

# OVERVIEW

For International Master's / Doctoral Program

Graduate School of SCIENCE, KYUSHU UNIVERSITY

2022 Fall Admission

令和4年度 九州大学大学院理学府 履修の手引き  
(国際コース・10月入学者用)

GRADUATE SCHOOL OF SCIENCE

KYUSHU UNIVERSITY

九州大学大学院理学府

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## 1. Graduate School of Science

The origins of the Graduate School of Science at Kyushu University date back to the time when the School of Science was founded in 1939. Following several phases of expansion and restructuring it was established in its current form in the year 2000. Initially, Master's and Doctoral programs were run in five separate departments, but since 2008 these have been confined to three: Physics, Chemistry and Earth and Planetary Sciences. Graduate programs in Mathematics and Systems Life Sciences are also offered in closely related, but independent, graduate schools.

The objective of the Graduate School of Science is to provide an atmosphere of intellectual creativity in a broad range of sciences so that through their research, students can train to become specialists in their fields. The requirements for obtaining a graduate degree are creative thinking skills, problem pursuit skills, and problem solving skills rather than simply attending classes and accumulating course credits. The education in the Graduate School of Science puts emphasis on fostering these skills by promoting academic interaction between professors and students.

In today's rapidly changing society, our graduate school remains a center of innovative education and research excellence by training experts who will play a leading role in shaping the future world we live in.

## 九州大学大学院理学府

九州大学大学院理学研究科は、理学部が設置された1939年に発足しました。理学研究科は、何度かの拡充を経て、2000年に九州大学大学院理学院・理学府に改組されました。修士（理学）、博士（理学）の学位授与のための教育は、基礎粒子科学、分子科学、凝縮系科学、地球惑星科学、生物科学の5専攻において行われていましたが、2008年より物理学、化学及び地球惑星科学の3専攻に改組されました。九州大学には密接に関連した数理学府、システム生命科学府も存在します。

理学府では、学生が幅広い分野において教育を受け、研究することによって、高度な専門家として育まれるように、知的環境の整備を行っています。学位を取得するためには、このような環境の中で単に講義を受けるだけでなく、独創的思考能力、課題探求能力と問題解決能力を身につけることが求められます。理学府の教育は、教員と学生の学術的な交流を促進し、これらの能力の涵養に重点を置いて行われています。

急速に変革する世界において、理学院・理学府は最先端の教育と高度な研究の中心として、社会の付託に応えています。

## 2. Regulations of the Graduate School of Science of Kyushu University (selection)

### 九州大学大学院理学府規則（抜粋）

#### (Purpose)

Article 1 The Regulations of the Graduate School of Science of Kyushu University shall specify the matters that each graduate school is required to specify under the provisions of the General Regulations of Graduate School of Kyushu University (Kyushu University Regulation No. 3 of 2004) and the Regulations of Kyushu University on Degrees (Kyushu University Regulation No. 86 of 2004), as well as other matters that are considered necessary for education at the Graduate School of Science (hereinafter referred to as the "Graduate School").

#### (Educational and research purposes)

Article 1-2 Scientific study involves discovering nature's truths, and structuring a way to systematically explain universal principles. The Graduate School of Science teaches the laws of nature together with scientific principles and methods. Our aim is to train cutting-edge researchers with a broad perspective who can take an active role in the international arena, and also professionals who use their specialist skills and knowledge to contribute to society in general.

#### (Area of Specialization)

Article 2 The Graduate School shall have the following areas of specialization in each department.

Department	Area of Specialization
Physics	Theoretical particle and nuclear physics and astrophysics Experimental particle and nuclear physics Condensed matter theory and statistical physics Quantum condensed matter physics Complex matter physics and biophysics
Chemistry	Inorganic and Analytical Chemistry Physical Chemistry Organic Chemistry and Biochemistry Materials Chemistry and Engineering
Earth and Planetary Sciences	Dynamics, Structure and Evolution of Solid Earth and Planets Material Science of Solar Planets Earth Planetary Fluid and Space Sciences Paleontology and Mineral History

#### (International Program)

Article 2-2 The Graduate School will run International Programs in the fields of Physics, Chemistry, and Earth and Planetary Sciences for international students (these are degree award programs of study at both Masters and PhD levels in which English is the language of instruction).

#### (趣旨)

第1条 この規則は、九州大学大学院通則（平成16年度九大規則第3号。以下「通則」という。）及び九州大学学位規則（平成16年度九大規則第86号）により各学府規則において定めるよう規定されている事項その他理学府（以下「本学府」という。）の教育に関し必要と認める事項について定めるものとする。

#### (教育研究上の目的)

第1条の2 理学は、自然界に存在する真理を明らかにして、体系的に説明する普遍的法則を構築する学問である。本学府は、教育研究を通じて自然の法則および理学の理念・方法を教授し、国際的な場で活躍できる広い視野を持った先端的研究者、高度な能力と学識を備え社会の広い分野で活躍する高度な専門家を養成する。

#### (専門分野)

第2条 本学府の各専攻に、次の専門分野を置く。

専攻	専門分野
物理学専攻	粒子宇宙論 粒子物理学 物性基礎論 量子物性 複雑物性
化学専攻	無機・分析化学 物理化学 有機・生物化学 先端物質化学
地球惑星科学専攻	固体地球惑星科学 太陽惑星系物質科学 流体圏・宇宙圏科学 地球惑星博物学

#### (国際コース)

第2条の2 本学府物理学専攻、化学専攻及び地球惑星科学専攻の修士課程及び博士後期課程に、国際コース（英語による授業等により学位取得可能な教育課程をいう。）として、留学生のための理学府英語コースを置く。

(Admission Test)

Article 3(1) A person who applies for admission shall be tested based on an achievement test and an oral test, as well as an academic transcript issued by the principal of the university (or the dean of the faculty or department, etc.) from which he/she has graduated, and other materials specified by the Graduate School.

(2) In addition to the matters prescribed in the preceding paragraph, a person who applies for admission to the second half of a doctoral course shall be tested on his/her master's thesis.

(Transfer or Switching Departments)

Article 4(1) When any person wishes to transfer to the Graduate School or switch departments, only if its admission capacity has not yet been met, he/she shall be tested in accordance with the preceding Article, after being examined by the Faculty Meeting of the Graduate School of Science (hereinafter referred to as the "Faculty Meeting of the Graduate School"), and a decision on whether to offer or refuse admission shall be made.

(2) The class subjects and credits already completed and acquired by the person who has been offered admission under the preceding paragraph as well as the number of years of his/her enrollment may be approved in whole or in part, on being examined by the Faculty Meeting of the Graduate School.

(Academic Term)

Article 5 (1) An academic year shall be divided into the following two terms:

First semester: from April 1 to September 30

Second semester: from October 1 to March 31 of the following year

(2) Class periods of the each terms specified in the preceding paragraph shall be specified separately.

(Classes and Research Guidance)

Article 6 Education at the Graduate School shall be conducted by holding classes of class subjects and providing guidance regarding the writing of a degree thesis, etc. (hereinafter referred to as "research guidance").

(Class Subjects, Credits, Methods of Taking Classes, and Examinations)

Article 7(2) The class subjects, credits and methods of taking classes for the International Master's/Doctoral Program in the Graduate School of Sciences shall be as specified in Appended Table 2.

(4) In addition to what is provided for in the preceding three paragraphs, temporary class subjects shall be established, following discussions at the Faculty Council of Graduate

(入学審査)

第3条 入学を志願する者に対する審査は、学力検査及び口頭試問並びに出身の大学長（学部長又は研究科等の長）の成績証明書その他本学府の定める資料によって行うものとする。

2 博士後期課程に入学を志願する者については、前項に定めるもののほか修士論文についても審査を行うものとする。

(転学、転学府又は専攻の変更)

第4条 転学、転学府又は専攻の変更を希望する者がある場合は、収容人員に余裕があるときに限り、本学府教授会の審査を経て、前条に準じた審査を行い、許可又は不許可を決定する。

2 前項により、転学、転学府又は専攻の変更を許可された者が既に履修した授業科目及び修得した単位並びに在学年数については、本学府教授会において審査の上、その全部又は一部を認めることができる。

(学期)

第5条 学年を分けて次の2学期とする。

前期 4月1日から9月30日まで

後期 10月1日から翌年3月31日まで

2 前項に定める各学期の授業期間は、別に定める。

(授業及び研究指導)

第6条 本学府の教育は、授業科目の授業及び学位論文の作成等に対する指導（以下「研究指導」という。）によって行うものとする。

(授業科目、単位、履修方法及び試験)

第7条 (略)

2 留学生のための理学府英語コースの授業科目、単位及び履修方法は、別表2のとおりとする。

3 (略)

4 前3項に定めるもののほか、本学府教授会の議を経て、臨時に授業科目を開設することがある。

School.

Article 8 (1) A student shall, at the beginning of each semester, select class subjects that he/she intends to take in accordance with the guidance of his/her academic adviser, obtain approval from the teachers of the class subjects, and notify his/her selection to the Dean of the Graduate School of Sciences (hereinafter referred to as the “Dean”).

(2) A student’s academic adviser shall, when deeming it to be necessary, have his/her student take class subjects and credits in the courses of other departments, graduate schools or undergraduate schools that he/she designates.

(3) The class subjects and number of credits, among those acquired under the provision of the preceding paragraph, which may be regarded as part of the credits required for completing the course, shall be specified by each department.

Article 9 (1) A student who intends to take an examination for the class subject that he/she has taken shall notify the teacher in charge of the class subject of such intention and obtain permission therefrom.

(2) If the Faculty Council of the Graduate School finds it necessary, a make-up examination may be held for a student who has been unable to take the examination due to illness or for any other compelling reason.

(Credits Acquired at Graduate Schools of Other Universities)

Article 10(1) A student’s academic adviser may, when he/she deems it to be effective from an educational standpoint, have the student take class subjects at graduate schools of other universities designated by the Graduate School.

(2) Through the Faculty Meeting of the Graduate School, may approve up to fifteen of the credits acquired under the provision of the preceding paragraph, as part of the credits required for completing the course.

(3) Through the Faculty Meeting of the Graduate School may, when deeming it to be effective from an educational standpoint, have a student receive necessary research guidance at graduate schools of other universities or research institutes, etc. However, the period for said research guidance shall not exceed one year for master students.

(4) A person who intends to take class subjects or receive necessary research guidance pursuant to the provisions of paragraph (1) or the preceding paragraph shall obtain permission from the Dean.

Article 11(1) The period of studying at a graduate school of a foreign university (limited to such graduate school approved through the

第8条 学生は、毎学期の始めに、履修しようとする授業科目を指導教員の指示に従って選定し、その授業科目を担当する教員の承認を得て、理学院長（以下「本学院長」という。）に届け出なければならない。

2 指導教員が必要と認めるときは、他の専攻若しくは学院又は学部の課程による授業科目及び単位を指定して、履修させることがある。

3 前項の規定により履修した授業科目のうち課程修了の要件となる単位に充当することができる授業科目及び単位数は、専攻ごとに定める。

第9条 履修した授業科目について、試験を受けようとする者は、当該授業科目の担当教員に申し出て、その許可を受けなければならない。

2 病気その他やむを得ない事由のため受験できなかった者に対しては、本学院教授会で必要と認める場合は、追試験を行うことがある。

（他の大学院における授業科目の履修等）

第10条 指導教員が教育上有益と認めるときは、本学院が指定する他の大学院の授業科目を履修させることができる。

2 前項の規定により修得した単位は、本学院長が、本学院教授会の議を経て、15単位を限度として課程修了の要件となる単位として認定することができる。

3 本学院長は、本学院教授会の議を経て、教育上有益と認めるときは、他の大学院又は研究所等において必要な研究指導を受けさせることができる。ただし、修士課程の学生について認める場合には、当該研究指導を受けさせる期間は、1年を超えないものとする。

4 第1項又は前項の規定により授業科目を履修し、又は必要な研究指導を受けようとする学生は、本学院長の許可を得なければならない。

第11条 外国の大学の大学院（本学院長が、本学院教授会の議を経て承認した大学院に限る。）に留学した期間は、修士課程及び博士

Faculty Meeting of the Graduate School), up to one year throughout the master's course and the second half of the doctoral course, may be included in the period of enrollment required for completing the course.

(2) Through the Faculty Meeting of the Graduate School, may approve up to fifteen of the credits acquired at a graduate school of a foreign university as set forth in the preceding paragraph, as part of the credits required for completing the course.

#### (Period-extension System)

Article 11-2 Through the Faculty Meeting of the Graduate School, may approve his/her planned completion of the curricula as specified by the Dean, when a student of the Graduate School has reported to the Dean his/her wish to complete the curricula for graduation over a certain period of time exceeding the original duration of study in a planned manner, under Article 26 of the General Regulations.

#### (Requirements for Completing the Master's Course)

Article 12 In order to complete the master's course of the Graduate School, a student shall be required to be enrolled in the course for at least two years, acquire at least 30 credits by taking the class subjects specified under Article 7, and after receiving necessary research guidance, pass the review of a master's thesis and the final examination; provided, however, that in the case of a person who has made a remarkable research achievement, it shall be sufficient for such person to be enrolled in the master's course for at least one year, if the President of Kyushu University permits.

#### (Requirements for Completing the Doctoral Course)

Article 13(1) In order to complete the doctoral course of the Graduate School, a student shall be required to be enrolled in the course for at least five years (if the student was in the master's course for at least two years and completed the course, those two years shall be counted toward the five-year requirement), acquire at least 42 credits by taking the class subjects specified under Article 7, and after receiving necessary research guidance, pass the review of a doctoral thesis and the final examination; provided, however, that in the case of a person who has made a remarkable research achievement, it shall be sufficient for such person to be enrolled in the doctoral course for at least three years (if the student was in the master's course for at least two years and completed the course, those two years shall be counted toward the three-year requirement), if

後期課程を通して、1年間を限度として課程修了の要件となる在学期間として取り扱うことができる。

2 前項の外国の大学の大学院において修得した単位は、本学府長が、本学府教授会の議を経て、15単位を限度として課程修了の要件となる単位として認定することができる。

#### (長期にわたる教育課程の履修)

第11条の2 本学府の学生が、通則第26条の規定に基づき、標準修業年限を超えて一定の期間にわたり計画的に教育課程を履修し課程を修了することを希望する旨を本学府長に申し出たときは、本学府教授会の議を経て本学府長が定めるところにより、その計画的な履修を認めることができる。

#### (修士課程の修了要件)

第12条 本学府の修士課程の修了要件は、修士課程に2年以上在学し、第7条に定める授業科目について30単位（略）以上を修得し、かつ、必要な研究指導を受けた上、修士論文の審査及び最終試験に合格することとする。ただし、総長が認めるときは、在学期間に関しては、優れた業績を上げた者については、修士課程に1年以上在学すれば足りるものとする。

#### (博士課程の修了要件)

第13条 本学府の博士課程の修了要件は、博士課程に5年（修士課程に2年以上在学し、当該課程を修了した者にあつては、当該課程における2年の在学期間を含む。）以上在学し、第7条に定める授業科目について42単位（略）以上を修得し、かつ、必要な研究指導を受けた上、博士論文の審査及び最終試験に合格することとする。ただし、総長が認めるときは、在学期間に関しては、優れた研究業績を上げた者については、博士課程に3年（修士課程に2年以上在学し、当該課程を修了した者にあつては、当該課程における2年の在学期間を含む。）以上在学すれば足りるものとする。

the President of Kyushu University permits.

(2) The provision of the preceding paragraph shall be applied mutatis mutandis to the doctoral requirements for a student who has completed a master's course in the standard duration of study of more than one year and less than two years under Article 3, paragraph (3) of the Standards for the Establishment of Graduate Schools (Ministry of Education Regulation No.28 of 1974), and for a student who has completed a master's course within the duration of study pursuant to the proviso of the preceding Article. In this case, the term "five years (if the student was in the master's course for at least two years and completed the course, those two years shall be counted toward the five-year requirement)" in the preceding paragraph shall be deemed to be replaced with "period to which three years are added to the period of enrollment in the master's course", and the term "three years (if the student was in the master's course for at least two years and completed the course, those two years shall be counted toward the three-year requirement)" shall be deemed to be replaced with "three years (including the period enrolled in the master's course)."

(3) Notwithstanding the provisions of the preceding two paragraphs, in order to complete the doctoral course, a student who has been recognized as having an academic ability equivalent to someone with a master's degree or a professional degree in respect of the admission to the Graduate School pursuant to Article 156 of the Ordinance for Enforcement of the School Education Act (Ordinance of the Ministry of Education No.11 1947) and a student who has been admitted to the doctoral course shall be enrolled in the doctoral course for at least three years (two years for a student who has completed the course in the Professional Graduate School of Law), acquire at least 12 credits pursuant to Article 7, and after receiving necessary research guidance, pass the review of a doctoral thesis and the final examination; provided, however, that in the case of a person who has made a remarkable research achievement, it shall be sufficient for such person to be enrolled in the doctoral program for at least one year (in the case of a student who has completed the professional degree course with the standard duration of study of more than one year but less than two years, the relevant completed period of study shall be subtracted from the three years), if the President of Kyushu University permits.

(Review of Master's Thesis, etc.)

Article 14(1) The Faculty Meeting of the Graduate School shall review a student's master's thesis if he/she has passed his/her final

2 大学院設置基準（昭和49年文部省令第28号）第3条第3項の規定により標準修業年限を1年以上2年未満とした修士課程を修了した者及び前条ただし書の規定による在学期間をもって修士課程を修了した者の博士課程の修了要件については、前項中「5年（修士課程に2年以上在学し、当該課程を修了した者にあつては、当該課程における2年の在学期間を含む。）」とあるのは「修士課程における在学期間に3年を加えた期間」と、「3年（修士課程に2年以上在学し、当該課程を修了した者にあつては、当該課程における2年の在学期間を含む。）」とあるのは「3年（修士課程における在学期間を含む。）」と読み替えて、前項の規定を適用する。

3 前2項の規定にかかわらず、学校教育法施行規則（昭和22年文部省令第11号）第156条の規定により大学院への入学資格に関し修士の学位若しくは専門職学位を有する者と同等以上の学力があると認められた者又は専門職学位課程を修了した者が、博士後期課程に入学した場合の博士課程の修了要件は、博士後期課程に3年（法科大学院の課程を修了した者にあつては、2年）以上在学し、第7条に定める授業科目について12単位以上を修得し、かつ、必要な研究指導を受けた上、博士論文の審査及び最終試験に合格することとする。ただし、総長が認めるときは、在学期間に関しては、優れた研究業績を上げた者については、博士後期課程に1年（標準修業年限が1年以上2年未満の専門職学位課程を修了した者にあつては、3年から当該1年以上2年未満の期間を減じた期間）以上在学すれば足りるものとする。

（修士論文の審査等）

第14条 修士論文の審査及び最終試験の合格又は不合格は、専攻ごとに行う調査に基づき、本学府教授会が審査する。



examination based on a review conducted by each department.

(2) A student must submit his/her master's thesis described in the preceding paragraph within the period specified by each department of the Graduate School.

#### (Submission of Doctoral Thesis)

Article 15 A student may not submit his/her doctoral thesis unless he/she has been enrolled in the second half of the doctoral course for at least two years and has received necessary research guidance; provided, however, that a student who is in the second half of the doctoral course and has made a remarkable research achievement may submit his/her thesis even if his/her period of enrollment is shorter than two years.

#### (Credited Auditors)

Article 17 A person who may apply for admission as a credited auditor shall be as specified in Article 2, paragraph (2) of the Regulations of Kyushu University on Credited Auditors (Kyushu University Regulation No. 91 of 2004).

Article 18(1) A person who applies for admission as a credited auditor shall file with the Dean a prescribed application form stating the class subjects that he/she wishes to take, accompanied by his/her resume and the application fee.

(2) The Dean may offer admission to the person who has filed an application as set forth in the preceding paragraph, on being selected, at the beginning of the academic year or academic term, provided that classes for students of the Graduate School are not impeded.

Article 19 Academic achievement shall be assessed for the class subjects taken by a credited auditor, and the prescribed credits shall be given to him/her for the class subjects that he/she has passed.

Article 20 The Dean may issue a required certificate with regard to the credits acquired by a credited auditor.

#### (Auditors)

Article 21 A person who wish to audit a class subject in the appended table may be admitted as an auditor.

Article 22 A person who has graduated with a bachelor's degree or has an academic ability equal to or greater than that of a graduate with a bachelor's degree may apply to audit a class subject.

2 前項の修士論文は、本学府の各専攻において定める期間内に提出しなければならない。

#### (博士論文の提出)

第15条 博士論文は、博士後期課程に2年以上在学し、かつ、必要な研究指導を受けなければ提出することができない。ただし、博士後期課程に在学する者で、優れた研究業績を上げたものは、在学期間が2年に満たなくても論文を提出することができる。

#### (科目等履修生)

第17条 科目等履修生として入学を志願できる者は、九州大学科目等履修生等規則（平成16年度九大規則第91号）第2条第2項に定めるところによる。

第18条 科目等履修生として入学を志願する者は、所定の願書に履修しようとする授業科目を記載し、履歴書及び検定料を添えて、本学府長に願出しなければならない。

2 本学府長は、学生の授業に支障がないときは、前項の願出があった者について選考の上、学年又は学期の始めに入学を許可することができる。

第19条 科目等履修生の履修した授業科目については、成績評価を行い、合格とされたものについて所定の単位を与える。

第20条 本学府長は、科目等履修生の修得した単位について、所要の証明書を交付することができる。

#### (聴講生)

第21条 別表の授業科目について聴講を志願する者があるときは、聴講生として聴講を許可することがある。

第22条 聴講を志願できる者は、大学を卒業した者又はこれと同等以上の学力を有する者とする。

Article 23 A person who wishes to audit a class subject must submit to the Dean a designated application form together with a resume and an examination fee.

Article 24 The Faculty Meeting of the Graduate School shall specify the method of selecting auditors from among audit applicants.

(Miscellaneous Provisions)

Article 25 In addition to what is provided for in these Regulations and the others, any other matters of school affairs shall be specified by the Dean through the Faculty Meeting of the Graduate School whenever necessary.

Supplementary Provisions

(1) These Regulations shall come into effect as of October 1, 2021.

(2) The Regulations of the Graduate School of Science of Kyushu University after the revision shall apply to students who will be admitted to the Graduate School in October 1, 2021 and thereafter, and the provisions previously in effect shall remain applicable to the students who are enrolled in the Graduate School as of September 30, 2021, and will continue to be enrolled in the Graduate School as of October 1, 2021, and thereafter.

第23条 聴講を志願する者は、所定の願書に履歴書及び検定料を添えて本学府長に提出しなければならない。

第24条 聴講を志願する者に対する選考方法については、本学府教授会が定める。

(雑則)

第25条 この規則その他規則等に定めるもののほか、本学府の校務について必要がある事項については、その都度本学府教授会の議を経て、本学府長がこれを定める。

附則

1 この規則は、令和3年10月1日から施行する。

2 この規則による改正後の九州大学大学院理学府規則の規定は、令和3年10月1日に本学府に入学する者から適用し、令和3年9月30日に本学府に在学し、同年10月1日以降も引き続き在学する者については、なお従前の例による。

### 3. Master's Course

Students of Master's course are required to acquire 30 credits with 18 credits of compulsory subject and 12 credits of elective subject. Students must obtain 30 credits with a minimum pass grade of 60 % (grade C).

- Compulsory Courses: 6 courses (18 credits)
- Optional Courses: Minimum of 12 credits to be selected from choice of Common and Optional Courses in Physics, Chemistry, and Earth and Planetary Sciences

The Master's course curriculum is presented in Table 1-1~1-4.

#### 1) Registration

When enrolling for any courses, it is essential that you consult with your supervisor first. Registration procedure will be conducted at Science Student Affairs Office. Then, submit the Course Registration Form by deadline each semester after filling in the form to Science Student Affairs Office (W1-B-306). If you have any further questions, please do not hesitate to ask the staff of Science Student Affairs Office.

#### 2) View confirmation of your registration or marks

To view confirmation of your registration or marks, log in to the Student Portal System at this address: <http://www.kyushu-u.ac.jp/en/education/class/learning/portal/> (Kyushu University Top Page > Student Life > Course Registration > Registration / Syllabuses > Student Portal System)

You can also access this information from outside the campus.

The screenshot shows the Kyushu University Student Portal System login page. At the top, there are navigation links: Prospective students, Current students, Companies & i, News, Events, About, Schools & Centers, and Admissio. Below these, there is a section titled 'About Logging Into The Student Portal System'. This section contains the following text: 'Computer: <https://ku-portal.kyushu-u.ac.jp/campusweb/top.do>', 'Mobile Phone: <https://ku-portal.kyushu-u.ac.jp/campusweb/sptop.do>', and 'Please log in using your SSO-KID and password.' A callout box on the right side of the page highlights this 'About Logging Into The Student Portal System' section.

Simply input your user ID (SSO-KID) and password and then click on 'Login'.

The following OSe and browsers are guaranteed compatibility with web classes.

OS	Windows 8.1 or above, Mac OS
Web browser	Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, Safari, Mobile Safari, Chrome for Android

## 修士課程

修士課程では、必修科目18単位以上、選択科目12単位以上、合計30単位以上の修得が必要です。また、成績は6割（評価：C）以上で合格となります。

- ・必修科目：6科目（18単位）
- ・選択科目：理学府共通科目または各専攻科目の選択科目から12単位以上

修士課程の履修細目は、表1-1～1-4に示しています。

### 1) 履修手続きについて

どの科目を履修するかは、必ず、指導教員に相談してください。

履修登録手続きは、教務係にて行います。履修する科目を履修届に記入し、各学期締切日までに教務係に提出してください。その他不明な点がある場合は、教務係へお問い合わせください。

### 2) 履修登録確認と成績確認について

学生ポータルシステムへのログイン画面は以下のとおりです。

履修確認・成績確認は学外からでもアクセスできます。

<http://www.kyushu-u.ac.jp/ja/education/class/learning/registration>

（九州大学 トップページ ＞ 教育・学生支援 ＞ 授業（オンライン含む）・履修 ＞ 履修・シラバス ＞ 履修登録・成績確認（保護者含む））

九州大学について 学部・大学院等 入試・入学 教育・学生支援 研究・産学官民連携 国際交流・留学

学生ポータルシステムへのアクセス

- 履修登録・履修確認・成績照会

【2019年度のシステム運用停止日はこちら📅】

学生ポータルシステムは、インターネットに接続されたパソコンからアクセスできます。  
各学部で定められた期間に上のボタンをクリックし、学生ポータルシステムへログインし、履修確認を行ってください。

ログイン画面で、ユーザーID（SSO-KID）とパスワードを入力し、「ログイン」ボタンをクリックします。

また、学生ポータルシステムで動作が保証されているOS及びブラウザは次のとおりです。

OS	Windows 8.1 以上, Mac OS
Web ブラウザ	Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, Safari, Mobile Safari, Chrome for Android

〔Sample〕

【Submission date 提出日】 年 月 日 (yyyy/mm/dd)

## Course Registration Form 履修届 ( Graduate School of Science 理学府 )

※Submit this document at Science Student Affairs Office by coming or emailing after you receive your supervisor's permission. (Room No.: W1-B-306, Email Address: rixkyomu@jimu.kyushu-u.ac.jp)

【Registration period: to 】

You don't need to register intensive courses that are not mentioned in the timetable on this paper. However, you need to ask your supervisor or department office how to register them.

※指導教員の許可を得た上で、次の期間に窓口又はメールで教務係に提出すること。

【登録期間: 月 日9:00 ~ 月 日15:00】

※時間割に記載のない集中講義については、本履修届での履修登録は不要とする。ただし、それらの科目を履修する場合は、履修方法を指導教員又は所属専攻の事務室に確認すること。

Student 学生欄	
Course duration 開講期: Year 年度	
Department 専攻	Physics ・ Chemistry ・ Earth and Planetary Sciences
Student ID 学生番号	
Name 氏名	
Telephone Number 電話番号	

Course Registration 授業登録欄	
Course Title 科目名	
Day of week / Period 曜日/時限	/
Instructor 担当教員名	
Course Title 科目名	
Day of week / Period 曜日/時限	/
Instructor 担当教員名	
Course Title 科目名	
Day of week / Period 曜日/時限	/
Instructor 担当教員名	
Course Title 科目名	
Day of week / Period 曜日/時限	/
Instructor 担当教員名	
Course Title 科目名	
Day of week / Period 曜日/時限	/
Instructor 担当教員名	

Table 1-1 : Common Courses 表 1-1 : 理学府共通科目

Course Title			Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
					Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Common Courses	Compulsory Courses	MSc. Thesis Research	Research and related studies for the master's thesis. These are done under the direction of sub-advisors as well as the chief advisor.	5	○ Full Year 通年			
		MSc. Thesis Writing	Master's thesis writing in English, including discussion with the chief advisor and sub-advisors.	5			○ Full Year 通年	
		Literature Survey	This course involves survey of literature on the student's research field and discussions with the chief advisor on it. Making a short review and presentation are required depending on the department.	2		○		
		Research Seminar I	This course involves presentation and discussion in the group seminar on the basic topics of the student's research field.	2		○		
		Research Seminar II	This course involves presentation of the student's research and discussion in the group seminar, which includes making research plans for the master's thesis.	2			○	
		Research Seminar III	This course involves presentation of the student's research and discussion in the group seminar, which is mainly for making the master's thesis.	2				○
	Optional Courses	Communication in English	This course is an exercise lesson by a native English speaker for the scientific communication in English.	1	○		○	
		Presentation in English	This course is an exercise lesson by a native English speaker for the scientific presentation in English. This is advanced course of Communication in English.	1		○		○
		Internship I	In this course, the students visits commercial companies (or research organizations) to study how science and technology are utilized in the society.	1	○			
		Internship II	In this course, the students work in commercial companies (or research organizations) for a period to cultivate their problem-solving capability in the society.	1			○	
		Frontiers in Science I	This is an omnibus-style class, which involves lectures and practices including recent topics by each research field of professors.	1	○			
		Frontiers in Science II	This is an omnibus-style class, which involves lectures and practices including recent topics by each research field of professors.	1	○			

Table 1-2 : Physics Courses 表 1-2 : 物理学専攻共通科目

Course Title		Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Theoretical Nuclear Physics 理論核物理学	Theoretical aspects of nuclear physics are discussed from microscopic viewpoint. The course is composed of basic principles and some applications covering the following range of the field: nuclear structure, nuclear reaction, as well as hadron physics based on the QCD.	2			○	
	Quantum Statistical Physics 量子統計物理学	Basic theory and applications of the quantum field theory for statistical physics. We will discuss the spontaneous symmetry breaking phenomena, through superfluidity and superconductivity.	2			○	
	Quantum Field Theory 場の量子論	Introductory but somewhat technical exposition of the relativistic quantum field theory.	2			○	
	Nonequilibrium Statistical Physics 非平衡物理学	Non-equilibrium physics has been applied to chemical, biological, and economical phenomena as well as physical phenomena. This lecture deals with relaxation phenomena from a non-equilibrium state to an equilibrium state by the theory of Brownian motions.	2			○	
	Nonlinear Physics 非線形物理学	The hierarchical structure of the description of macroscopic systems is introduced. By the course-graining we obtain nonlinear effective models. On the basis of such effective models chaos and solitons are discussed as typical nonlinear phenomena.	2			○	
	Semiconductor Physics 半導体物理学	Basic physics of semiconductor, semiconductor interface and semiconductor devices.	2			○	
	Physics of Elementary Excitations 素励起物理学	In the solid state physics, the disturbance in the many-body system (low-lying excited state) can be regarded as a particle, which is called a quasiparticle or an elementary excitation. Typical examples are electrons, phonons, polarons etc. Our goal is to understand the concepts of quasiparticles or elementary excitations on the basis of elementary quantum field theory.	2			○	
	Physics on Complex System 複雑系物理学	The physical approach of “soft condensed matter” including polymer, liquid crystals and colloids is discussed as typical examples of complex systems.	2			○	
	Experimental Nuclear Physics 実験核物理学	Nuclear physics is the study of the properties of nuclei and of the interactions between nucleons. This course is concerned the experimental aspects of the subject. It treats the experimental techniques and instrumentation most often used in nuclear and particle physics experiments as well as in various other experimental sciences.	2			○	
	Theoretical Particle Physics 素粒子理論	This course involves several aspects of theoretical particle physics for those who have a basic knowledge of quantum field theory.	2			○	
	Experimental Particle Physics 素粒子実験	Experimental particle physics, often called as high energy physics, is the field to study elementary particles and fundamental forces among the particles using experimental apparatuses such as particle accelerators and detectors. This lecture introduces basics of experimental particle physics.	2			○	

Course Title		Course Outline	Credits	MC1 第1学年		MC2 第2学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Physics of Magnetism 磁性体物理学	Magnetism is based on the angular momentum and exchange interaction. Physics of magnetism is an elegant application of quantum mechanics. The purpose of this course is to understand the concept of magnetism by employing the quantum mechanics.	2	○			
	Advanced Physics I 物理学特論 I	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	2	○			
	Advanced Physics II 物理学特論 II	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	2	○			
	Seminar of Physics I 物理学セミナー I	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	2	○			
	Seminar of Physics II 物理学セミナー II	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	2	○			
	Intensive Course on Physics I 物理学特別講義 I	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	1	○			
	Intensive Course on Physics II 物理学特別講義 II	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	1	○			
	Intensive Course on Physics III 物理学特別講義 III	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	1	○			
	Intensive Course on Physics IV 物理学特別講義 IV	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	1	○			
	Intensive Course on Physics V 物理学特別講義 V	Special series of lectures dedicated to a topical subject that is not covered in the regular courses. The actual contents will be announced separately.	1	○			



Table 1-3 : Chemistry Courses 表 1-3 : 化学専攻共通科目

Course Title		Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Advanced Inorganic Chemistry I A 無機化学特論 I A	This class will cover the fundamental concepts of magneto-chemistry of coordination compounds. The goal is to understand the magnetic properties of coordination compounds, the correlation among magnetic properties, crystal structure and electron configuration, and the analytical method for temperature and magnetic-field dependences of magnetic properties.	1	○			
	Advanced Inorganic Chemistry I B 無機化学特論 I B	This class will cover the fundamental concepts of magneto-chemistry of coordination compounds. The goal is to understand the magnetic properties of coordination compounds, the correlation among magnetic properties, crystal structure and electron configuration, and the analytical method for temperature and magnetic-field dependences of magnetic properties.	1	○			
	Advanced Inorganic Chemistry II A 無機化学特論 II A	How can we learn about the chemical and physical properties of transition metal complexes either in solution or in the solid state? What are the structure, distortion, oxidation state, symmetry, redox property, spectroscopic property, reactivity, and catalytic activity? Roles in enzymes? This lecture introduces some common techniques used to study such properties of inorganic compounds, including X-ray crystallography, NMR, ESR (electron spin resonance), electrochemistry, XPS, and mass spectrometry (MS). Dinuclear manganese complexes are discussed to understand the electrochemistry and mixed-valence chemistry. ESR is introduced to understand the highly exchange-coupled S=9/2 spin state of an Mn(II)Mn(III) dimer. Disproportionation reactions of the system will also be discussed.	1	○			
	Advanced Inorganic Chemistry II B 無機化学特論 II B	How can we learn about the chemical and physical properties of transition metal complexes either in solution or in the solid state? What are the structure, distortion, oxidation state, symmetry, redox property, spectroscopic property, reactivity, and catalytic activity? Roles in enzymes? This lecture introduces some common techniques used to study such properties of inorganic compounds, including X-ray crystallography, NMR, ESR (electron spin resonance), electrochemistry, XPS, and mass spectrometry (MS). Dinuclear manganese complexes are discussed to understand the electrochemistry and mixed-valence chemistry. ESR is introduced to understand the highly exchange-coupled S=9/2 spin state of an Mn(II)Mn(III) dimer. Disproportionation reactions of the system will also be discussed.	1	○			
	Advanced Inorganic Chemistry III A 無機化学特論 III A	Inorganic Chemistry Special Lecture IIIA will cover fundamentals of solid-state chemistry, such as the crystal structure and electronic states of solids (band theory).	1	○			

Course Title	Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
			Fall & Winter 秋 & 冬	Spring & Summer 春 & 夏	Fall & Winter 秋 & 冬	Spring & Summer 春 & 夏
Optional Courses	Advanced Inorganic Chemistry III B 無機化学特論III B	Inorganic Chemistry Special Lecture IIIB will cover the fundamental chemistry of nanoscale materials from the perspective of solid-state chemistry.	1		○	
	Advanced Analytical Chemistry I A 分析化学特論 I A	The purpose of this subject is to learn observation and analytical methods of geological and geochemical samples in atomic and molecular level for research of earth environmental science and to understand chemical reactions on the surface of earth based on the obtained results.	1		○	
	Advanced Analytical Chemistry I B 分析化学特論 I B	The purpose of this subject is to learn observation and analytical methods of geological and geochemical samples in atomic and molecular level for research of earth environmental science and to understand chemical reactions on the surface of earth based on the obtained results.	1		○	
	Advanced Analytical Chemistry II A 分析化学特論 II A	This course will introduce biomembrane-oriented analytical techniques, in particular NMR and fluorescent microscopy.	1		○	
	Advanced Analytical Chemistry II B 分析化学特論 II B	This course will introduce comprehensive bioanalytical techniques such as liquid/gas chromatography, electrophoresis, mass spectrometry, and next-generation sequencing.	1		○	
	Advanced Analytical Chemistry III A 分析化学特論 III A	This course is designed to provide students with advanced knowledge of light-matter interactions for understanding and using spectrochemical analysis. Topics include classical light-matter interaction, non-linear optical interaction, light absorption and emission, and advanced laser spectroscopy.	1		○	
	Advanced Analytical Chemistry III B 分析化学特論 III B	This course is designed to provide students with advanced knowledge of light-matter interactions for understanding and using spectrochemical analysis. Topics include classical light-matter interaction, non-linear optical interaction, light absorption and emission, and advanced laser spectroscopy.	1		○	
	Advanced Structural Chemistry I A 構造化学特論 I A	This course will present fundamentals of optics and spectroscopy. Propagation of electromagnetic waves, including reflection, refraction, interference, diffraction, etc., will be discussed by solving Maxwell's equations. In addition to these optical phenomena, students will learn principles of optical elements such as mirrors, prisms, polarizers, wave-plates, etc. As for light sources, principles of lasers will be given, which are applied to spectroscopy of materials for studies of their optical properties.	1		○	

Course Title		Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Advanced Structural Chemistry I B 構造化学特論 I B	This course will present fundamentals of optics and spectroscopy. Propagation of electromagnetic waves, including reflection, refraction, interference, diffraction, etc., will be discussed by solving Maxwell's equations. In addition to these optical phenomena, students will learn principles of optical elements such as mirrors, prisms, polarizers, wave-plates, etc. As for light sources, principles of lasers will be given, which are applied to spectroscopy of materials for studies of their optical properties.	1			○	
	Advanced Structural Chemistry II A 構造化学特論 II A	This course deals with the dynamics of photodissociation processes. Students will learn how measurement of the internal state and angular distributions of the products can provide fundamental information about how molecules are held together, how they interact with light, and what happens when they fall apart.	1			○	
	Advanced Structural Chemistry II B 構造化学特論 II B	This course deals with the dynamics of chemical reactions. Students will learn how atoms and molecules collide and react, how the reaction rates and angular distributions of scattering are related to the potential energy surface, and how the energy is exchanged between various degrees of freedom during the collision.	1			○	
	Advanced Structural Chemistry III A 構造化学特論 III A	Advanced topics of modern quantum chemistry will be described. The focus will be on the modern molecular orbital and density functional theories, now widely used in theoretical studies, and their applications to various chemical systems.	1			○	
	Advanced Structural Chemistry III B 構造化学特論 III B	Advanced topics of modern quantum chemistry will be described. The focus will be on the modern molecular orbital and density functional theories, now widely used in theoretical studies, and their applications to various chemical systems.	1			○	
	Advanced Physical Chemistry I A 物理化学特論 I A	This course provides an overview of the fundamental principles on nonlinear optical interactions of light with molecules and their applications to life sciences. Students will learn the quantum Liouville equation and advanced molecular imaging methods such as harmonic generation and coherent Raman scattering.	1			○	
	Advanced Physical Chemistry I B 物理化学特論 I B	This course provides an overview of the fundamental principles on nonlinear optical interactions of light with molecules and their applications to life sciences. Students will learn the quantum Liouville equation and advanced molecular imaging methods such as harmonic generation and coherent Raman scattering.	1			○	
	Advanced Physical Chemistry II A 物理化学特論 II A	This course provides an overview of the research on the physical chemistry of water soluble polymers and polyelectrolytes. Students are assumed to have taken elementary courses on statistical physics, thermodynamics and mathematics related to them.	1			○	

Course Title		Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Advanced Physical Chemistry II B 物理化学特論 II B	This course provides an overview of the research on the physical chemistry of water soluble polymers and polyelectrolytes. Students are assumed to have taken elementary courses on statistical physics, thermodynamics and mathematics related to them.	1			○	
	Advanced Physical Chemistry III A 物理化学特論 III A	Chemical thermodynamics and Statistical thermodynamics are necessary for us to understand solution, phase equilibrium, and interfacial phenomena. First, we teach the basics of these thermodynamics and then extend them to understand properties of electrolyte solution, electrochemical phenomena, adsorption and colloidal system of amphiphiles.	1			○	
	Advanced Physical Chemistry III B 物理化学特論 III B	Chemical thermodynamics and Statistical thermodynamics are necessary for us to understand solution, phase equilibrium, and interfacial phenomena. First, we teach the basics of these thermodynamics and then extend them to understand properties of electrolyte solution, electrochemical phenomena, adsorption and colloidal system of amphiphiles.	1			○	
	Advanced Organic Chemistry I A 有機化学特論 I A	This course offers on natural products chemistry including the following items: biosynthetic pathways and structure determination of natural products, synthetic strategies of total syntheses of natural products (C-C bond formation and functional group manipulations), case studies of total syntheses of natural products, and chemical biology based on natural products.	1			○	
	Advanced Organic Chemistry I B 有機化学特論 I B	This course offers on natural products chemistry including the following items: biosynthetic pathways and structure determination of natural products, synthetic strategies of total syntheses of natural products (C-C bond formation and functional group manipulations), case studies of total syntheses of natural products, and chemical biology based on natural products.	1			○	
	Advanced Organic Chemistry II A 有機化学特論 II A	This class teaches kinetics and dynamics in stereoselective organic reactions using asymmetric catalysis. In addition, basic points of homogeneous and heterogeneous catalysis are also discussed.	1			○	
	Advanced Organic Chemistry II B 有機化学特論 II B	This class teaches kinetics and dynamics in stereoselective organic reactions using asymmetric catalysis. In addition, basic points of homogeneous and heterogeneous catalysis are also discussed.	1			○	
	Advanced Organic Chemistry III A 有機化学特論 III A	In this course, I will lecture about the organic synthesis using organometallic compounds including homogeneous transition-metal catalysis.	1			○	
	Advanced Organic Chemistry III B 有機化学特論 III B	In this course, I will lecture about the organic synthesis using organometallic compounds including homogeneous transition-metal catalysis.	1			○	

Course Title		Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Advanced Biological Chemistry I A 生物化学特論 I A	The lecture focuses on the relationships between the structures and functions of proteins. Building on knowledge of functional protein structures, the lecture course will explore the many structural essentials, which are critical to construction of biological function.	1			○	
	Advanced Biological Chemistry I B 生物化学特論 I B	The lecture focuses on the relationships between the structures and functions of proteins. Building on knowledge of functional protein structures, the lecture course will explore the many structural essentials, which are critical to construction of biological function.	1			○	
	Advanced Biological Chemistry II A 生物化学特論 II A	This course offers an introduction to the structure of biological membranes, and the structure and organization of the two main constituents of biological membranes—the lipids and the proteins. Furthermore, this course offers an introduction to the membrane dynamics, such as membrane transport, and lipid modification, turnover, and trafficking.	1			○	
	Advanced Biological Chemistry II B 生物化学特論 II B	This course offers an introduction to the structure of biological membranes, and the structure and organization of the two main constituents of biological membranes—the lipids and the proteins. Furthermore, this course offers an introduction to the membrane dynamics, such as membrane transport, and lipid modification, turnover, and trafficking.	1			○	
	Advanced Biological Chemistry III A 生物化学特論 III A	This course will cover the fundamental concepts of biosynthesis of bioactive molecules and signal transduction mechanisms. The goal is to understand the biological activities of hormones, activation and signal transduction mechanism via receptors, and structural analysis methods for ligand-receptor complexes.	1			○	
	Advanced Biological Chemistry III B 生物化学特論 III B	The course focuses on the signal transductions and gene transcriptions in cell nucleus. The goal is to understand the biological activities of hormones and structural analysis for ligand-receptor complexes.	1			○	
	Advanced Materials Chemistry I A 物質機能化学特論 I A	This course introduces the fundamentals of magnetic, conducting, dielectric, and optical properties of functional molecular materials.	1			○	
	Advanced Materials Chemistry I B 物質機能化学特論 I B	This course introduces the fundamentals of magnetic, conducting, dielectric, and optical properties of functional molecular materials.	1			○	
	Advanced Materials Chemistry II A 物質機能化学特論 II A	Undecidedness	1			○	
	Advanced Materials Chemistry II B 物質機能化学特論 II B	Undecidedness	1			○	
	Advanced Physical Organic Chemistry I A 物理有機化学特論 I A	Undecidedness	1			○	

Course Title	Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
			Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Advanced Physical Organic Chemistry I B 物理有機化学特論 I B	Undecidedness	1	○		
	Advanced Physical Organic Chemistry II A 物理有機化学特論 II A	This course offers physical and structural organic chemistry related to photo- and electronic properties of pi-conjugated organic compounds, mechanism of photosynthesis and artificial electronic devices.	1	○		
	Advanced Physical Organic Chemistry II B 物理有機化学特論 II B	This course offers physical and structural organic chemistry related to photo- and electronic properties of pi-conjugated organic compounds, mechanism of photosynthesis and artificial electronic devices.	1	○		
	Introduction of Nanomaterials and Interfaces I ナノ界面物性概論 I	This course offers an introductory to learn nanoscience and nanotechnology for chemistry students, which includes fundamentals of surface and interfaces characterized by surface-sensitive characterization techniques and also the latest nano-fabrication techniques with top-down and bottom-up methods.	1	○		
	Introduction of Nanomaterials and Interfaces II ナノ界面物性概論 II	This course offers fundamentals and applications of surface/interface and nanomaterials including characterization, biosensing, and surface chemistry of biomaterials.	1	○		
	Intensive Lecture on Chemistry I 化学特別講義 I	This course gives a lecture, a subject of which is not included in the normal lectures.	1	○		
	Intensive Lecture on Chemistry II 化学特別講義 II	This course gives a lecture, a subject of which is not included in the normal lectures.	1	○		
	Intensive Lecture on Chemistry III 化学特別講義 III	This course gives a lecture, a subject of which is not included in the normal lectures.	1	○		
	Intensive Lecture on Chemistry IV 化学特別講義 IV	This course gives a lecture, a subject of which is not included in the normal lectures.	1	○		
	Intensive Lecture on Chemistry V 化学特別講義 V	This course gives a lecture, a subject of which is not included in the normal lectures.	1	○		
	Intensive Lecture on Chemistry VI 化学特別講義 VI	This course gives a lecture, a subject of which is not included in the normal lectures.	1	○		

Table 1-4 : Earth and Planetary Sciences Courses 表 1-4 : 地球惑星科学専攻共通科目

Course Title		Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Earth and Planetary Fundamental Sciences I 基礎地球惑星科学 I	This course gives a lecture and/or an exercise on fundamentals for the master's degree program in the earth and planetary sciences. Different subjects are selected for I and II.	2	○			
	Earth and Planetary Fundamental Sciences II 基礎地球惑星科学 II	This course gives a lecture and/or an exercise on fundamentals for the master's degree program in the earth and planetary sciences. Different subjects are selected for I and II.	2	○			
	Solar Planetary System Physics 太陽惑星系物理学	We intend to study the cutting-edge research areas related to the physics of the solar planetary system which includes plasma, such as the Sun, solar wind, and terrestrial and planetary magnetosphere and ionosphere. For this purpose, we read recent scientific journal papers in turns. Specific papers are selected each year.	2	○			
	Evolution of Early Solar System 初期太陽系進化	This course gives a lecture on the formation and evolution of planetary systems, the understanding of which grows recently based on observational, experimental and theoretical studies.	2	○			
	Physics of the Upper Atmosphere and Magnetosphere 電磁圏・超高層大気物理学	This class lectures our latest knowledge on the electromagnetic structures and coupling of the wide range of regions including the sun, the magnetosphere, the ionosphere, and the upper atmosphere. The knowledge has been obtained by observations on the ground and by spacecraft. We read textbooks and recent journal papers.	2	○			
	Space Electrodynamics 宇宙電磁力学	The course consists of two parts. The first half introduces fundamentals of magnetohydrodynamics from the first principles. With the view of space plasma, limitation of magnetohydrodynamic description is also addressed. On the basis of the first part, the second half provides key methods of describing a complex system of space plasma. The methods are then applied to the solar wind-magnetosphere-ionosphere coupled system.	2	○			
	Dynamic Meteorology 大気力学特論	This graduate-level Atmospheric Science course covers the fundamentals of Atmospheric dynamics.	2	○			
	Middle Atmosphere Physics 中層大気物理学	This lecture provides a comprehensive introduction of the physics of the middle atmosphere which is the atmospheric region from the tropopause (10-16km) to the homopause (at approximately 110km). In particular, it gives fundamental principles of wave-mean flow interactions based on the Transformed Eulerian-Mean (TEM) equations, along with observational features of some spectacular phenomena in the middle atmosphere, e.g., stratospheric sudden warmings and the quasi-biennial oscillation.	2	○			
	Science of the Troposphere 対流圏科学	This graduate-level Tropospheric Science course covers the fundamentals of Meteorology and Climate Dynamics.	2	○			

Course Title		Course Outline	Credits	MC1 第1学年		MC2 第2学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Fluid Dynamics 流体力学特論	This course gives a lecture on the fluid dynamics, in which compressible hydrodynamics and magnetohydrodynamics are especially picked up. The knowledge of dynamics, electromagnetics, thermodynamics and incompressible hydrodynamics are required.	2			○	
	Physical Seismology 地震物理学	Lectures on the propagation of seismic waves, deformation of the Earth, generation mechanisms of the geomagnetic field and dynamics of the core for understanding structures and dynamics of the Earth.	2			○	
	Dynamics of the Earth's Interior 地球内部ダイナミクス	This course gives a lecture and/or an exercise on fundamentals for the master's degree program in the dynamics of the mantle and core of the Earth.	2			○	
	Dynamical Aspects of Petrology 岩石運動論	This course gives a lecture on fundamentals of thermodynamics for solid materials and kinetics of phase transition.	2			○	
	Introduction to Evolution of the Earth 地球変動史概論	This course gives introductory notes on the recent progress of on-going tectonic and sedimentary evolution under the sea and on the origin and formation of ancient accretionary complexes to understand Phanerozoic geologic history.	2			○	
	Earth Environment 地球環境学	The basics in reconstructing paleo-environmental conditions will be introduced to graduate students whose background are in geology and geophysics.	2			○	
	Organic Geochemistry and Biogeochemistry 有機・生物地球化学	Various organic matters are widely distributed at cosmic and planetary environments, as well as on the Earth associated with the biological activities. In this class, we study fundamentals of natural organic matter and geochemical cycles of organic compounds. We also study biomarkers in organic geochemistry with their isotope signatures with respect to environmental changes. The chemical evolution of organic matter is another topic for understanding of origins of life in the universe, in which we learn organic chemistry of extraterrestrial materials such as meteorites. We further review analytical techniques to study molecular and isotopic compositions of organic matters in natural samples.	2			○	
	Methodology in Inorganic Geochemistry 無機地球化学解析論	The sources, behaviors, and fates of elements, inorganic matter on the Earth will be discussed, with special emphasis on methods of approaches, and analyses of data.	2			○	
	Mineral Physics and Chemistry 鉱物物性科学	This course gives advanced lectures on submicron scale view and properties of planetary materials and exercise for data analysis acquired by modern technique.	2			○	
	Observational Seismology 観測地震学	This course gives a lecture and/or an exercise on the methods of observation and data analysis for understanding the crust/ upper-mantle structure and generating mechanism of earthquakes.	2			○	
	Observational Volcano-geophysics 観測火山学	This course gives a lecture and/or an exercise on the methods of observation and data analysis for understanding the process of magma accumulation and mechanism of volcanic eruptions.	2			○	



Course Title	Course Outline	Credits	MC1 第 1 学年		MC2 第 2 学年	
			Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Optional Courses	Mathematical Analysis Seminar for Seismology and Volcanology 地震火山数理演習	2			○	
	Seminar of Seismological and Volcanological Instrumentation 地震火山計測演習	2			○	
	Evolutionary Paleobiology 進化古生物学	2			○	
	X-ray Crystallography X 線結晶学	2			○	
	Advanced Field work I A 地球惑星科学発展実習 I A	1			○	
	Advanced Field work I B 地球惑星科学発展実習 I B	1			○	
	Advanced Field work II A 地球惑星科学発展実習 II A	1			○	
	Advanced Field work II B 地球惑星科学発展実習 II B	1			○	
	Special Lecture on Earth and Planetary Sciences I 地球惑星科学特別講義 I	2			○	
	Special Lecture on Earth and Planetary Sciences II 地球惑星科学特別講義 II	2			○	
	Special Exercise for Earth and Planetary Sciences I 地球惑星科学特別演習 I	1			○	
	Special Exercise for Earth and Planetary Sciences II 地球惑星科学特別演習 II	1			○	

## 4. Doctoral Course

### 博士後期課程

Students of Doctoral course are not necessarily required to take the courses because research is the main activity.

- ・ Compulsory Courses: DSc. Thesis Research and Writing (12 credits)

The Doctoral course curriculum is presented in Table 2.

博士後期課程は、研究が主な活動になるので、必ずしも授業科目を履修する必要はありません。

- ・ 必修科目：DSc. Thesis Research and Writing（１２単位）

博士後期課程の履修細目は、表２に示しています。

Table 2 : Doctoral Courses 表 2 : 博士後期課程科目

Course Title		Course Outline	Credits	DC1 第 1 学年		DC2 第 2 学年		DC3 第 3 学年	
				Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏	Fall & Winter 秋&冬	Spring & Summer 春&夏
Compulsory Courses	DSc. Thesis Research and Writing	Research and related studies for the doctoral thesis. These are done under the direction of sub-advisors as well as the chief advisor. Doctoral thesis writing in English, including discussion with the chief advisor and sub-advisors.	12	○					
	Research Presentation I	The research announcement and the sending ability in a wide meaning are acquired in the student's own research. Specifically, it announces the research and sends in conformity with the progress of the research of the student. It measures extension of its ability.	1	○					
	Research Presentation II	The research announcement and the sending ability in a wide meaning are acquired in the student's own research. Specifically, it announces the research and sends in conformity with the progress of the research of the student. It measures extension of its ability.	1			○			
	Research Presentation III	The research announcement and the sending ability in a wide meaning are acquired in the student's own research. Specifically, it announces the research and sends in conformity with the progress of the research of the student. It measures extension of its ability.	1					○	
	Internship III	In this course, the students work in commercial companies (or research organizations) for a period to cultivate their problem-solving capability in the society. Practicing more a long series of internship is done for 2-3 months. A joint research is acceptable.	1						
	Internship IV	In this course, the students work in commercial companies (or research organizations) for a period to cultivate their problem-solving capability in the society. Practicing more a long series of internship is done for 2-3 months. A joint research is acceptable.	1						
Optional Courses									

## 5 . Information Desk

### 受付窓口

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WEB: <https://www.sci.kyushu-u.ac.jp/e/>