent Study Outside of Class | Focus on the internal structure of solids. Think about how advanced devices are made. |
| Textbooks | We do not use specific textbooks. |
| Reference | This will be shown if needed. |
| Grading Policy | Grading will be based on your attitude (20%) for the class and submitted reports (80%) |
| Other Remarks | Lecture notes will be distributed if necessary. |
| Office Hour | 5 pm to 6 pm on weekdays (except during meeting) |
| Keywords | Interatomic bonds, crystal structure, quantum mechanics, external field effects, crystal plasticity, nanomechanics |
| Messages to Prospective Students | Recent discoveries are about to bring about a major paradigm shift in the areas of material strength and crystal plasticity. Above all, the incorporation of quantum mechanical perspectives is a historical turning point. Over the next few decades, drastic innovations are expected in the materials used by humankind, and you will understand the world's most advanced research on material strength and processing in this class. |

| | |
|---|---|
| Course Code | 29J719 |
| Offering Department | Graduate School of Engineering Science |
| Course Title | Mixed Reality Systems |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Tuesday 15:10-16:40 or asynchronous |
| Targeted Students | Graduate |
| Language of the Course | Japanese |
| Course Objective | Mixed reality (MR) system supports our daily activities by seamlessly merging physical and cyber spaces. For instance, a camera-equipped phone is widely used as a platform of an MR system which provides a user with various location-aware information such as navigation by overlaying it on the captured image of a street displayed on the phone. This type of MR systems are realized based on computer vision and graphics technologies. This lecture provides these basic technologies as well as state-of-the-art techniques which realize better user experiences. It also covers MR technique in terms of tactile and auditory modalities. |
| Learning Goals | Through the series of lectures, you will be able to... <ul style="list-style-type: none"> - Define MR by explaining the difference of MR from VR - Explain how geometric consistency is achieved - Explain how radiometric consistency is achieved - Explain how real-time constraint is achieved - Explain how geometric and radiometric corrections are achieved in projection-based MR - Know new MR research directions (diminished reality/non-visual MR/cross-modal MR/light field MR) - Plan own MR system - Criticize MR systems in terms of novelty and the validity of chosen techniques |
| Requirement / Prerequisite | CLE, KOAN and e-mail are used for providing information. Basic C/C++ programming skills are required. << The class is held in Japanese this year. English class will be held in the next year. >> |
| Class Plan | All classes are held in online media style. 1. Overview of MR systems 2. 3D shape reconstruction, Shape-from-X 3. Marker-based AR, Marker tracking, CG rendering basics 4. Marker-less AR, Face recognition & tracking, Image feature points 5. Inverse rendering, Reflectance estimation, Light source estimation 6. High dynamic range imaging 7. Parallel processing, Multi-thread processing, GPU 8. Projector-camera systems 9. 3D display techniques 10. Computational Photography 11. Mobile AR, Retargeting 12. Multimodal MR, Crossmodal MR 13. Mixed reality systems project 1 14. MR Applications 15. Mixed reality systems project 2 |
| Independent Study Outside of Class | Homework (assignments) should be done outside of class. Students also should work on the mixed reality systems project outside of class. |
| Textbooks | Not specified. Provided via CLE. |

| | |
|----------------|---|
| Reference | Oliver Bimber and Ramesh Raskar. Spatial Augmented Reality: Merging Real and Virtual Worlds. A K Peters, 2005. Erik Reinhard, Wolfgang Heidrich, Paul Debevec, Sumanta Pattanaik, Greg Ward, and Karol Myszkowski. High Dynamic Range Imaging, Second Edition: Acquisition, Display, and Image-Based Lighting. Morgan Kaufmann, 2010. Sing Bing Kang, Yin Li, and Xin Tong. Image-Based Rendering. Now Publishers Inc, 2007. Richard Szeliski. Computer Vision: Algorithms and Applications. Springer, 2010. |
| Grading Policy | Mixed reality systems project 50% and homework 50%. |
| Other Remarks | n/a |
| Office Hour | Any questions are accepted via email. If needed, oral QA is done via Zoom. |

| | |
|---|---|
| Course Code | 331308 |
| Offering Department | Graduate School of Information Science and Technology |
| Course Title | Theory of Distributed System Software |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Wednesday 13:30-15:00 |
| Targeted Students | Graduate |
| Language of the Course | English |
| Course Objective | With rapid growth of the Internet as a global and huge scale network, it is required to design autonomous distributed systems. Because of asynchrony and nondeterminism of distributed systems, design and implementation of huge scale distributed systems are not easy. In this lecture, we study methodology for design of software for distributed systems. Fault-tolerance is also an important issue in huge scale distributed systems, and we study fault-tolerant distributed algorithms too. |
| Learning Goals | After taking this lecture, you will be able to 1. Understand characteristics of distributed systems and explain them using concrete examples, 2. Understand fundamental distributed algorithms and present examples of their executions (behaviors), 3. Understand design techniques of distributed algorithms and design fundamental distributed algorithms, 3. Understand computational complexity specific to distributed algorithms and analyze computational complexity of distributed algorithms |
| Class Plan | In this lecture we study distributed algorithms as a fundamental software technology for design and implementation of distributed systems built on top of computer networks. 1. Computational models of distributed systems 2. Clocks 3. Snapshot 4. Flooding 5. Shortest path (1) 6. Shortest path (2) 7. Check pointing and rollback 8. Leader election (1) 9. Leader election (2) 10. Consensus (1) 11. Consensus (2) 12. Failure detector 13. Self-stabilization 14. Wait-freedom (1) 15. Wait-freedom (2) Note: Ordering of topics and contents are subject to change. |
| Independent Study Outside of Class | Assignment is given after every lecture on CLE online. |
| Textbooks | Not specified. Handouts are distributed. |
| Reference | Kameda and Yamashita: "Distributed Algorithms" (in Japanese), Kindaikagakusha, 1994. H. Attiya and J. Welch: "Distributed Computing", McGraw-Hill, 1998. Masuzawa and Yamashita: "Adaptive Distributed Algorithms", Kyoritsu Syuppan, 2010. G. Tel, "Introduction to Distributed Algorithms", Cambridge University Press, 2000. |
| Grading Policy | mini-reports provided basically at each lecture using the CLE system |
| Other Remarks | Contents of this lecture are subject to change |
| Office Hour | http://www.ist.osaka-u.ac.jp/japanese/curriculum/officehour.html |

| | |
|---|--|
| Course Code | 331525 |
| Offering Department | Graduate School of Information Science and Technology |
| Course Title | Advanced Introductuon to Information Networking |
| Course Name (Sub Title) | |
| Number of Credits | 2 |
| ETCS | 3.6 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall and Winter term |
| Course Time JST (UTC+9) | Wendnesday 15:10-16:40 |
| Targeted Students | Graduate |
| Language of the Course | Japanese/English |
| Course Objective | This lecture presents an advanced introduction to modern information networking technologies. This lecture also covers introductory topics for networking research methodologies such as system performance analysis techniques and networking algorithms. |
| Learning Goals | - To understand principle technologies at each layer based on the layered network protocol architecture - To understand the latest networking technologies and researches |
| Requirement / Prerequisite | The number of students is limited by 80. Students from Graduate School of Information Science and Technology are given higher priority. A moderate experience on Internet usage and basic knowledge on computer networking are required. |
| Class Plan | <p>※The order of classes may be changed. ※Classes may conduct online according to the infection status of the COVID-19.</p> <p>1 Introduction 2 The Application Layer 3-4 The Transport Layer 5-6 The Network Layer 7-8 The DataLink Layer 9 Mobile Networks 10 Network Management 11-12 Network Applications and Security 13-15 Start-of-the-Art Network Research Issues</p> |
| Independent Study Outside of Class | Reports are given at all the sections. |
| Textbooks | Not specified, but the following is a reference book James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach (7th Edition), Pearson, 2017. |
| Reference | - James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach (7th Edition), Pearson, 2017. - Andrew S. Tanenbaum and David J. Wetherall, Computer Networks (5th Edition), Prentice Hall, 2010. |
| Grading Policy | Report 80% + Attendance 20% (no examination) |
| Office Hour | http://www.ist.osaka-u.ac.jp/japanese/curriculum/officehour.html |

| | |
|---|---|
| Course Code | 885013 |
| Offering Department | Graduate School of Frontier Biosciences |
| Course Title | Introduction to Nanobiology I |
| Course Name (Sub Title) | Biophysics |
| Number of Credits | 0.5 |
| ETCS | 0.9 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | <p>The objective of this lecture is to understand life science, the basics and the methodology, quantitatively based on physical methods. The goal of this lecture is to understand biology using mathematics, statistical mechanics, etc. rather than just understanding biology as knowledge.</p> <p>Especially, we will focus on the observing and measuring method by using optical microscope. In the second half of the lecture, lectures will be given on the latest research methods using biophysics, focusing on bacterial flagellar motors and chemotaxis. Since preparation of biological samples for measurement requires knowledge of molecular biology, gene manipulation techniques using molecular biology are explained according to the actual flow of research.</p> |
| Learning Goals | Quantitative understanding the phenomenon of living organisms by using biophysics |
| Class Plan | 01: Basics of physics, Basics of biochemistry, Statistical mechanics 02: Basics of optical microscope, Latest imaging technology 03: Gene manipulation according to the actual flow of research 04: Research methods using biophysics, focusing on bacterial flagellar motors and chemotaxis |
| Textbooks | Not specified |
| Grading Policy | Report |

| | |
|---|--|
| Course Code | 885015 |
| Offering Department | Graduate School of Frontier Biosciences |
| Course Title | Introduction to Biomolecular Networks |
| Course Name (Sub Title) | Introduction to Biomolecular Networks VI |
| Number of Credits | 0.5 |
| ETCS | 0.9 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | In postgenomic era, transcriptomic analyses revealed numerous transcripts with unknown function are produced from mammalian genomes, then they were termed genomic dark matter. This lecture will include multiple topics of lncRNAs including the transcriptomic analyses, the features, function and evolution of lncRNAs. Furthermore, some recent topics such as the epigenetic control and nuclear architecture by lncRNAs, their involvement in various diseases and advanced technologies for lncRNA research will be introduced. |
| Learning Goals | The aim of this lecture is to understand the newly appeared genomic functions including lncRNA production. The lecture will particularly focus on how the whole genomic information are precisely expressed, diversified and regulated by lncRNAs. |
| Class Plan | 1. Newly emerged genomic functions: RNA dark matter and RNA diversification 2. Epigenomic controls by noncoding RNAs 3. Intracellular architecture by noncoding RNAs 4. Physiological functions of noncoding RNAs |
| Textbooks | Handout of PPT slides |
| Reference | Molecular Biology of the Gene, 7th ed |
| Grading Policy | Evaluated by report contents |

| | |
|---|--|
| Course Code | 885016 |
| Offering Department | Graduate School of Frontier Biosciences |
| Course Title | Introduction to Integrated Biology |
| Course Name (Sub Title) | Introduction to Integrated Biology IV (Intracellular membrane traffic) |
| Number of Credits | 0.5 |
| ETCS | 0.9 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | Oct 25 and Nov 1 13:30-16:40 or asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | Eukaryotic cells are equipped with the intracellular traffic network by which a variety of macromolecules intercommunicate among organelles. The traffic is executed by dynamic membrane movement, so-called membrane traffic. In the course, I provide a general introduction of membrane traffic, and then focus on autophagy, one of the membrane traffic pathways of which mechanisms and roles have been understood recently as an example. |
| Learning Goals | To understand outline of intracellular membrane traffic. To understand functions of each of the membrane traffic pathway. To understand basal mechanisms and roles of autophagy. |
| Textbooks | No textbook. |
| Reference | Molecular Biology of the Cell |
| Grading Policy | Full attendance and discussion during the course. |

| | |
|---|--|
| Course Code | 885017 |
| Offering Department | Graduate School of Frontier Biosciences |
| Course Title | Introduction to Biophysical Dynamics |
| Course Name (Sub Title) | Introduction to Biophysical Dynamics III (Physics in biosciences) |
| Number of Credits | 0.5 |
| ETCS | 0.9 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | Oct 26 and 28 8:50-12:00 |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | English |
| Course Objective | Physics is the most basic explanation of natural sciences including bio- and life-sciences. The aim of this lecture is to understand the relation of the physics including classical and quantum mechanics to biosciences. |
| Learning Goals | The goal of this lecture is that students get ability to understand roughly the relation of physics to biosciences. |
| Class Plan | 1. Basis of quantum mechanics 2. Electronic structure of matters 3. Quantum effect appearing in life 4. Interface between materials science and life science |
| Independent Study Outside of Class | Reading references. |
| Reference | J. Al-Khalili and J. McFadden, "Life on the Edge, The Coming of Age of Quantum Biology", Bantam Press. E. Schrödinger, "What Is Life? The Physical Aspect of the Living Cell", Cambridge University Press. |
| Grading Policy | class participation (50%) and Reports (50%) |
| Office Hour | Any time |

| | |
|---|--|
| Course Code | 885014 |
| Offering Department | Graduate School of Frontier Biosciences |
| Course Title | Introduction to Biomolecular Networks |
| Course Name (Sub Title) | Introduction to Biomolecular Networks II 1,Protein Qualification and Quantification using Mass spectrometry (Oct,28) 2,Mechanism of cardiomyocyte contraction (Nov.11) |
| Number of Credits | 0.5 |
| ETCS | 0.9 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | Oct 28 and Nov 1 13:30-16:40 |
| Targeted Students | Graduate |
| Language of the Course | English |
| Course Objective | 1,Understand the importance and techniques of quantifying and qualifying proteins. 2,Understand the molecular mechanism of cardiomyocyte contraction |
| Learning Goals | 1, Acquire basic principles and applied methods of mass spectrometry 2, Acquire the basic knowledge of acto-myosin contraction |
| Requirement / Prerequisite | Reading the related articles introduced in the lecture |
| Class Plan | 1,Protein Qualification and Quantification using Mass spectrometry (Oct,28) 2,Mechanism of cardiomyocyte contraction (Nov.11) |
| Independent Study Outside of Class | Reading the related articles introduced in the lecture |
| Grading Policy | Submit a report related to the content of the lecture in one A4 sheet by Email. (Takasima@cardiology.med.osaka-u.ac.jp) |

| | |
|---|---|
| Course Code | 88V005 |
| Offering Department | Graduate School of Child Development |
| Course Title | Human Movement and Health 1 |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term |
| Course Time JST (UTC+9) | Thursday 16:50-18:20 (*18:30-20:00 Oct 1 and Dec2) or asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | The purpose of this course is to learn various aspects of motor and postural control. Students learn anatomical basis of brain regions and conduction pathways, such as motor areas in the central nervous system (CNS), pyramidal tract and extrapyramidal tracts, and then molecular and cellular mechanisms of neuromuscular excitation and synaptic transmission. After these, lectures focus on mechanisms controlling movements and postures and their contribution to coordinated movements. |
| Learning Goals | This course aims to enable students to: <ul style="list-style-type: none"> · explain nature and properties of molecules that control of motor functions in the CNS and peripheral nervous system (PNS) · explain mechanisms controlling motor and postural functions and their involvement in coordinated movements. |
| Requirement / Prerequisite | As audio-visual materials including lecture videos are provided for e-learning, students should be proficient in the use of CLE, a web-based learning system. |
| Class Plan | <p>【Plan】 (Osamu HORI/Lec 1-3) Learn anatomical basis of neurons, muscle cells, and neural functions and structures that control central and peripheral motor functions. (Shigeru YOKOYAMA/Lec 4-8) Learn physiological basis of nerve excitation, conduction of electrical impulses, and synaptic transmission, based on the understanding of functional molecules in neurons and muscle cells. Also learn mechanisms controlling movements and postures and their contribution to coordinated movements.</p> <p>Lec 1 Spinal cord and muscles Lec 2 Anatomy of pyramidal tract Lec 3 Anatomy of the brain associated with coordinated movement Lec 4 Physiology of excitation-conduction in nerve and muscle ① Lec 5 Physiology of excitation-conduction in nerve and muscle ② Lec 6 Physiology of posture and locomotion ① Lec 7 Physiology of posture and locomotion ② Lec 8 Physiology of coordinated movements</p> |
| Independent Study Outside of Class | Lecture handout will be e-mailed in advance. It is recommended that participants go through it and list up questions. E-Learning materials (class videos) will be posted on the Web Learning System (CLE), Participants are encouraged to utilize them for review. |
| Textbooks | Appropriate textbooks and reference books will be introduced during the lecture. |
| Grading Policy | Based on both lectures (questions and discussion; approx. 50%) and reports (approx. 50%).. Important thing upon evaluation is the comprehensive understanding of motor and postural functions, not the amount of detailed knowledge. |
| Other Remarks | It is recommended that any student with a disability, who needs special accommodations, be in contact with student affairs office in his/her school before the start of the term. |

| | |
|---|--|
| Course Code | 88V006 |
| Offering Department | Graduate School of Child Development |
| Course Title | Human Movement and Health 2 |
| Course Name (Sub Title) | |
| Number of Credits | 1 |
| ETCS | 1.8 |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Winter term |
| Course Time JST (UTC+9) | Thursday 16:50-18:20 (*18:30-20:00 Jan 6 and Feb 3) or asynchronous |
| Targeted Students | Undergraduate Graduate |
| Language of the Course | Japanese |
| Course Objective | The purpose of this course is to learn various disorders of the nervous system that cause abnormal and involuntary movements. These include developmental coordination disorder, stereotypic movement disorder, and the tic disorders. Students obtain advanced knowledge of these disorders. |
| Learning Goals | This course aims to enable students to: <ul style="list-style-type: none"> · list up CNS and peripheral nervous system (PNS) diseases that cause motor disturbance and explain their pathophysiology · list up genome abnormalities that cause neurodevelopmental disorders and explain their pathogenic mechanisms · explain research methods using animal models for motor deficits and discuss over experimental data. |
| Requirement / Prerequisite | As audio-visual materials including lecture videos are provided for e-learning, students should be proficient in the use of CLE, a web-based learning system. |
| Class Plan | <p>【Plan】 (Shigeru YOKOYAMA / Lec 1,2) Obtain a general understanding of motor disorders as a subcategory of neurodevelopmental disorders. (Hiroaki YOSHIKAWA / Lec 3) States of brain functions can be understood in the context of ontogeny, development and aging. Integrated knowledge of these different processes cast us important viewpoints for the understanding of diseases in the CNS, PNS and muscles. Examples of diseases, in which motor functions are affected, are presented in two lectures to understand their pathophysiology through human life histories. (Shin-ichi HORIKE / Lec 4-6) Learn genome abnormalities that cause neurodevelopmental disorders accompanied by repetitive behaviors and characteristic motor disturbances, and understand detailed pathogenic mechanism of Rett syndrome. (Haruhiro HIGASHIDA / Lec 7) Obtain knowledge of repetitive behaviors and social deficits, which are characteristic of autism, and understand adiadokokinesis (incoordination of movement) as a phenotype of developmental disorders. (Toru YOSHIHARA / Lec 8) Learn animal models research methods for motor deficits.</p> <p>Lec 1 Motor disorders: an overview Lec 2 Lec 3 Pathophysiology of central nervous system from the view of diseases Lec 4 Epigenetics Lec 5 Epigenetics and mental retardation Lec 6 Rett syndrome Lec 7 Dyslexia and Tourette syndrome Lec 8 Animal models and research methods for studying motor disturbance</p> |

| | |
|------------------------------------|---|
| Independent Study Outside of Class | Lecture handout will be e-mailed in advance. It is recommended that participants go through it and list up questions. E-Learning materials (class videos) will be posted on the Web Learning System (CLE), Participants are encouraged to utilize them for review. |
| Textbooks | Appropriate textbooks and reference books will be introduced during class,. |
| Grading Policy | Based on both lectures (questions and discussion; approx. 50%) and reports (approx. 50%).. Important thing upon evaluation is the comprehensive understanding of motor and postural functions, not the amount of detailed knowledge. |
| Other Remarks | It is recommended that any student with a disability, who needs special accommodations, be in contact with student affairs office in his/her school before the start of the term. |

| Course Code | 271280 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---------|----------------|-----------------|----------|-------------------|----------|-------------------|---|----|---------|----------------|-----------------|----------|----|---|----|---------|----------------|-----------------|----------|----|---|----|---------|----------------|-----------------|----------|----|---|----|---------|----------------|-----------------|----------|----|---|----|---------|----------------|-----------------|----------|----|---|----|---------|----------------|-----------------|----------|----|---|----|---------|----------------|-----------------|----------|----|---|----|---------|----------------|-----------------|----------|----|
| Offering Department | Graduate School of Pharmaceutical Sciences | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Course Title | Special Lecture on Organic Chemistry for Drug Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Course Name (Sub Title) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Number of Credits | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ETCS | 1.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Course Term Fall: Oct 1 - Dec 2 Winter: Dec 3 - Feb 7 (Winter Holidays: Dec 28 - Jan 3) | Fall term | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Course Time JST (UTC+9) | Thursday 8:50-10:20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Targeted Students | Graduate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Language of the Course | Japanese/English | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Course Objective | Low molecule organic compounds related to them are indispensable for the development of pharmaceutical field research such as development of medicines and elucidation of life phenomena, knowledge and technology are indispensable for freely synthesizing the compound. In this lecture, based on the knowledge gained in lectures of "Undergraduate Organic Chemistry", "Organic Pharmaceutical Chemistry" and "Special Lecture on Chemical Manufacturing Chemistry" at Graduate School, drugs and drug candidate compounds and biologically active natural organic compounds etc. Learn about advanced and latest "organic synthetic chemistry" which is necessary for synthesizing in a similar way. It consists of lectures and discussions focusing on various carbon-carbon bond forming reactions and synthesis of inter carbon compounds. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Learning Goals | Attainment target 1. Explain the formation of a carbon-carbon single bond via an enolate anion. 2. Explain the carbon-carbon bond formation using organometallic reagents. 3. Explain the formation of a carbon-carbon π bond. 4. Explain the synthesis of carbocyclic compounds. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Requirement / Prerequisite | Since we will advance lecture on the premise that there is basic knowledge of organic chemistry, we need knowledge of undergraduate "organic chemistry" · "organic medicinal chemistry" degree. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Class Plan | <table border="1"> <thead> <tr> <th>Time</th> <th>Course content</th> <th>Type</th> <th>Place</th> <th>Professor name</th> <th>Material</th> <th>Time length (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> <tr> <td>2</td> <td>1)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> <tr> <td>3</td> <td>2)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> <tr> <td>4</td> <td>2)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> <tr> <td>5</td> <td>3)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> <tr> <td>6</td> <td>3)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> <tr> <td>7</td> <td>4)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> <tr> <td>8</td> <td>4)</td> <td>Lecture</td> <td>Lecture Room B</td> <td>Arisawa/Fujioka</td> <td>Textbook</td> <td>90</td> </tr> </tbody> </table> <p>Detailed Course Content and Expected Achievement</p> Attainment target 1. Explain the formation of a carbon-carbon single bond via an enolate anion. 2. Explain the carbon-carbon bond formation using organometallic reagents. 3. Explain the formation of a carbon-carbon π bond. 4. Explain the synthesis of carbocyclic compounds. | Time | Course content | Type | Place | Professor name | Material | Time length (min) | 1 | 1) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | 2 | 1) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | 3 | 2) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | 4 | 2) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | 5 | 3) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | 6 | 3) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | 7 | 4) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | 8 | 4) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 |
| Time | Course content | Type | Place | Professor name | Material | Time length (min) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 1) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 2) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 2) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 3) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 3) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 4) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 4) | Lecture | Lecture Room B | Arisawa/Fujioka | Textbook | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Independent Study Outside of Class | To read the textbook in advance and to confirm the difficult part to understand. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Textbooks | George S. Zweifel, Michael H. Nantz / Modern Organic Synthesis / W. H. Freeman; 1st edition (March 17, 2006) / ISBN-10: 0716772663 ISBN-13: 978-0716772668 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|----------------|--|
| Reference | Warren Organic Chemistry (2nd edition) [I, II] Tokyo Kagaku Dojin Bruce Organic Chemistry (7th Edition) [I, II] Kagaku Doujin Bolhart Shoa modern organic chemistry (6th edition) [I, II] Kagaku Doujin Smith Basic Organic Chemistry (3rd edition) [I, II] Kagaku Doujin Transition metal catalyzed reaction for organic synthesis (by Jiro Tsuji) Tokyo Kagaku Dojin |
| Grading Policy | [Overall evaluation] Evaluate with the final test (80%) and the small test (20%) for each lecture. 【Formative evaluation】 After grasping the degree of comprehension of the students through reflection of exercises and questions during the lesson, they are reflected in the lesson. |
| Other Remarks | Since lectures are conducted in cooperation with "Special lecture on chemical manufacturing chemistry", it is desirable to take lectures in conjunction with this lecture. |
| Office Hour | Mitsuhiro Arisawa (06-6879-8226, arisaw@phs.osaka-u.ac.jp, main building 5 floor 508) <Office Hour: Monday 1 pm - 2 pm> |