

Code	Subject	Day/Period	Categories	Credits	Object	Instructor (Position)	Semester	Language Used in Course	Class Subject	Object and Summary of Class	Goal of Study	Contents and Progress Schedule of the Class	Evaluation Method	Textbook 1 - Textbook Title	Textbook 1 - Author	Textbook 1 - Publisher	Textbook 1 - Publication Year	Textbook 1 - ISBN/ISSN	Textbook 1 - Textbook / Reference	Textbook 2 - Textbook Title	Textbook 2 - Author	Textbook 2 - Publisher	Textbook 2 - Publication Year	Textbook 2 - ISBN/ISSN	Textbook 2 - Textbook / Reference	URL	Preparation and Review	In Addition									
CB21207	Economics	Fall, Tue/1st	Expansion Subjects-Social Sciences	2	FGL	Dan QIN (Graduate School of Economics and Management)	2	E	Japanese Business and Economy A	This course studies the behavioral foundations of Japanese business and economics. The objective of this course is twofold. In the first place, students will learn basic microeconomic methods in modeling individual behavior. In the second place, we will introduce and discuss several examples of non-standard behavior that are common among Japanese people. We will then discuss the modeling of such types of behavior.	Upon the completion of this course, students will come to understand the difference between real life decision making (in the case of Japanese people) and the behavioral patterns assumed by classical economic theory. Students are also expected to be able to build simple models explaining nonstandard behavior.	We will first introduce the economic sense of "rationality" and then discuss several typical behavior deviating from this hypothesis. At the end of this class, students will give presentations about typical nonstandard behaviors in their own culture. □ 1) Orientation and introduction □ 2) Rational decision maker in the economic sense: Preference maximization hypothesis □ 3) Properties of preference and utility □ 4) Uncertainty and risk □ 5) Strategic behavior: Non-cooperative game □ 6) Gift: The Japanese social obligation □ 7) Horne to Talemae: Private vs. public stance in Japan □ 8) Kenryo: The Japanese virtue of modesty □ 9) Shundan Ishiki: Japanese group consciousness □ 10) Kiritsuteki (Following rules) □ 11) Modeling non-standard behavior □ 12) Modeling non-standard behavior □ 13) Student Presentation □ Week 13, 14, and 15 are reserved for student to make presentations about examples of nonstandard behavior in their own culture. □ 14) Student Presentation □ Week 13, 14, and 15 are reserved for student to make presentations about examples of nonstandard behavior in their own culture. □ 15) Student Presentation □ Week 13, 14, and 15 are reserved for student to make presentations about examples of nonstandard behavior in their own culture.	Students will be evaluated by class participation (40%), weekly exercises and assignments (30%), examinations (30%).	The Japanese Mind: Understanding Contemporary Japanese Culture	Davis R. J., Ikeno O.	Tuttle	2002	080483291	Reference	Advanced Microeconomic Theory	Jehle G., Remy P.	Prentice Hall	2011	9780273731917	Reference									Students are required to prepare presentations reflecting the typical behavior of their own culture.			
CB22250	Biology A	Fall, Tue/2nd	Expansion Subjects-Biology	2	FGL	ROBERT, Martin (Institute for Excellence in Higher Education)	2	E	Essential Cell Biology	The cell is the fundamental unit of life. Its understanding is essential for any aspiring student or researcher in the natural sciences. The objective of this course is to learn the fundamental principles of cell biology by studying the cell's structure, organization, and the basic biochemical mechanisms and functions linked to the maintenance, replication and expression of its genetic information.	After this course, the student will have a solid grasp of basic cellular and information processing functions including its components, DNA structure, replication and repair, gene expression, cellular communication and the cell cycle. To do this, the main components, structures and information processing systems of the cell will be introduced and explored. In addition, the important connectivity among all cellular components and functions and a view of the cell as a non-reducible system will be emphasized. □ □ Some of the specific learning objectives include: □ -Understand the cell's fundamental role in all living systems □ -Explain the fundamental differences between prokaryotic and eukaryotic cells from both a structural and evolutionary perspective □ -Understand the function of the main cellular components and how they are connected to the living process □ -Describe the basic components and mechanisms involved in DNA replication and repair, gene expression (transcription and translation) and their regulation □ -Explain the basic mechanisms of gene and genome evolution □ -Understand principles of cell signaling and information processing □ -Describe the main phases of the cell cycle and regulation as well as the properties of cell communities □ -Realize the importance of studying the cell in order to understand living organisms, ecosystems, as well as health and disease. □ □ To achieve this, students will complete weekly reading and problem set assignments. Quizzes, in-class individual and group exercises, and an online forum will be used to promote interactions and student learning. In addition to those activities, a mid-term and final examination will be used to evaluate student learning and ability to extend what they learned in novel contexts.	1)The fundamental unit of life (cell theory and the cell as a complex system) □ 2)Basic cell structure and architecture (prokaryotic and eukaryotic) □ 3)Basic cell structure and architecture (prokaryotic and eukaryotic) □ 4)Review of the basic chemical composition of cells □ 5)DNA and chromosomes (structure and function, chromatin remodeling) □ 6)DNA replication, repair, and recombination □ 7)From DNA to RNA (transcription and RNA processing) □ 8)Mid-term examination. From RNA to proteins (the genetic code, translation and protein synthesis) □ 9)Gene and genomes (structure, function, and evolution) □ 10)Analyzing genes and genomes □ 11)Control of gene expression (transcriptional and post-transcriptional mechanisms) and epigenetics □ 12) Cell signaling 1 (principles and concepts) □ 13) Cell signaling 2 (membrane receptors and signaling mechanisms) □ 14)The cell cycle and cell division (overview, phases, and regulation) □ 15) Final examination	Attendance and active participation (20%), weekly exercises and assignments (30%), examinations (50%).	Essential Cell Biology	Alberts B., Bray D., Lewis J., Raff M., Walter P., Hopkin K., Johnson A., Roberts K	Garland Science	2014		OpenStax, Biology		OpenStax CNX	2017												Students are expected to spend 1-2 hours per week, on average, reading relevant textbook material and completing assignments.	1)This is a general, entry-level course that is open to all students and is compulsory for first-year FGL students in the AMB program. Although not essential, it is best taken together with Biology B (Essential Biochemistry) to provide an overall view of cellular components and their functions. High school-level familiarity with basic organic chemistry and biology is assumed. Japanese students and exchange students from any field of study are encouraged to enroll, knowing that this is an introductory course which is held in English. □ 2)Alberts' Essential Cell Biology (4th Edition) is the main reference textbook. □ 3)Instructor available for questions and consultation upon appointment and during office hours. Thursdays 10:00-12:00 e-mail (mrobert@im.tohoku.ac.jp).		
CB23246	Linear Algebra A	Fall, Tue/3rd	Expansion Subjects-Mathematics	2	AMC, IMAC	TRUSHIN, Igor (Institute for Excellence in Higher Education)	2	E	Fundamentals of linear algebra	The purpose of this class is to learn the basic notions and properties of vectors and matrices	One should understand and master methods of dealing with matrices and determinants	1.Properties of real vectors □ 2.Linear independence and basis □ 3.Rank of a matrix, sweeping out method □ 4-5.Addition, scalar and matrix multiplications □ 6.Regular matrix and basis □ 7.Determinants □ 8-9 Fundamental properties of determinants □ 10-11.Calculation of determinants □ 12.Cofactor expansion of a matrix □ 13.Inverse of a matrix □ 14.Cramer's rule □ 15.Final examination	Evaluation will be based on results of a tests and home work	Introduction to Linear Algebra	Serge Lang	Springer															Homeworks						
CB24209	Physics A	Fall, Tue/4th	Expansion Subjects-Physics	2	FGL	Takeishi KOIKE 小池 武志 (Institute for Excellence in Higher Education)	2	E	Introductory Physics	This course is intended for students without any or little background in physics and calculus. Through Newtonian mechanics, important concepts in physics such as force, momentum, energy, angular momentum, and laws of conservation will be introduced. In addition, how these concepts are described in the language of mathematical equations, in particular, using calculus will be explored.	By the end of the course, you are expected to gain familiarity with Newton's laws of motion, momentum, and energy, and angular momentum as well as their conservation properties. In addition, you are expected to be able to draw a free-body diagram, derive an equation of motion, and solve it using simple vector algebra and calculus.	Schedule of the course: □ 0. Orientation to WileyPlus + ORION system and the course survey □ 1. Introduction and Ch1: Measurement (unit) □ 2. Ch2: Motion Along a straight line (acceleration and free fall) □ 3. Ch3: Vectors □ 4. Ch4: Motion in Two and Three Dimensions (Projectile motion under uniform gravity) □ 5. Ch5: Motion in Two and Three Dimensions (Uniform circular motion, and relative motion) □ 6. Ch5: Force and Motion I (Newton's law of motion) □ 7. Ch5 and Ch6: Force and Motion II (free body diagram, frictional force, and centripetal force) □ 8. Ch7: Kinetic Energy (transformation and transfer of energy, work, work done by gravity, work done by spring, and power) □ 9. Ch7: Kinetic Energy (transformation and transfer of energy, work, work done by gravity, work done by spring, and power) □ 10. Ch8: Potential Energy (isolated system, conservation of energy, conservative force and potential energy) □ 11. Ch8: Center of Mass (a system of particles, center of mass, conservation of total momentum of a system) □ 12. Ch10: Rotation (correspondence between linear and angular motion, moment of inertia, angular momentum) □ 13. Review and course survey □ Final examination (Lecture 7-10)	Evaluation will be based on a midterm exam (25%), final exam (25%), homework assignments (20%), attendance (10 %), reading assignment and self-practice with ORION system (20%).	Fundamentals of Physics Extended, 10th Edition	David Halliday, Robert Resnick, Jearl Walker	Wiley	2013		textbook																	https://www.wileyplus.com/	This course requires purchase of the WileyPlus system which costs \$40 USD. The system includes an electronic version of the required textbook with many integrated features to facilitate understanding of the subjects and problem solving skill in physics. The system also comes with a self-diagnostic tool, ORION, with which one will practice problem solving based on his/her own proficiency in each chapter that will be covered in the course. Access to internet is necessary outside of the class. Registration to the WileyPlus and payment method will be announced in the orientation in the first lecture.
CB52227	Calculus A	Fall, Fri/2nd	Expansion Subjects-Mathematics	2	FGL	TRUSHIN, Igor (Institute for Excellence in Higher Education)	2	E	Calculus of functions of one variable	The purpose of this class is to learn the basic notions of derivative and integral	One should understand fundamental definitions and theorems of calculus, master the basic techniques and applications which accompany them.	1.Properties of real numbers □ 2.Limits of sequences and functions □ 3.Basic elementary functions, trigonometric functions, inverse functions □ 4.Continuous functions □ 5.The definition of derivative □ 6.The mean value theorem □ 7.L'Hospital's rule □ 8.Higher order derivatives □ 9.Taylor formula and Taylor series □ 10.Applications of derivatives, minimum and maximum values □ 11.Indefinite integrals, computing basic indefinite integrals □ 12.Riemann integral and its properties □ 13.Improper integrals □ 14.Applications of integration □ 15.Final examination	Evaluation will be based on results of a tests and home work	Calculus: An Intuitive and Physical Approach (Second Edition).	Morris Kline	Dover Publications																		Homeworks			
CB53221	Foundations of Calculus	Fall, Fri/3rd	Expansion Subjects-Mathematics	2	AMB	HANSEN, Frank (Institute for Excellence in Higher Education)	2	E	Foundations of Calculus	1. Academic Aims: An elementary introduction to calculus for functions of one or two variables. □ 2. Keywords: Continuity, derivative, integral, convex function, extreme value problems for functions of one or two variables, double integral.	The student will learn the notions of limit, continuity and differentiability, master differentiation, integration and extreme value problems for functions of one or two variables.	第1回 Sets and functions, infimum and supremum, sequence and convergence, proof by induction. □ 第2回 Continuity and differentiability, calculating with derivatives □ 第3回 The extreme value theorem, the mean value theorem, De L'Hospital's rule. □ 第4回 Area and integration. □ 第5回 The logarithm, the exponential function, and the trigonometric functions. □ 第6回 Exercises on the blackboard. □ 第7回 Higher order derivatives, Taylor's and Maclaurin's theorems. □ 第8回 Convex functions of one variable. Extreme value problems. □ 第9回 The indefinite integral of rational functions. □ 第10回 One hour mid-term test, exercises. □ 第11回 Partial derivatives and total differentiation. □ 第12回 Extreme value problems for functions of two variables. □ 第13回 Double integrals and polar coordinates. □ 第14回 Summary of the course and exercises. □ 第15回 Examination.	Evaluation: By class participation and by the result of the examination.	Calculus: An Intuitive and Physical Approach 2.ed.	Morris Kline	Dover Publications	1998																		Homework: The students are required to solve exercises for each lecture.	The lecturer prepares presentation files for each lecture and post them on the homepage for the course.	

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CB54209	Physics A	Fall, Fri/4th	Expansion Subjects-Physics	2	FGL	Takeshi KOIKE 小池 武志 Institute for Excellence in Higher Education	2	E	Classical Mechanics	This is an introductory course to Newtonian mechanics, but also serves as an introduction to the way we try to understand various natural phenomena encountered in Physics B (oscillations and waves, fluid dynamics) and Physics C (electromagnetism). Mechanics deals with motion of a physical body as well as response to forces applied to the body. The mechanics we study in this course is applicable to an object or system of particles that is slow moving in comparison to the speed of light (non relativistic) and large enough in physical scale as to be unaffected by quantum fluctuations, hence the name "classical".	By the end of the course, you are expected to gain familiarity with and obtain basic understandings of Newton's laws, work and energy, conservation of energy, linear momentum, and angular momentum, systems of particles, rotations, and Newton's law of gravitation with Kepler's law of planetary motions.	Schedule of the course: 1. Orientation to WileyPlus + ORION system and the course survey; 2. Orientation to WileyPlus + ORION system and the course survey; 1. Ch3: Vectors (General introduction to physics, scalar vs vector, addition, dot and cross product, unit vector, and vector and calculus). 2. Ch4: Motion in Two and Three Dimensions (Projectile motion under uniform gravity, uniform circular motion, and relative motion). 3. Ch5: Force and Motion I: Newton's law of motion, its applicability, Galilean relativity, inertial frame, force and rate of change of linear momentum, and conservation of momentum). 4. Ch6: Force and Motion II (free body diagram, frictional force, drag force (viscous and inertial), and centripetal force). 5. Ch7: Kinetic Energy (transformation and transfer of energy, work done by gravity, work done by spring, and reduced mass of two body system). 6. Ch8: Potential Energy (isolated system, conservation of energy, conservative force and potential energy). 7. Ch9: Center of Mass (a system of particles, center of mass, conservation of total momentum of a system, and reduced mass of two body system). Midterm (Lecture 2-6). 8. Ch9: Collision (impulse, elastic and inelastic collision, and rocket equation). 9. Ch10: Rotation (correspondence between linear and angular motion, moment of inertia, parallel and orthogonal axis theorem, center of mass and gravity). 10. Ch11: Rolling, Torque, and Angular Momentum (rigid body, torque as a rate of change of angular momentum, torque in the center of mass frame, rolling on an inclined plane). 11. Ch11 (rolling on a flat surface, physics of tops, precession, and gyroscopic effect). 12. Ch13: Gravitation (central force, effective potential, constant of motion, Kepler's law of planetary motion). 13. Ch13: Gravitation (gravity near the earth surface, gravitational potential) and Course survey. Final examination (Lecture 7-13)	Evaluation will be based on a midterm exam (30%), final exam (30%), homework assignments (20%), reading assignment and self-practice with ORION system (20%).	Fundamentals of Physics Extended, 10th Edition	David Halliday, Robert Resnick, Jearl Walker	Wiley	2013																	https://www.wileyplus.com/	This course requires purchase of the WileyPlus system which costs \$40 USD. The system includes an electronic version of the required textbook with many integrated features to facilitate understanding of the subjects and problem solving skill in physics. The system also comes with a self-diagnostic tool, ORION, with which one will practice problem solving based on his/her own proficiency in each chapter that will be covered in the course. Access to internet is necessary outside of the class. Registration to the WileyPlus and payment method will be announced in the orientation in the first lecture.	For those planning to take Physics B or land C, the WileyPlus account that is purchased in this course will be reserved, and no additional payment is necessary. Survey of conceptual understanding of the subject will be conducted at the first and last lecture to assess effectiveness of the instructional method. For contact mailto: takeshi.koike.b6@tohoku.ac.jp		
CB11203	An Introduction to Information Science B	Fall, Mon/1st	Common Subjects-Information Sciences	2	FGL	Shuji ISHIBE, Eisuke KOZUMI 磯辺 秀司, 小泉 英介 (Center for Information Technology in Education)	2	E	Information basics B	An introductory course to acquire the university-level academic skills through information science and technology.	Successful course participants will learn to utilize the information technology for intellectual and productive activities.	1. Orientation; 2. Basics usage of information systems; 3. Academic skill I (Basics of intellectual production assisted by information technology, part 1); 4. Academic skill I (Basics of intellectual production assisted by information technology, part 2); 5. Academic skill I (Basics of intellectual production assisted by information technology, part 3); 6. Academic skill I (Basics of intellectual production assisted by information technology, part 4); 7. Academic skill II (Computational thinking, part 1); 8. Academic skill II (Computational thinking, part 2); 9. Academic skill II (Computational thinking, part 3); 10. Academic skill II (Computational thinking, part 4); 11. Academic skill II (Computational thinking, part 5); 12. Academic skill II (Computational thinking, part 6); 13. Academic skill II (Computational thinking, part 7); 14. Academic skill II (Computational thinking, part 8); 15. Academic skill II (Computational thinking, part 9); 16. Academic skill II (Computational thinking, part 10)	Homework assignments (1 or 2 times) 80-100%; Participation in class: at most 20%																					Students are required to submit homework assignments.	Course materials will be distributed with a web-based information service called ISTU. Details about the service will be instructed in the course.			
CB12240	Mineralogy, Petrology & Geochemistry	Fall, Mon/2nd	Expansion Subjects- Earth and Space Science	2	FGL	ZHANPEISÖY, Nurbosyn Zhanpei Suiyue (Institute for Excellence in Higher Education)	2	E	Fundamental structures of solids	The chemical crystallography applied to different kinds of solid structures is an important fundamental concept in many fields of chemistry and physics. One will learn the diversity of oxide, salt, metallic as well as organic solids, the nature and types of ordered structures composed of identical repeating units of a group or large atoms, molecules, ions as well as basic principles of defining crystal structures by physical and theoretical methods.	One must understand different types of solids with crystalline and/or amorphous structures, a number of possible chemical bonding (driving force) in solids as well as fundamental energy units to characterize crystalline association. Also one must understand the structure-property relationship to describe tiny chemical and physical properties of any solid.	1. Introduction to the chemistry and physics of solids, mineralogy 2. Amorphous solid, glass and polymer (biopolymer) 3. Chemical bonding in solids, coordination number 4. Cohesive energies in solids, formation energy of a unit 5. Interatomic distances in crystal structures 6. Basic structure motifs of crystalline solids 7. Anisotropy and the Avogadro constant 8. Examples of crystal structures 9. Magnesium oxide, low coordination ions 10. Silica and zeolites 11. Titanium dioxide (rutile, anatase, brookite) 12. Covalent crystals of carbon 13. Metals 14. Metal-organic frameworks 15. Term-end test	Evaluation will be based on class attendance, reports and on the results of term-end test.	Physical Chemistry	R.J. Silbey and R.A. Alberty		2000																		We will have small and term-end tests. The lecture attendance will be strictly controlled.			
CB13211	Foundations of Linear Algebra	Fall, Mon/3rd	Expansion Subjects-Mathematics	2	FGL	HANSEN, Frank (Institute for Excellence in Higher Education)	2	E	Foundations of linear algebra	1. Academic aims: An elementary introduction to linear algebra. 2. Keywords: Vectors, matrices, systems of linear equations, determinants, eigenvalues, diagonalization, quadratic forms.	The student will learn fundamental notions of elementary linear algebra, master the sweeping-out (echelon) method to solve systems of linear equations, invert matrices, calculate determinants and eigenspaces, and determine the definiteness of quadratic forms.	第1回 Vectors in the two-dimensional plane, vector calculus, the dot product, Cauchy-Schwartz inequality, orthogonal vectors, the angle between two vectors. 第2回 Vectors in the n-dimensional space, vector calculus, the dot product, Cauchy-Schwartz inequality, orthogonal vectors, the angle between two vectors, lines and hyper planes. 第3回 Matrix addition and scalar multiplication, matrix multiplication, regular matrix, transposed matrix. 第4回 Systems of linear equations, linear equations on matrix form, row operations, echelon form of linear equations. 第5回 Operation matrices, inversion of matrices. 第6回 Exercises on the blackboard. 第7回 Determinants. 第8回 Calculating determinants. 第9回 Eigenvalue and eigenvector, Calculating eigenspaces. 第10回 One hour mid-term test, exercises. 第11回 Diagonalisation of symmetric matrices. 第12回 Quadratic forms. 第13回 Applications in calculus. Interpolation and convex functions of two variables. 第14回 Summary of the course and exercises. 第15回 Examination	Evaluation: By class participation and by the result of the examination.	Introduction to Linear Algebra	Serge Lang	Springer Verlag	2008																		sites.google.com/site/frankhansen@tohoku.ac.jp	Homework: The students are required to solve exercises for each lecture.	The lecturer prepares presentation files for each lecture and post them on the homepage for the course.	
CB14233	Life and Nature	Fall, Mon/4th	Core Subjects-Science Studies	2	FGL	ROBERT, Martin (Institute for Excellence in Higher Education)	2	E	Big History: The organization and evolution of the universe (from the Big Bang to now)	This course aims to provide an overview of the natural processes that occurred over 13.7 billion years and led to the world that surrounds us. An important ambition is to help students in various fields appreciate the importance, interdependence and connections between physical, chemical, biological, and social sciences. The course will provide a broad perspective about the fastest growth in complexity in the universe throughout its 13.7 billion year history. Students explore the origin of our universe, our solar system and how planet, the intricate connectivity in nature and life and the processes leading to human development. This will involve them to think about the larger issues and challenges in science and technology. The course will also highlight our current knowledge based on scientific evidence, investigations, explain how scientific ideas evolve, and address some of the remaining big and unsolved questions. We will also explore how specific events led to the appearance of humans and the enormous impact of social and technological developments for our species and its consequences for our planet.	In this course, the student will gain broad perspective on natural and living systems, their basic constituents and properties. The student will also better understand how natural and living systems consist of complex networks of elements whose intricate and dynamical balance is critical for our planet as all its inhabitants, as the ultimate global ecosystem. Some of the specific learning objectives include: • Explain how thresholds of increasing complexity, differing scales of time and space, claim testing, and collective learning help us understand current and future events as part of a larger narrative. • Use multiple scientific perspectives to understand the history and evolution of the Universe and Universal change. • Deepen an understanding of key scientific concepts and facts, and the use of these in constructing explanations. • Critically evaluate, analyze, and synthesize primary and secondary scientific, and technical texts to form well-crafted and carefully supported written and oral arguments. • Locate and understand how our own place, our community's place, and humanity as a whole both fit into and impact the Big History narrative, using the concept of "thresholds" to frame the past, present, and future. • Engage in scientific analysis using the theories and practices from multiple disciplines, toward an integrated, interdisciplinary understanding of the history of the Universe.	Course subjects and content: 1)Introduction: What is Big History? 2)Getting started: The Big Bang 3)Stars light up: New chemical elements 4)Our solar system and earth 5)Life (1): What is Life? 6)Life (2): The origin of life, Common ancestry and diversity 7)Life (3): The Biosphere, energy, and biogeochemical cycles 8)Life (4): Biodiversity and ecosystems 9)Life (5): Evolution and natural selection 10)Early humans and collective learning 11)Agriculture and civilization 12)Expansion and interconnection 13)Acceleration 14)The Future 15)Final examination	Evaluation will be based on weekly attendance and active participation (10%), completion of in-class activities, exercises and assignments (30%), a team project (20%) as well as a mid-term and final examination (40%).	Big History Project web site																						https://school.ighistoryproject.com/bhlive	Students will be expected to spend 1-2 hours per week on average, reviewing video and written documents and doing assignments.	1)This is a general, entry-level course that is open to all students, regardless of their study program and background. It is a required course for all first-year FGL program students. Japanese students and exchange students from any field of study are encouraged to enroll, knowing that this is an introductory course that is held completely in English. There will be many opportunities to listen, read, write and discuss in English in small groups. 2)Instructor available for questions and consultation upon appointment and during office hours, Thursdays 10:00-12:00 (mrobert@im.tohoku.ac.jp).
CB15201	Basic Japanese 1	Fall, Mon/5th Tue/5th Thu/5th Fri/5th	Common Subjects-Subjects for International Students	4	FGL	Natsu SUGAYA, Kie YOSHIMOTO 菅谷 菜津恵, 吉谷 清津恵 (Institute for Excellence in Higher Education) Atsuko UCHIYAMA 内山 敦子	2	E	Japanese for beginners	Intended for students who will study Japanese for the first time. This class aims to help students acquire basic knowledge of Japanese language and enhance the four skills of speaking, listening, reading, and writing.	Students will: - master elementary Japanese grammar, vocabulary, kana (hiragana, katakana) and approximately 150 basic kanji - acquire minimum skills in speaking, listening, reading and writing for essential everyday situations - achieve a proficiency level equivalent to JLPT N5.	1. Course orientation, Kana quiz 2-5. Lesson 1 ~ 4: Y desu construction, Question sentences 6-9. Lesson 2 Demonstrative (kono/so) 10-13. Lesson 3 Verb types and the present tense. 14-18. Lesson 4 Describing where things are, Past tense of verbs. 19-23. Lesson 5 Adjectives, Counting 24-28. Lesson 6 Te-form, Describing two activities 29-32. Midterm exam (Katakana, Kanji, Grammar, Listening) 30. Midterm exam (Speaking) 31-34. Lesson 7 Various meanings of te iru form 35-39. Lesson 8 Short forms (plain forms) 40-44. Lesson 9 Past tense short forms. 45-49. Lesson 10 Comparison between two items 50-54. Lesson 11 Describing hope or aspiration (-tai) 55-58. Lesson 12 Explaining things (in desu) 59-60 Summary	1. Exams(Midterm exam: Katakana, Kanji, Grammar, Listening, Speaking, Final exam (Katakana, Kanji, Grammar, Listening, Writing, Speaking) 60%, 2. Quizzes (Kana, Kanji, vocabulary grammar) 20%, 3. Homework 10%, 4. Class participation 10%	Genki 1, second edition	Banno et al.	The Japan Times	2011	978-4-7890-1440-3	Textbook	Genki 1 Workbook second edition	Banno et al.	The Japan Times	2011	978-4-7890-1441-0	Textbook	Genki-Online http://genki.janet.com/ndex_en	(1)Those who have no knowledge of the Japanese characters (hiragana, katakana) should learn hiragana and katakana as a prerequisite to joining the program by using prescribed materials. (2) During the course we expect you to: 1. Submit all homework assignments by due dates. Late work will be marked lower. 2. Prepare for the lessons: Listen CD and learn vocabulary in advance. Read the grammar explanations in advance.											

Code	Subject	Day/Period	Categories	Credits	Object	Instructor (Position)	Semester	Language Used in Course	Class Subject	Object and Summary of Class	Goal of Study	Contents and Progress Schedule of the Class	Evaluation Method	Textbook 1 - Title	Textbook 1 - Author	Textbook 1 - Publisher	Textbook 1 - Publication Year	Textbook 1 - ISBN/ISSN	Textbook 1 - Reference	Textbook 2 - Title	Textbook 2 - Author	Textbook 2 - Publisher	Textbook 2 - Publication Year	Textbook 2 - ISBN/ISSN	Textbook 2 - Reference	URL	Preparation and Review	In Addition							
CB23266	Sports A	Fall, Tue/3rd	Common Subjects-Health Sciences	1	AMB	Ryoichi NAGATOMI 本郷 良一 (Graduate School of Biomedical Engineering)	2	J	Soccer (associated football)	Soccer is the most popular sports in the world. Soccer has attracted many people because of its demand on fitness and skills, tactical thinking, and communication among the team members. Depending on one's experience in playing soccer, technical skill may largely differ, and one might feel inferior or alienated when they have less experience. Once you find out your role in the team, however, you will find a totally different world of soccer, in which you find confidence and effectiveness in the team. The sense of effectiveness and efficacy in the team will not be accomplished alone, but sharing ideas and roles among the team members is essential. The role plays in this soccer class will definitely give you a value! Why don't you enjoy playing soccer with us.	<ul style="list-style-type: none"> understanding basic skills of soccer <ul style="list-style-type: none"> different ways of kicking a ball accuracy speed and power trick plays different ways of stopping a ball accuracy transition trick plays understanding basic concept of team plays in soccer <ul style="list-style-type: none"> ways to communicate among the team members passing and receiving positioning supporting understanding basic roles in soccer <ul style="list-style-type: none"> attacking defending 	<p>D1. Guidance In every class a 15-30-min skill up session for understanding basic skills in soccer will be provided. After the warm up and skill up sessions, league matches will be organized. A Man of the Match will be selected in each class. In case of bad weather like raining, indoor activity related soccer will be organized.</p> <p>D2. Skill check D3. Team assignment D4. Ball control: kicking D5. Ball control: stopping and passing D6. Ball control: shooting D7. The role of a goal keeper D8. Team tactics: passing and receiving, creating pass chances by changing the position D9. Team tactics: creating or depriving attacking spaces D10. Team tactics: team dynamics in defending and attacking with 2-3 players D11. Team tactics: team dynamics in defending and attacking with 4-5 players D12. Advanced tactics: various style of supporting D13. Advanced tactics: various style of defending D14. Advanced tactics: quick transition from defending to attacking (counter-attack) D15. Advanced tactics: taking advantages of the team members</p> <p>The order and the contents of classes may differ depending on the weather, the skills of the students and etc.</p>	Participation is essential (80%). Understanding the role in a team of your own as well as that of the teammates is essential, and one's progress will be evaluated (20%).																						
CB23267	Sports A	Fall, Tue/3rd	Common Subjects-Health Sciences	1	AMB	Toshihiko FUJIMOTO 藤本 敏彦 (Institute for Excellence in Higher Education)	2	J	Softball	The aim of "Sports A: Softball class is constructed of two part. First part is "Team management" and Second part is Coaching". Goal of first part is to learn the team management that is how to relation with team member using softball game. Goal of second part is to learn the coaching that is how to make menu of practice and to teach for member.	The aim of "Sports A: Softball class is constructed of two part. First part is "Team management" and Second part is Coaching". Goal of first part is to learn the team management that is how to relation with team member using softball game. Goal of second part is to learn the coaching that is how to make menu of practice and to teach for member.	<p>First part. Team management. Number of classes:1-8.</p> <ol style="list-style-type: none"> Guidance. Decision of own objective and team formation. Softball practice and Communication with team mate. Softball practice and team production. Softball game and team condensation. Softball game and leadership. Softball game and norm within the team. Softball game, review and team management. <p>Second part. Coaching. Number of classes: 9-15.</p> <ol style="list-style-type: none"> Softball game and coaching theory 1: Assessment. Softball game and coaching theory 2: Feedback. Softball game and coaching theory 3: Teaching of softball practice. Softball game and coaching theory 4: Study form. Softball game and coaching theory 5: Reflection. Softball game and coaching theory 6: Belief of teaching. Softball game and review. 	<p>Examination 50% and short review report on every class 50%. Grades of the course will be assigned as follows: AA.....Excellent (90-100%) A..... Good (80-89%) B..... Fair (70-79%) C..... Passing (60-69%) D..... Failure (0-59%)</p>																						Place: Kawauchi field.
CB53247	Sports A	Fall, Fri/3rd	Common Subjects-Health Sciences	1	AMC	Haruki MOMMA 門間 博樹 (Graduate School of Medicine)	2	J	tennis	Tennis is a popular recreational sports at all ages. This class aims to acquire basic skills, rules, and manners of tennis, and, most importantly, to enjoy playing tennis regardless of one's skills.	Students will understand and put in a practice of basic skills, rules, and manners of tennis.	<ol style="list-style-type: none"> Guidance How to use racket and ball Rally with a short distance Strokes (forehand) Strokes (backhand) Service Service return Volley (forehand) Volley (backhand) Singles games (half court) Singles games (full court) Doubles games (confirmation of the rules) Doubles games (full court) Doubles games in league match Doubles games in tournament 	<p>Evaluation is performed comprehensively based on the participation in class (70-80%), the degree of proficiency (10-20%), and a report (10%).</p>													Upon joining the class, you need to have your own shoes appropriate for playing tennis and also need to wear sportswear when you play.									
CB53248	Sports A	Fall, Fri/3rd	Common Subjects-Health Sciences	1	AMC	Akira SATO 佐藤 明 (Graduate School of Medicine)	2	J	Kyudo (Japanese Archery - Rules of Shooting and Etiquette)	As many of the students will be studying Kyudo for the first time, they will learn the basics of handling the bow and arrows, and drawing and releasing the bow. Students will learn how the skills in Kyudo are based on a deep understanding of the mechanics of the human body and the characteristics of the equipment; in addition to learning how to hit a target, they will gain a rational and aesthetic understanding of the postures and movements.	Because Kyudo techniques and etiquette are very closely related, students will learn shooting techniques and correct movements in formalized situations. Shooting techniques are comprised of a systematic set of rules for handling the bow, while etiquette is composed of modes of traditional behavior. The goal of the class is to enable students to gain a scientific understanding of the rational postures/movements, and to learn to adapt their experiences into daily life.	<p>Although learning shooting skills is the first priority, etiquette will also be learned step by step in each class as it is fundamental to posture and movement. Students will experience the fun and difficulties of Kyudo through games and competitions.</p> <ol style="list-style-type: none"> Guidance: hazard prevention and safety measures. Summary of technique and etiquette Introduction: Basics of shooting. Basics of standing posture Holding the bow and gripping the string / two kinds of sitting posture ("Kiza," "Seiza") / three-breath-bowing Principles of positioning the limbs (lower and upper body) / two kinds of bowing in sitting position ("Shikensei," "Sesshure") / two-breath-bowing Adjusting the body posture / the "Three Crosses" / two more kinds of bowing in sitting position ("Takushurei" / "Soshurei") Setting the grip on the bow to control it correctly ("Tenouchi") / one more kind of bowing in sitting position ("Goshurei") The leather archery glove ("Yugake") and its usage / walking in Kyudo "The Five Crosses" and determining correct shooting form / the "Five Crosses" / "Suriashi" -walking Drawing the bow / main points of "Uchiokoshi" and "Hikiwake" / synchronization of breathing and movements Obtaining full draw length / drawing until "Yazuki" / various types of body turn Arms and trunk forming a cross ("Tateyokujumoni," "Harisae no Jumoni") / turning the body while walking Tips for reliably hitting the target (the four requirements in "Tsumeari") / moving forward and backward while kneeling ("Shiko," "Shitan") Important technical points about hitting or missing the target (vertical and horizontal "Nobia") / "Sonkyo" The end of the shot (important aspects of "Zanshin") / synchronization of movements with breathing ("kiai") Conclusion: Skill test - Hit 1m diameter target at a distance of 28m in the basic posture and movements 	<p>Students must attend class, as learning the body movements requires practice. Grades will be based on attendance rate and skill tests. Students will take a practical examination, shooting 78cm diameter target at a distance of 28m, according to the rules of formal technique and etiquette.</p>																						
CB53249	Sports A	Fall, Fri/3rd	Common Subjects-Health Sciences	1	AMC	Toshihiko FUJIMOTO 藤本 敏彦 (Institute for Excellence in Higher Education)	2	J	Softball	The aim of "Sports A: Softball class is constructed of two part. First part is "Team management" and Second part is Coaching". Goal of first part is to learn the team management that is how to relation with team member using softball game. Goal of second part is to learn the coaching that is how to make menu of practice and to teach for member.	The aim of "Sports A: Softball class is constructed of two part. First part is "Team management" and Second part is Coaching". Goal of first part is to learn the team management that is how to relation with team member using softball game. Goal of second part is to learn the coaching that is how to make menu of practice and to teach for member.	<p>First part. Team management. Number of classes:1-8.</p> <ol style="list-style-type: none"> Guidance. Decision of own objective and team formation. Softball practice and Communication with team mate. Softball practice and team production. Softball game and team condensation. Softball game and leadership. Softball game and norm within the team. Softball game, review and team management. <p>Second part. Coaching. Number of classes: 9-15.</p> <ol style="list-style-type: none"> Softball game and coaching theory 1: Assessment. Softball game and coaching theory 2: Feedback. Softball game and coaching theory 3: Teaching of softball practice. Softball game and coaching theory 4: Study form. Softball game and coaching theory 5: Reflection. Softball game and coaching theory 6: Belief of teaching. Softball game and review. 	<p>Examination 50% and short review report on every class 50%. Grades of the course will be assigned as follows: AA.....Excellent (90-100%) A..... Good (80-89%) B..... Fair (70-79%) C..... Passing (60-69%) D..... Failure (0-59%)</p>																					Place: Kawauchi field.	