科目コード (Code)	科目名 (Course title)	Course title (English)
10H401	統計熱力学	Statistical Thermodynamics
10H405	量子化学 I	Quantum Chemistry I
10H406	量子化学II	Quantum Chemistry II
10H408	分子分光学	Molecular Spectroscopy
10H448	生体分子機能化学	Biomolecular Function Chemistry
10H413	分子機能材料	Molecular Materials
10H416	分子触媒学	Catalysis Science at Molecular Level
10P416	分子触媒学続論	Catalysis Science at Molecular Level 2
10H417	分子光化学	Molecular Photochemistry
10P417	分子光化学続論	Molecular Photochemistry 2
10H423	物性物理化学	Condensed Matter Physical Chemistry
10H422	分子材料科学	Molecular Materials Science
10H427	量子物質科学	Quantum Materials Science
10H428	分子レオロジー	Molecular Rheology
10H430	分子細孔物理化学	Molecular Porous Physical Chemistry
10D432	分子工学特別実験及演習 I	Laboratory and Exercises in Molecular Engineering I
10D433	分子工学特別実験及演習 II	Laboratory and Exercises in Molecular Engineering II
10D439	分子工学特論第一A	Molecular Engineering, Adv. IA
10D445	分子工学特論第一B	Molecular Engineering, Adv. IB
10D440	分子工学特論第二A	Molecular Engineering, Adv. IIA
10D447	分子工学特論第二B	Molecular Engineering, Adv. IIB
10H436	分子工学特論第三	Molecular Engineering, Adv. III
10P439	分子工学特論第六	Molecular Engineering, Adv. VI
10P440	分子工学特論第七	Molecular Engineering, Adv. VII
10P448	JGP セミナーI	Japan Gateway Project Seminar I
10P450	JGP セミナーII	Japan Gateway Project Seminar II
10P452	JGP セミナーIII	Japan Gateway Project Seminar III
10P454	JGP セミナーIV	Japan Gateway Project Seminar IV
10P456	JGP セミナーV	Japan Gateway Project Seminar V
10P457	JGP セミナーVI	Japan Gateway Project Seminar VI
10P459	JGPセミナーVII	Japan Gateway Project Seminar VII
10P461	JGPセミナーVIII	Japan Gateway Project Seminar VIII
10P463	JGPセミナーIX	Japan Gateway Project Seminar IX
10P465	JGPセミナーX	Japan Gateway Project Seminar X
10P467	JGPセミナーXI	Japan Gateway Project Seminar XI
10P469	JGPセミナーXII	Japan Gateway Project Seminar XII
10P471	JGP計算実習(MO)	Japan Gateway Project Computation Exercise(MO)
10i061	先端マテリアルサイエンス通論 (4回コース)	Introduction to Advanced Material Science and Technology(4 times course)
10i062	先端マテリアルサイエンス通論 (8回コース)	Introduction to Advanced Material Science and Technology(8 times course)
10i063	先端マテリアルサイエンス通論 (12回コース)	Introduction to Advanced Material Science and Technology(12 times course)
10i055	現代科学技術特論 (4回コース)	Advanced Modern Science and Technology(4 times course)
10i056	現代科学技術特論 (8回コース)	Advanced Modern Science and Technology(8 times course)
10i060	現代科学技術特論 (12回コース)	Advanced Modern Science and Technology(12 times course)
10i045	実践的科学英語演習 I	Exercise in Practical Scientific English I
10D043	先端科学機器分析及び実習I	Instrumental Analysis,Adv.I
10D046	先端科学機器分析及び実習II	Instrumental Analysis,Adv.II
88G101	研究倫理・研究公正 (理工系)	Research Ethics and Integrity(Scienceand Technology)
88G201	学術研究のための情報リテラシー基礎	Basics of Academic Information Literacy
88G301	大学院生のための英語プレゼンテーション	Presentation for Graduate Students
10i057	安全衛生工学 (4回コース)	Safety and Health Engineering(4 times course)
10i058	安全衛生工学 (11回コース)	Safety and Health Engineering(11 times course)

Numbering code			
Course title <English>	統計熱力学 Statistical Thermodynamics	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SATO HIROFUMI

Target year		Number of credits	1.5	Course offered year/period	2019/Second semester
Day/period	Thu.2	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

Many of our surrounding substances are condensed systems in which countless molecules are gathered. In this lecture, we aim to understand the behaviors of various condensing systems from the viewpoint of statistical mechanics. Starting from the basics of statistical mechanics, we learn statistical mechanics handling of realistic molecular system.

[Course Goals]

Confirm the relationship between thermodynamics and statistical mechanics, and acquire statistical mechanics ideas to understand various phenomena as well.

[Course Schedule and Contents]

Fundamentals of statistical mechanics (3times)
cumulant, phase space, micro canonical ensemble, grand canonical ensemble

Fundamentals of statistical mechanics of quantum system (3times)
Fermi statistics, Bose statistics

Interacting classical system (5times)
imperfect gas, cluster expansion, functional derivative, distribution function, integral equation theory for liquids

[Class requirement]

Knowledge of thermodynamics of undergraduate level and elementary statistical mechanics

[Method, Point of view, and Attainment levels of Evaluation]

Evaluation will be based on active participation and an examination.

[Textbook]

Instructed during class

[Reference books, etc.]

（Reference books）
Introduced during class

[Regarding studies out of class (preparation and review)]

While studying the thermodynamics and underlying statistical mechanics in the physics chemistry lecture of undergraduate, we recommend that you review it as necessary as the lecture progresses.

（Others (office hour, etc.)）

The content of the lecture may be revised as necessary according to the situation of participants.

*Please visit KULASIS to find out about office hours.

Numbering code	G-ENG14 5H405 LJ60		
Course title <English>	量子化学Ⅰ Quantum Chemistry I	Affiliated department, Job title,Name	Fukui Institute for Fundamental Chemistry Professor,SATOU TOORU Graduate School of Engineering Associate Professor,HIGASHI MASAHIRO

Target year		Number of credits	1.5	Course offered year/period	2019/First semester

Day/period	Tue.2	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

原子・分子の量子力学、および多体電子系におけるハートリー・フォック理論、ポストハートリー・フォック理論、密度汎関数理論などの理論的手法、軌道相互作用といった量子化学の基礎的事項について講述する。

[Course Goals]

量子化学の基礎とその理解に必要なフレームについて習熟する。

[Course Schedule and Contents]

線形代数の復習、解析力学（1回）
線形空間、内積、ラグランジュ形式、ハミルトン形式

量子力学の基礎（2回）
ブラ、ケット、オブザーバブル、正準量子化、厳密に解けるいくつかの例

摂動論とその応用（2回）
分極率、磁化率、時間に依存する摂動論

分子の量子力学（2回）
ボルン・オッペンハイマー近似、回転、振動

ハートリー・フォック理論（2回）
多電子系、軌道の概念、フェルミ粒子の反対称性、スレーター行列式、フォック方程式

ポストハートリー・フォック理論（1回）
CI法、MCSCF法、MP法

密度汎関数理論（1回）
Hohenberg-Kohnの定理、Kohn-Sham法

軌道相互作用（1回）
軌道混合、フロンティア軌道理論
学習到達度の確認 1

Continue to 量子化学Ⅰ(2)↓↓↓

量子化学Ⅰ(2)

[Class requirement]

学部物理化学で出てくる程度の初等的な量子力学

[Method, Point of view, and Attainment levels of Evaluation]

平常点及び定期試験に基づく総合判定

[Textbook]

Not used

[Reference books, etc.]

（Reference books）

J.J. Sakurai 『現代の量子力学』（吉岡書店）
福井謙一 『量子化学』（朝倉書店）
米沢 貞次郎　他 『三訂量子化学入門』（化学同人）
福井謙一 『化学反応と電子の軌道』（丸善）
R.G.Parr, W.Yang 『原子・分子の密度汎関数法』（シュプリンガー）
A. Szabo, N.S. Ostlund 『新しい量子化学―電子構造の理論入門』（東京大学出版会）

[Regarding studies out of class (preparation and review)]

講義中に指示する。

（Others (office hour, etc.) ）

*Please visit KULASIS to find out about office hours.

Numbering code	G-ENG14 7H408 LJ60		
Course title <English>	分子分光学 Molecular Spectroscopy	Affiliated department, Job title,Name	Fukui Institute for Fundamental Chemistry Professor,SATOU TOORU Institute for Advanced Study Program-Specific Associate Professor,YAMAGUCHI DAISUKE Center for the Promotion of Interdisciplinary Education and Research Program-Specific Senior Lecturer,ASAKURA HIROYUKI

Target year		Number of credits	1.5	Course offered year/period	2019/Second semester

Day/period	Wed.2	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

分光学についての基礎から応用までを講述し、演習を行う。

[Course Goals]

分子分光学の基礎的な原理を理解し、応用例について学ぶ。

[Course Schedule and Contents]

X 線吸収スペクトルの基礎と応用(4回)
X 線吸収スペクトルには内殻電子の遷移に由来する特徴的な構造が現れ、
特定の元素の電子状態や局所構造を反映する。
本講義では、X 線吸収スペクトルの基礎及び応用について紹介する。

弾性散乱と物質の構造解析(4回)
弾性散乱 （Rayleigh-Gans-Debye近似）に関して散乱原理（Fourier変換）
やX線・中性子線を用いた物質の構造解析の方法を講義する。

光の吸収・散乱と発光の量子論 (3回)
量子論の立場から分子と光の相互作用を取扱い、
これらのスペクトルの強度(縦軸)が何によって決まっているかについて講述する。

[Class requirement]

学部レベルの化学の知識

[Method, Point of view, and Attainment levels of Evaluation]

各項目の担当教員の課すレポートや小テスト等の結果を総合して判定する。

[Textbook]

Not used

[Reference books, etc.]

（Reference books）
日本XAFS研究会・編 『XAFSの基礎と応用』（講談社サイエンティフィク）
Scott Calvin 『XAFS for Everyone』（CRC Press）
J. Als-Nielsen, D. McMorrow 『X線物理学の基礎』（講談社）

Continue to 分子分光学(2)↓↓↓

分子分光学(2)

[Regarding studies out of class (preparation and review)]

講義中に指示する。

（Others (office hour, etc.)）

隔年開講科目。

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	分子触媒学 Catalysis Science at Molecular Level	Affiliated department, Job title,Name	Graduate School of Engineering Professor,TANAKA TSUNEHIRO Graduate School of Engineering Associate Professor,TERAMURA KENTARO

Target year		Number of credits	1.5	Course offered year/period	2019/First semester

Day/period	Fri.2	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

Fourier Transform for XAFS Analysis ; Introduction to Catalytic Science

[Course Goals]

Learning and acquiring fundamentals of cataltyic chemistry and XAFS

[Course Schedule and Contents]

Four transform in solid state mechanics,1time,X-ray scattering, Reciprocal lattice vector, Quantum well, Fourier Transform, Delta function
Application of Fourier transform and Crystallography,2times,Fick#039s solid diffusion, Green function, Lattice Fourier expansion, Crystal lattice, Reciprocal lattice, Classification of crystals, diffraction by crystallite, Laue factor, Laue amp Bragg condition
Hydrogen-like in two dimension,1time,self learning
EXAFS Analysis,1time,EXAFS analysis
Application of EXAFS,1time,Examples and Recent topics
Introduction to catalytic science,3times,Phenomena and basic concepts in catalysis
Catalysis and photocatalysis,2times,Examples of catalysis and photocatalysis
confirmation of achievement,1time,Report

[Class requirement]

Knowledge of physical chemistry like quantum chemistry, thermodynamics and spectroscopy is preferred.

[Method, Point of view, and Attainment levels of Evaluation]

Reports

[Textbook]

No text book.

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	分子触媒学続論 Catalysis Science at Molecular Level 2	Affiliated department, Job title,Name	Graduate School of Engineering Program-Specific Associate Professor,HOSOKAWA SABUROU

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, First semester
Day/period	Intensive	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,2times,
,1time,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	分子材料科学 Molecular Materials Science	Affiliated department, Job title,Name	Institute for Chemical Research Professor,KAJI HIRONORI Institute for Chemical Research Assistant Professor,SHIZU KATSUYUKI Institute for Chemical Research Assistant Professor,SUZUKI KATSUAKI

Target year		Number of credits	1.5	Course offered year/period	2019/First semester
Day/period	Wed.2	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

Continue to 分子材料科学(2)↓↓↓

分子材料科学(2)

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	量子物質科学 Quantum Materials Science	Affiliated department, Job title,Name	Institute for Chemical Research Professor,MIZUOCHI NORIKAZU

Target year		Number of credits	1.5	Course offered year/period	2019/First semester
Day/period	Thu.2	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,4times,
,1time,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	分子レオロジー Molecular Rheology	Affiliated department, Job title,Name	Institute for Chemical Research Professor,WATANABE HIROSHI Institute for Chemical Research Associate Professor,MATSUMIYA YUMI

Target year		Number of credits	1.5	Course offered year/period	2019/First semester

Day/period	Wed.3	Class style	Lecture	Language	Japanese and English

[Outline and Purpose of the Course]

Lecture is given for the rheology and dynamics of polymeric liquids and their molecular basis.

[Course Goals]

Understanding phenomenological aspect of rheology in general and molecular aspect of polymer rheology.

[Course Schedule and Contents]

Basics of Rheology,1time,Rheology and its role in science and engineering, flow / deformation/ stress, viscosity, modulus
Rheological behavior of matter,1time,Rheological behavior of matter and classification, viscoelasticity, non-Newtonian flow, plastic flow
Viscoelastic relaxations,2times,Boltzmann's principle, relaxation functions, relaxation time, conversion among response functions, complex modulus
Viscoelasticity and temperature,1time,Glass transition, time-temperature superposition, WLF equation
Stress expression of polymers,2times,Stress expression, tension / free-energy / distribution-function of subchains
Rouse/Zimm model,1time,Model description, model equation, derivation of stress and relaxation modulus, discussion on the relaxation behavior
tube model,2times,Model description, model equation, derivation of stress and relaxation modulus, discussion on the relaxation behavior, comparison to Rouse dynamics
feedback of evaluation and confirmation of level of understanding,1time,Feedback of evaluation of report etc, and confirmation of level of understanding

[Class requirement]

Some basics on differential equations and statistical physics of polymers

[Method, Point of view, and Attainment levels of Evaluation]

Mainly with report

[Textbook]

Original text will be distributed in the class

[Reference books, etc.]

（Reference books）

Y Matsushita ed, Structure and Property of Polymers (Kodansha)\ M Doi amp S F Edwards The Theory of Polymer Dynamics (Oxford press)\ W Graessley Polymeric Liquids amp Networks: Dynamics and Rheology (Garland Science)

Continue to 分子レオロジー(2)↓↓↓

分子レオロジー(2)

（Related URLs）

(http://rheology.minority.jp)

[Regarding studies out of class (preparation and review)]

Differential equations are used to describe the time evolution of polymer chains that governs the rheological properties. It is required to re-visit the content for the under-grad level of differential equation.

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	分子細孔物理化学 Molecular Porous Physical Chemistry	Affiliated department, Job title,Name	Institute for Advanced Study Professor,SIVANIAH, Easan Institute for Advanced Study Program-Specific Associate Professor,YAMAGUCHI DAISUKE Institute for Advanced Study Program-Specific Assistant Professor,Ghalei, Behnam

Target year		Number of credits	1.5	Course offered year/period	2019/Second semester

Day/period	Tue.2	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This course will discuss the physical chemistry and engineering application of porous materials in the areas of adsorption and membrane separation processes.

[Course Goals]

The intention of this course is to allow students to become familiar with a range of porous materials, and the practical ways such materials are used. Although the course is not intended to be exhaustive in covering all porous materials and all applications, examples will be followed that are relevant to socially important problems, such as global warming, or water shortage.

[Course Schedule and Contents]

Overview 1 Introduction to course, and broad overview of porous materials
Thermodynamics of Mixing 2 Phase equilibria and structure formation processes
Adsorptive processes 2 Physical chemistry of adsorptive processes in porous materials
Diffusive processes 2 Physical chemistry of diffusion limited processes in porous materials
Case Study: Membrane Processes for liquid separation 2 Liquid filtration systems for nanofiltration, desalination
Case Study: Membrane Processes for gas separation 2 Case Study: Membrane Processes for gas separation

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

The course grade will be determined based on class performance/attendance (40%) and a final report(60%).

[Textbook]

Not used

Continue to 分子細孔物理化学(2)↓↓↓

分子細孔物理化学(2)

[Reference books, etc.]

（Reference books）

Introduced during class
To be announced during class

（Related URLs）

http://pureosity.org/en/

[Regarding studies out of class (preparation and review)]

To be announced during class

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	分子工学特別実験及演習Ⅰ Laboratory and Exercises in Molecular Engineering I	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SHIRAKAWA MASAHIRO

Target year		Number of credits	4	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Experiment	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,7times,
,16times,
,7times,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	分子工学特別実験及演習II Laboratory and Exercises in Molecular Engineering II	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SHIRAKAWA MASAHIRO

Target year		Number of credits	4	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Experiment	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,7times,
,16times,
,7times,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

Numbering code	G-ENG14 6D439 LB60		
Course title <English>	分子工学特論第一A Molecular Engineering, Adv. IA	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SHIRAKAWA MASAHIRO

Target year		Number of credits	1	Course offered year/period	2019/Intensive, First semester

Day/period	Intensive	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

分子工学の各専門分野におけるトピックスについて、コロキウム形式などで学修する。

[Course Goals]

分子工学に関わる基礎的事項と先端研究の内容について理解を深める。

[Course Schedule and Contents]

分子工学のトピックス（8回）
分子工学の各専門分野におけるトピックスについて、コロキウム形式やレポート作成を通じて学修する。

[Class requirement]

分子工学専攻以外の専攻所属の学生は履修にあたり専攻長に説明を受けること。

[Method, Point of view, and Attainment levels of Evaluation]

平常点およびレポートにより評価する

[Textbook]

特になし

[Reference books, etc.]

（Reference books）
特になし

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

Numbering code	G-ENG14 6D445 LB60		
Course title <English>	分子工学特論第一B Molecular Engineering, Adv. IB	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SHIRAKAWA MASAHIRO

Target year		Number of credits	1	Course offered year/period	2019/Intensive, Second semester

Day/period	Intensive	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

分子工学の各専門分野におけるトピックスについて、コロキウム形式などで学修する。

[Course Goals]

分子工学に関わる基礎的事項と先端研究の内容について理解を深める。

[Course Schedule and Contents]

分子工学のトピックス（8回）
分子工学の各専門分野におけるトピックスについて、コロキウム形式やレポート作成を通じて学修する。

[Class requirement]

分子工学専攻以外の専攻所属学生は、履修にあたり専攻長に説明を受けること。

[Method, Point of view, and Attainment levels of Evaluation]

平常点およびレポートにより評価する

[Textbook]

特になし

[Reference books, etc.]

（Reference books）
特になし

[Regarding studies out of class (preparation and review)]

必要に応じて指示する

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	分子工学特論第三 Molecular Engineering, Adv. III	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SHIRAKAWA MASAHIRO

Target year		Number of credits	1.5	Course offered year/period	2019/Intensive, Second semester
Day/period	Intensive	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,5.5times,
,5.5times,
,5.5times,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

Numbering code	G-ENG14 7P440 LJ60		
Course title <English>	分子工学特論第七 Molecular Engineering, Adv. VII	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SHIRAKAWA MASAHIRO Graduate School of Engineering Assistant Professor,MORIMOTO DAICHI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, First semester

Day/period	Intensive	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

講義タイトル：タンパク質の構造形成とその破綻による疾患発症

私たちの身体を構成するタンパク質は、数ナノメートル程度の大きさであり、肉眼や顕微鏡で直接観察することは出来ません。
しかし、その小ささから想像出来ないほど、タンパク質はとても複雑な立体構造を有します。
タンパク質の構造形成はその機能に密接に関わっており、うまく構造形成できなかったり、凝集体を形成してしまうと、ガンや神経変性疾患をはじめとする重篤な病気に繋がります。
本講義では、基礎的なタンパク質の構造に関する物理化学的性質を概説し、タンパク質の立体構造の決定方法や解析方法を学びます。
そして、タンパク質の構造形成に異常がある場合、如何に疾患に繋がるのかを生物学的ならびに物理化学的観点から理解します。

[Course Goals]

分子工学に関わる最先端の研究状況を把握し、実際の研究に適用することを目指す。

[Course Schedule and Contents]

生体分子機能化学（4回）
生体分子機能化学に関する最近のトピックスを講述する。

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

平常点およびレポートにより評価する。

Continue to 分子工学特論第七(2)↓↓↓

分子工学特論第七(2)

[Textbook]

Instructed during class

[Reference books, etc.]

（Reference books）

Introduced during class

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

隔年開講

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーⅠ Japan Gateway Project Seminar I	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーII Japan Gateway Project Seminar II	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーIII Japan Gateway Project Seminar III	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーIV Japan Gateway Project Seminar IV	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーV Japan Gateway Project Seminar V	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーVI Japan Gateway Project Seminar VI	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーⅦ Japan Gateway Project Seminar VII	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーⅧ Japan Gateway Project Seminar VIII	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーIX Japan Gateway Project Seminar IX	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーX Japan Gateway Project Seminar X	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーXI Japan Gateway Project Seminar XI	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGPセミナーXII Japan Gateway Project Seminar XII	Affiliated department, Job title,Name	Graduate School of Engineering Professor,ATOMI HARUYUKI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, year-round
Day/period	Intensive	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

This is a series of lectures which are carried out by the professors who are invited with Japan Gateway: Kyoto University Top Global Program (JGP). By attending a lecture from the world top level professors, this course aims to grasping the newest trend of the specific field and extending the view of thinking.

[Course Goals]

Understand the fundamental and/or latest contents of a field of chemistry or chemical engineering in English, and obtain the skill of discussing the related contents in English.

[Course Schedule and Contents]

Introduction,1time,The contents of a series of seminar are explained.
Intensive lectures of the specific theme,2times,For a given theme, a series of lectures is executed.
Summary,1time,The contents of a series of seminar are summarized, and the exercise for evaluating the level of understanding is executed.

[Class requirement]

The basic knowledge for understanding the specific theme and the ability of understanding the lecture in English are requested.

[Method, Point of view, and Attainment levels of Evaluation]

Attendance at a series of four lectures or more is requested. The report assigned in the lecture and/or the result of final examination are used for evaluation.

[Textbook]

A copy of related contents is offered.

[Reference books, etc.]

（Reference books）
Announced in the lecture.

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

Professors of the faculty of engineering who are doing similar research support a student#039s study. In some cases, this course consists of a series of lectures by two or more researchers.

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	JGP計算実習(MO) Japan Gateway Project Computation Exercise(MO)	Affiliated department, Job title,Name	Graduate School of Engineering Professor,SATO HIROFUMI Center for the Promotion of Interdisciplinary Education and Research Program-Specific Associate Professor,FUKUDA RYOICHI

Target year		Number of credits	0.5	Course offered year/period	2019/Intensive, First semester
Day/period	Intensive	Class style	Seminar	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,1time,
,1time,
,1time,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	先端マテリアルサイエンス通論（4回コース） Introduction to Advanced Material Science and Technology (4 times course)	Affiliated department, Job title,Name	Graduate School of Engineering Senior Lecturer,YOROZU KAZUAKI Graduate School of Engineering Senior Lecturer,KANEKO KENTAROU

Target year		Number of credits	0.5	Course offered year/period	2019/First semester

Day/period	Fri.5	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

The various technologies used in the field of material science serve as bases for so-called high technologies, and, in turn, the high technologies develop material science. These relate to each other very closely and contribute to the development of modern industries. In this class, recent progresses in material science are briefly introduced, along with selected current topics on new biomaterials, nuclear engineering materials, new metal materials and natural raw materials. The methods of material analysis and future developments in material science are also discussed.

[Course Goals]

To expand your field of vision for material science and to acquire accomplishments to identify the importance of technologies through the classes for developments in material science.

[Course Schedule and Contents]

Topic I Organic Materials
Week 1, Tumor imaging and therapy through photoirradiation
Week 2, Carbon nanorings
Week 3, Synthesis of novel pai-conjugated molecules with main group elements
Week 4, Chemistry of asymmetric catalysis - stereoselective synthesis of opically active pharmaceutical compounds -
Topic II Inorganic Materials
Week 5, Properties of cementitious materials and the future
Week 6, Application of electrical discharge to material and environmental technology
Week 7, Theory of precision cuting, grinding, polishing and related properties of materials
Week 8, Fabrication of inorganic nanofiber by electrospinning
Topic III Polymeric Materials
Week 9-10, Electrical conductivity of conjugated polymers and application to organic Electronics
Week 11-12, An introduction to smart shape changing materials

[Class requirement]

Each topic consists of four lectures.
This course requests to choose one topic from provided three topics in advance.
It is prohibited to change the topic after registration.
We may select students who can attend the class before starting the class.
Students who intend to join the course are required to submit the application form through the web site which will be informed in the advance.

Continue to 先端マテリアルサイエンス通論（4回コース）(2)↓↓↓

先端マテリアルサイエンス通論（4回コース）(2)

[Method, Point of view, and Attainment levels of Evaluation]

The average score of the best two assignments is employed.
For the topic which the students chose, they must attend minimum three lectures and submit minimum two assignments evaluated as "passed".

[Textbook]

Course materials will be provided.

[Reference books, etc.]

（Reference books）

（Related URLs）

http://www.glc.t.kyoto-u.ac.jp/grad(The home page of the engineering education research center)

[Regarding studies out of class (preparation and review)]

This course requests students to prepare a class in advance becouse some classes will be done by an interactive style as necessary.

（Others (office hour, etc.)）

It is prohibited to change the registered course.
It is prohibited to attend the lectures of the other topics than the students chose.
All the students are requested to attend the guidance which will be held on the first class.

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	先端マテリアルサイエンス通論（8回コース） Introduction to Advanced Material Science and Technology (8 times course)	Affiliated department, Job title,Name	Graduate School of Engineering Senior Lecturer,YOROZU KAZUAKI Graduate School of Engineering Senior Lecturer,KANEKO KENTAROU

Target year		Number of credits	1	Course offered year/period	2019/First semester

Day/period	Fri.5	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

The various technologies used in the field of material science serve as bases for so-called high technologies, and, in turn, the high technologies develop material science. These relate to each other very closely and contribute to the development of modern industries. In this class, recent progresses in material science are briefly introduced, along with selected current topics on new biomaterials, nuclear engineering materials, new metal materials and natural raw materials. The methods of material analysis and future developments in material science are also discussed.

[Course Goals]

To expand your field of vision for material science and to acquire accomplishments to identify the importance of technologies through the classes for developments in material science.

[Course Schedule and Contents]

Topic I Organic Materials
Week 1, Tumor imaging and therapy through photoirradiation
Week 2, Carbon nanorings
Week 3, Synthesis of novel pai-conjugated molecules with main group elements
Week 4, Chemistry of asymmetric catalysis - stereoselective synthesis of opically active pharmaceutical compounds -
Topic II Inorganic Materials
Week 5, Properties of cementitious materials and the future
Week 6, Application of electrical discharge to material and environmental technology
Week 7, Theory of precision cuting, grinding, polishing and related properties of materials
Week 8, Fabrication of inorganic nanofiber by electrospinning
Topic III Polymeric Materials
Week 9-10, Electrical conductivity of conjugated polymers and application to organic Electronics
Week 11-12, An introduction to smart shape changing materials

[Class requirement]

Each topic consists of four lectures.
This course requests to choose two topics from provided three topics in advance.
It is prohibited to change the topics after registration.
We may select students who can attend the class before starting the class.
Students who intend to join the course are required to submit the application form through the web site which will be informed in the advance.

Continue to 先端マテリアルサイエンス通論（8回コース）(2)↓↓↓

先端マテリアルサイエンス通論（8回コース）(2)

[Method, Point of view, and Attainment levels of Evaluation]

The average score of the best two assignments for each topic is employed.
For each topic which the students chose, they must attend minimum three lectures and submit minimum two assignments evaluated as "passed".

[Textbook]

Not used

[Reference books, etc.]

（Reference books）

（Related URLs）

http://www.glc.t.kyoto-u.ac.jp/grad(The home page of the engineering education research center)

[Regarding studies out of class (preparation and review)]

This course requests students to prepare a class in advance becouse some classes will be done by an interactive style as necessary.

（Others (office hour, etc.)）

It is prohibited to change the registered course.
It is prohibited to attend the lectures of the other topic than the students chose.
All the students are requested to attend the guidance which will be held on the first class.

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	先端マテリアルサイエンス通論（12回コース） Introduction to Advanced Material Science and Technology (12 times course)	Affiliated department, Job title,Name	Graduate School of Engineering Senior Lecturer,YOROZU KAZUAKI Graduate School of Engineering Senior Lecturer,KANEKO KENTAROU

Target year		Number of credits	1.5	Course offered year/period	2019/First semester

Day/period	Fri.5	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

The various technologies used in the field of material science serve as bases for so-called high technologies, and, in turn, the high technologies develop material science. These relate to each other very closely and contribute to the development of modern industries. In this class, recent progresses in material science are briefly introduced, along with selected current topics on new biomaterials, nuclear engineering materials, new metal materials and natural raw materials. The methods of material analysis and future developments in material science are also discussed.

[Course Goals]

To expand your field of vision for material science and to acquire accomplishments to identify the importance of technologies through the classes for developments in material science.

[Course Schedule and Contents]

Topic I Organic Materials
Week 1, Tumor imaging and therapy through photoirradiation
Week 2, Carbon nanorings
Week 3, Synthesis of novel pai-conjugated molecules with main group elements
Week 4, Chemistry of asymmetric catalysis - stereoselective synthesis of opically active pharmaceutical compounds -
Topic II Inorganic Materials
Week 5, Properties of cementitious materials and the future
Week 6, Application of electrical discharge to material and environmental technology
Week 7, Theory of precision cuting, grinding, polishing and related properties of materials
Week 8, Fabrication of inorganic nanofiber by electrospinning
Topic III Polymeric Materials
Week 9-10, Electrical conductivity of conjugated polymers and application to organic Electronics
Week 11-12, An introduction to smart shape changing materials

[Class requirement]

Each topic consists of four lectures.
This course requests to take all provided three topics.
We may select students who can attend the class before starting the class.
Students who intend to join the course are required to submit the application form through the web site which will be informed in the advance.

[Method, Point of view, and Attainment levels of Evaluation]

The average score of the best two assignments for each topics is employed.
For each topic, the students must attend minimum three lectures and submit minimum two assignments

Continue to 先端マテリアルサイエンス通論（12回コース）(2)↓↓↓

evaluated as "passed".

[Textbook]

Not used

[Reference books, etc.]

（Reference books）

（Related URLs）

http://www.glc.t.kyoto-u.ac.jp/grad(The home page of the engineering education research center)

[Regarding studies out of class (preparation and review)]

This course requests students to prepare a class in advance becouse some classes will be done by an interactive style as necessary.

（Others (office hour, etc.)）

It is prohibited to change the registered course.

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	現代科学技術特論（4回コース） Advanced Modern Science and Technology (4 times course)	Affiliated department, Job title,Name	Graduate School of Engineering Senior Lecturer,ASHIDA RIYUUICHI Graduate School of Engineering Senior Lecturer,MATSUMOTO RIYOUSUKE Graduate School of Engineering Senior Lecturer,MAEDA MASAHIRO Graduate School of Engineering Senior Lecturer,YOROZU KAZUAKI Graduate School of Engineering Senior Lecturer,KANEKO KENTAROU

Target year		Number of credits	0.5	Course offered year/period	2019/Second semester
Day/period	Thu.5	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

Engineering/Engineers have been expected to fulfill key roles among social issues and others, such as energy, environment and resource. This class introduces cutting edge science and technologies from their backgrounds, research and development, to problems for the practical applications. Group discussions will be done for further understanding of the topics of the course.

[Course Goals]

The students understand of each technology towards social issues to be solved by engineers. In addition, the students learn the importance for engineers to have multidisciplinary mind and understand the significance of engineering to realize sustainable development.

[Course Schedule and Contents]

Topic I Computer-Aided Analyses for Fluid
Week 1-2, Lagrangian Meshfree Methods as New Generation Computational Tools
Week 3, CFD in Process Systems Engineering
Week 4, CFD in Hydraulic Engineering
Topic II Utilization of Light Energy
Week 5-6, Photochemistry of Organic Molecules
Week 7, Solar Energy Conversion Using Semiconductor Photocatalysts
Week 8, Efficiency Improvement in Solar Cells by Photonic Nano Structures
Topic III Materials Analysis
Week 9-10,Crystal Structure Analysis by Power X-ray Diffraction Measurement
Week 11-12, Principles and Applications of Fluorescence Spectroscopy

[Class requirement]

Each topic consists of four lectures.
This course requests to choose one topic from provided three topics in advance.
It is prohibited to change the topic after registration.

[Method, Point of view, and Attainment levels of Evaluation]

The average score of the best two assignments is employed.
For the topic which the students chose, they must attend minimum three lectures and submit minimum two assignments evaluated as "passed".

Continue to 現代科学技術特論（4回コース）(2)↓↓↓

現代科学技術特論（4回コース）(2)

[Textbook]

Course materials will be provided.

[Reference books, etc.]

（Reference books）

（Related URLs）

http://www.glc.t.kyoto-u.ac.jp/grad(The home page of the engineering education research center)

[Regarding studies out of class (preparation and review)]

This course requests students to prepare a class in advance becouse some classes will be done by an interactive style as necessary.

（Others (office hour, etc.)）

It is prohibited to change the registered course.
It is prohibited to attend the lectures of the other topics than the students chose.
All the students are requested to attend the guidance which will be held on the first class.

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	現代科学技術特論（8回コース） Advanced Modern Science and Technology (8 times course)	Affiliated department, Job title,Name	Graduate School of Engineering Senior Lecturer,ASHIDA RIYUUICHI Graduate School of Engineering Senior Lecturer,MATSUMOTO RIYOUSUKE Graduate School of Engineering Senior Lecturer,MAEDA MASAHIRO Graduate School of Engineering Senior Lecturer,YOROZU KAZUAKI Graduate School of Engineering Senior Lecturer,KANEKO KENTAROU

Target year		Number of credits	1	Course offered year/period	2019/Second semester
Day/period	Thu.5	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

Engineering/Engineers have been expected to fulfill key roles among social issues and others, such as energy, environment and resource. This class introduces cutting edge science and technologies from their backgrounds, research and development, to problems for the practical applications. Group discussions will be done for further understanding of the topics of the course.

[Course Goals]

The students understand of each technology towards social issues to be solved by engineers. In addition, the students learn the importance for engineers to have multidisciplinary mind and understand the significance of engineering to realize sustainable development.

[Course Schedule and Contents]

Topic I Computer-Aided Analyses for Fluid
Week 1-2, Lagrangian Meshfree Methods as New Generation Computational Tools
Week 3, CFD in Process Systems Engineering
Week 4, CFD in Hydraulic Engineering
Topic II Utilization of Light Energy
Week 5-6, Photochemistry of Organic Molecules
Week 7, Solar Energy Conversion Using Semiconductor Photocatalysts
Week 8, Efficiency Improvement in Solar Cells by Photonic Nano Structures
Topic III Materials Analysis
Week 9-10,Crystal Structure Analysis by Power X-ray Diffraction Measurement
Week 11-12, Principles and Applications of Fluorescence Spectroscopy

[Class requirement]

Each topic consists of four lectures.
This course requests to choose two topics from provided three topics in advance.
It is prohibited to change the topics after registration.

[Method, Point of view, and Attainment levels of Evaluation]

The average score of the best two assignments for each topic is employed.
For each topic which the students chose, they must attend minimum three lectures and submit minimum two assignments evaluated as "passed".

Continue to 現代科学技術特論（8回コース）(2)↓↓↓

現代科学技術特論（8回コース）(2)

[Textbook]

Course materials will be provided.

[Reference books, etc.]

（Reference books）

（Related URLs）

http://www.glc.t.kyoto-u.ac.jp/grad(The home page of the engineering education research center)

[Regarding studies out of class (preparation and review)]

This course requests students to prepare a class in advance becouse some classes will be done by an interactive style as necessary.

（Others (office hour, etc.)）

It is prohibited to change the registered course.
It is prohibited to attend the lectures of the other topic than the students chose.
All the students are requested to attend the guidance which will be held on the first class.

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	現代科学技術特論（12回コース） Advanced Modern Science and Technology (12 times course)	Affiliated department, Job title,Name	Graduate School of Engineering Senior Lecturer,ASHIDA RIYUUICHI Graduate School of Engineering Senior Lecturer,MATSUMOTO RIYOUSUKE Graduate School of Engineering Senior Lecturer,MAEDA MASAHIRO Graduate School of Engineering Senior Lecturer,YOROZU KAZUAKI Graduate School of Engineering Senior Lecturer,KANEKO KENTAROU

Target year		Number of credits	1.5	Course offered year/period	2019/Second semester
Day/period	Thu.5	Class style	Lecture	Language	English

[Outline and Purpose of the Course]

Engineering/Engineers have been expected to fulfill key roles among social issues and others, such as energy, environment and resource. This class introduces cutting edge science and technologies from their backgrounds, research and development, to problems for the practical applications. Group discussions will be done for further understanding of the topics of the course.

[Course Goals]

The students understand of each technology towards social issues to be solved by engineers. In addition, the students learn the importance for engineers to have multidisciplinary mind and understand the significance of engineering to realize sustainable development.

[Course Schedule and Contents]

Topic I Computer-Aided Analyses for Fluid
Week 1-2, Lagrangian Meshfree Methods as New Generation Computational Tools
Week 3, CFD in Process Systems Engineering
Week 4, CFD in Hydraulic Engineering
Topic II Utilization of Light Energy
Week 5-6, Photochemistry of Organic Molecules
Week 7, Solar Energy Conversion Using Semiconductor Photocatalysts
Week 8, Efficiency Improvement in Solar Cells by Photonic Nano Structures
Topic III Materials Analysis
Week 9-10,Crystal Structure Analysis by Power X-ray Diffraction Measurement
Week 11-12, Principles and Applications of Fluorescence Spectroscopy

[Class requirement]

Each topic consists of four lectures.
This course requests to take all provided three topics.

Continue to 現代科学技術特論（12回コース）(2)↓↓↓

現代科学技術特論（12回コース）(2)

[Method, Point of view, and Attainment levels of Evaluation]

The average score of the best two assignments for each topics is employed.
For each topic, the students must attend minimum three lectures and submit minimum two assignments evaluated as "passed".

[Textbook]

Course materials will be provided.

[Reference books, etc.]

（Reference books）

（Related URLs）

http://www.glc.t.kyoto-u.ac.jp/grad(The home page of the engineering education research center)

[Regarding studies out of class (preparation and review)]

This course requests students to prepare a class in advance becouse some classes will be done by an interactive style as necessary.

（Others (office hour, etc.)）

It is prohibited to change the registered course.

*Please visit KULASIS to find out about office hours.

Numbering code			
Course title <English>	実践的科学英語演習Ⅰ Exercise in Practical Scientific English I	Affiliated department, Job title,Name	Graduate School of Engineering Senior Lecturer,NISHIKAWA MIKAKO Graduate School of Engineering Senior Lecturer,MATSUMOTO RIYOUSUKE Graduate School of Engineering Senior Lecturer,ASHIDA RIYUUICHI Graduate School of Engineering Senior Lecturer,MAEDA MASAHIRO Graduate School of Engineering Senior Lecturer,YOROZU KAZUAKI Graduate School of Engineering Senior Lecturer,KANEKO KENTAROU

Target year		Number of credits	1	Course offered year/period	2019/First semester
Day/period	Thu.4,5	Class style	Seminar	Language	Japanese and English

[Outline and Purpose of the Course]

This course is open to all master and doctoral engineering students.
It is designed to help students understand how to write a research paper step by step.
In this course, the students will write a short research paper (i.e. Extended Research Abstract for Proceeding. approx. 1000 -1500 words) on a topic drawn from assigned readings.

[Course Goals]

The primary goal of this course is to deepen an understanding of the main features of each part of a scientific paper (IMRaD).
Throughout the course, students will develop the core competencies required for language, grammar, and style to produce a research manuscript in English.

[Course Schedule and Contents]

Unit 1. Course Overview
Introduction to writing scientific research articles

Unit 2. Introduction
Raising awareness of the register of scientific research articles (genre, audience, purpose)

Unit 3. Preparing to Write (1)
Writing a proposal for a research paper, using corpus-based approach (Exercise: Creating own Corpus)

Unit 4. Preparing to Write (2)
Paraphrasing ideas from source texts, using citations and references in formal writing

Unit 5. Writing Processes (1) Abstract
Identifying the moves for an Abstract section by hint expressions

Unit 6. Writing Processes (2) Abstract-continued
Writing an Abstract (Title), Peer Feedback

Unit 7. Writing Processes (3) Introduction

Continue to 実践的科学英語演習Ⅰ(2)↓↓↓

実践的科学英語演習Ⅰ(2)

Identifying the moves for an Introduction section by hint expressions

Unit 8. Writing Processes (4) Introduction-continued
Writing an Introduction section, Peer Feedback

Unit 9. Writing Processes (5) Method
Writing a Method section, Peer Feedback

Unit 10. Writing Processes (6) Results
Writing a Result section, Peer Feedback

Unit 11. Writing Processes (7) Discussions and Conclusion
Writing a Discussion and a Conclusion section

Unit 12. Cover letter to reviewers
Writing a cover letter to reviewers and how to respond to reviewers

Unit 13. Monitoring and Revising (1)
Submitting the paper online to receive feedback from instructors

Unit 14. Monitoring and Revising (2)
Revising a paper based on peer feedback

Unit 15. Submission of the Final Paper

[Class requirement]

Students who intend to join this course must attend the first class.

[Method, Point of view, and Attainment levels of Evaluation]

Evaluation based on 30% participation, 40% reports, 30% final paper *More than twice unexcused absence can result in course failure

[Textbook]

Handout materials will be supplied by the instructor.

[Reference books, etc.]

（Reference books）
Textbooks (for reference)

ALESS (2012). Active English for Science-英語で科学する-レポート、論文、プレゼンテーション. The University of Tokyo Press.

野口ジュディー・深山晶子・岡本真由美.（2007）.『理系英語のライティング』. アルク

Continue to 実践的科学英語演習Ⅰ(3)↓↓↓

実践的科学英語演習Ⅰ(3)

[Regarding studies out of class (preparation and review)]

Students will need to spend a reasonable amount of time to complete their own piece of writing for the course.

（Others (office hour, etc.)）

We may restrict the class size to enhance students' learning.
Students who intend to join the course are required to attend the first-day guidance.

Office Hours: (by appointment) nishikawa.mikako7w@kyoto-u.ac.jp (Ext. 2052)

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	先端科学機器分析及び実習Ⅰ Instrumental Analysis,Adv.I	Affiliated department, Job title,Name	Graduate School of Engineering Professor,OOE KOUICHI

Target year		Number of credits	1	Course offered year/period	2019/First semester
Day/period	Thu.4,5	Class style	Seminar	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,2times,
,2times,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	先端科学機器分析及び実習II Instrumental Analysis,Adv.II	Affiliated department, Job title,Name	Graduate School of Engineering Professor,OOE KOUICHI

Target year		Number of credits	1	Course offered year/period	2019/Second semester
Day/period	Thu.4,5	Class style	Seminar	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,2times,
,2times,
,2times,
,2times,
,2times,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	安全衛生工学（4回コース） Safety and Health Engineering (4 times course)	Affiliated department, Job title,Name	Agency for Health, Safety and Environment Professor,HASHIMOTO SATOSHI Agency for Health, Safety and Environment Associate Professor,MATSUI YASUTO

Target year		Number of credits	0.5	Course offered year/period	2019/First semester

Day/period	Tue.4	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,1time,
,1time,
,1time,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

未更新

Numbering code			
Course title <English>	安全衛生工学（11回コース） Safety and Health Engineering (11 times course)	Affiliated department, Job title,Name	Agency for Health, Safety and Environment Professor,HASHIMOTO SATOSHI Agency for Health, Safety and Environment Associate Professor,MATSUI YASUTO

Target year		Number of credits	1.5	Course offered year/period	2019/First semester

Day/period	Tue.4	Class style	Lecture	Language	Japanese

[Outline and Purpose of the Course]

[Course Goals]

[Course Schedule and Contents]

,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,
,1time,

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

[Textbook]

[Reference books, etc.]

（Reference books）

[Regarding studies out of class (preparation and review)]

（Others (office hour, etc.)）

*Please visit KULASIS to find out about office hours.

Numbering code	G-LAS00 80001 LJ20		
Course title <English>	研究倫理・研究公正（理工系） Research Ethics and Integrity(Science and Technology)	Affiliated department, Job title,Name	Institute for Liberal Arts and Sciences Program-Specific Professor,ITO SHINZABUROU Institute for Liberal Arts and Sciences Program-Specific Professor,SATOU TOORU Graduate School of Engineering Professor,KAWAKAMI YOUICHI

Group	Common Graduate Courses	Field(Classification)	Social Responsibility and Profitability

Language	Japanese	Old group		Number of credits	0.5

Hours	7.5	Class style	Lecture	Course offered year/period	2019・ Intensive, First semester

Day/period	Intensive	Target year	Graduate students	Eligible students	For science students

[Outline and Purpose of the Course]

研究をこれから始める大学院生に責任ある行動をする研究者として身につけておくべき心構えを講述する。研究者としての規範を保っていかに研究を進めるか、また研究成果の適切な発表方法など、研究倫理・研究公正についてさまざまな例を示しながら、科学研究における不正行為がいかに健全な科学の発展の妨げになるか、またデータの正しい取扱いや誠実な研究態度、発表の仕方が、自らの立場を守るためにもいかに重要かを講義する。さらに、研究費の適切な使用と知的財産や利益相反について学ぶ。講義に続いてグループワークを行い、与えられた仮想課題を自らの問題として考え、解決方法のディスカッションを行う。

[Course Goals]

第１講～第４講を通じて、研究者としての責任ある行動とは何かを修得する。科学研究における不正行為の事例学習、討論を通じて、誠実な研究活動を遂行する研究者の心得を身につけ、最後に研究倫理・研究公正についてのe-ラーニングコースを受講し、理解度を確認する。

[Course Schedule and Contents)]

第１講　科学研究における心構え－研究者の責任ある行動とは－
１．研究者の責任ある行動とは（学術活動に参加する者としての義務）
２．不正の可能性と対応
３．実験室の安全対策と環境への配慮
４．データの収集と管理－実験データの正しい取扱い方－
５．科学上の間違いと手抜き行為の戒め
６．誠実な研究活動中の間違いとの区別
７．科学研究における不正行為
第２講　研究成果を発表する際の研究倫理公正
１．研究成果の共有
２．論文発表の方法とプロセス
３．科学研究における不正行為（典型的な不正）
４．データの取扱い（データの保存・公開・機密）
５．その他の逸脱行為（好ましくない研究行為）
６．研究不正事件（シェーン捏造事件）
７．不適切な発表方法（オーサーシップ、二重投稿）
第３講　知的財産と研究費の適正使用
１．知的財産の考え方（知的財産の確保と研究発表）
２．研究資金と契約

Continue to 研究倫理・研究公正（理工系）(2)↓↓↓

研究倫理・研究公正（理工系）(2)

３．利益相反（利害の衝突と回避）
４．公的研究費の適切な取扱い
５．研究者・研究機関へのペナルティー
６．事例紹介（ビデオ：分野共通４件）
７．結語
第４講　グループワーク
１．例示された課題についてグループ・ディスカッションと発表
２．日本学術振興会「研究倫理ラーニングコース」の受講と修了証書の提出

[Class requirement]

None

[Method, Point of view, and Attainment levels of Evaluation]

第１～４講の全てに出席と参加の状況、ならびに学術振興会e-learningの修了証の提出をもって合格を判定する。

[Textbook]

日本学術振興会「科学の健全な発展のために」編集委員会 『科学の健全な発展のために－ 誠実な科学者の心得－』（丸善出版）ISBN:978-4621089149（学術振興会のHP（https://www.jsps.go.jp/j-kousei/data/rinri.pdf）より、テキスト版をダウンロード可能）

[Reference book, etc.]

（Reference book）
米国科学アカデミー 編、池内 了 訳 『科学者をめざす君たちへ―研究者の責任ある行動とは』（化学同人）ISBN:978-4759814286
眞嶋俊造、奥田太郎、河野哲也編著 『人文・社会科学のための研究倫理ガイドブック』（慶応義塾大学出版会）ISBN:978-4766422559
神里彩子、武藤香織編 『医学・生命科学の研究倫理ハンドブック』（東京大学出版会）ISBN:978-4130624138
野島高彦著 『誰も教えてくれなかった実験ノートの書き方』（化学同人）ISBN:978-4759819335
須田桃子著 『捏造の科学者 STAP細胞事件』（文藝春秋）ISBN:978-4163901916

[Regarding studies out of class (preparation and review)]

日本学術振興会「研究倫理ラーニングコース」の受講

[Others (office hour, etc.)]

第１～３講は土曜２，３，４限に行う。第４講はグループワークを中心として講義の翌週または翌々週の土曜１，２または３，４限に実施する。

科目ナンバリング	G-LAS01 80001 LJ10						
授業科目名 <英訳>	学術研究のための情報リテラシー基礎 Basics of Academic Information Literacy		担当者所属 職名・氏名	国際高等教育院 教授 喜多 一 附属図書館 准教授 北村 由美 学術情報メディアセンター 特定講師 FLANAGAN, Brendan 学術情報メディアセンター 教授 緒方 広明			
群	大学院共通科目群	分野(分類)	情報テクノサイエンス	使用言語	日本語		
旧群		単位数	0.5単位	時間数	7.5時間	授業形態	講義
開講年度・ 開講期	2019・ 前期集中	曜時限	集中 5月25日（土）2〜5限	配当学年	大学院生	対象学生	全学向

[授業の概要・目的]

本科目では大学院生として研究室などでの研究活動を本格化させるための基礎的な知識・スキルとして、大学図書館などを活用した学術情報の探索と発信、本学が提供する情報通信サービスの理解とその適正な運用、その基礎となる情報ネットワークやコンピュータについての実践的事項、情報セキュリティと情報倫理などを学習する。

[到達目標]

大学図書館などを利用した学術目的の情報探索、情報発信について、効果的な文献の探索・収集・活用の手法と、論文として発表する際のマナーを知る。

研究活動でコンピュータや LAN、インターネットを適切に利用するための技術的な基礎知識を知る。

研究室でのネットワーク利用のために本学が提供しているKUINS 等の情報通信サービスについて知り、適切に利用できるようになる。

研究活動でコンピュータやネットワークを利用する際の本学での遵守事項や情報セキュリティ・情報倫理上の留意点を知り、実践できるようになる。

[授業計画と内容]

以下、４回の授業を集中講義形式で実施する。

・学術研究のための大学図書館利用と情報探索、情報発信(1回)
・ネットワークの基礎(1回)
・大学の情報基盤の利活用(１回)
・情報セキュリティと情報倫理（1回）

[履修要件]

特になし

[成績評価の方法・観点]

授業への参加（課題の提出）により評価する。情報環境機構が提供する情報セキュリティ e-learning の修了は合格の要件である。

学術研究のための情報リテラシー基礎(2)へ続く↓↓↓

学術研究のための情報リテラシー基礎(2)

[教科書]

プリント等を電子的に配布する。

[授業外学修（予習・復習）等]

情報セキュリティ e-learning についてはあらかじめ修了しておくこと。授業外学習として課題を課す。

[その他（オフィスアワー等）]

受講時に、受講前に持っている情報リテラシーについての知識・スキル等を調査する予定である。
授業資料は電子的に配布するので、ノートPC などを持参して受講することが望ましい。

科目ナンバリング	G-LAS02 80001 SE48						
授業科目名<英訳>	大学院生のための英語プレゼンテーション Presentation for Graduate Students			担当者所属職名・氏名	国際高等教育院 講師 RYLANDER, John William		
群	大学院共通科目群	分野(分類)	コミュニケーション			使用言語	英語
旧群		単位数	1単位	時間数	15時間	授業形態	演習
開講年度・開講期	2019・ 前期集中	曜時限	集中 9月9日(月)2～4限、11日(水)2～4限、13日(金)2・3限	配当学年	大学院生	対象学生	全学向

[授業の概要・目的]

This course is designed to provide graduate students with an opportunity to develop their ability and confidence when presenting field-specific content to an informed audience. Giving presentations in an academic setting, whether it is in a classroom, laboratory context, or at a conference, has become increasingly necessary for students at the graduate level. Course content extends from how to greet the audience to how to answer audience questions.

[到達目標]

Students successfully completing this course will be able to do the following:

- Create an appropriate presentation slideshow for a conference or a research laboratory presentation;
- Clearly introduce and provide an overview of the talk through appropriate signposting;
- Properly display visual aids to enhance audience understanding of research data;
- Use posture and movement to engage the audience;
- Use gestures and gaze to emphasize information and connect with the audience;
- Produce a presentation; and
- Answer audience questions.

[授業計画と内容]

Session 1: Purpose and structure of academic presentations
Session 2: Topic selection and development
Session 3: Information organization: From greetings to goodbyes
Session 4: Creating effective slideshows and displaying research data
Session 5: Body language and gestures
Session 6: Answering audience questions
Session 7: A special focus on data significance
Session 8: Student presentations and instructor feedback

[履修要件]

This course has a limit set on student enrollment. In the case where many students wish to enroll in class, a lottery system will decide inclusion.

[成績評価の方法・観点]

30% Active Participation
30% Slideshow Creation
40% Main and Minor Presentations

大学院生のための英語プレゼンテーション(2)へ続く↓↓↓

大学院生のための英語プレゼンテーション(2)

[教科書]

使用しない

[参考書等]

（参考書）

All course materials will be provided to the students by the teacher.

[授業外学修（予習・復習）等]

Students will be asked to work on several smaller in-class talks and one larger presentation as their primary out-of-class homework assignment.

[その他（オフィスアワー等）]