

Academic Year 2016
Graduate School of Science
Hokkaido University

Master's Course
(First Part of Doctoral Program)

Second Selection

Guidelines for Application for the
Entrance Examination

For enrollment April 2016

(Admission for International Students Residing in Japan)

December 2015

Hokkaido University's Acquisition and Use of Personal Information

- (1) In handling personal information from applicants, Hokkaido University makes every effort to protect this information through appropriate management based on the "Privacy Policy of Hokkaido University" and relevant laws and ordinances such as the "Protection Law for Private Information Held by Independent Administrative Corporations."
- (2) Personal information, such as name, address, etc., provided by applicants to the university in the process of applying for admission will be used only for 1) assessment of applicants, 2) the announcement of results, 3) enrollment procedures, 4) surveys and research on enrollee selection methods, and 5) business operations pertaining to 1-4.
- (3) Companies commissioned as part of the relevant operations by the university (hereafter called "commissioned companies") may handle personal data. Part or all of the personal information submitted to the university by applicants will be provided to the commissioned companies, to the extent necessary for them to carry out their commissioned operations.
- (4) After successful applicants are enrolled, personal information they provided on their application forms will be used for 1) educational affairs (such as registration, educational guidance, etc.), 2) student support services (such as health administration, fellowship applications, etc.), and 3) business operations related to their tuition fees and other expenses.
- (5) Regarding the personal information in (4), only the name and address can be used for contact from 1) Hokkaido University Frontier Foundation, 2) Hokkaido University Athletic Union, 3) Hokkaido University Clark Memorial Foundation, and 4) the Alumni Association of the School of Science, Hokkaido University.

December 2015
Graduate School of Science,
Hokkaido University

Admission Requirements for the Graduate School of Science

Applicants must have completed core subjects in the fields of Mathematics, Physics, Chemistry, Biological Sciences, Earth Science, etc., and related specialized subjects. They must also have the ability, character and aptitude to study independently and to rigorously investigate the principles of nature.

I. General Category

1. Admission Quota

Department	Admission Quota	Website's URL
	April, 2016	
Mathematics	A few students	http://www.math.sci.hokudai.ac.jp/en/
Condensed Matter Physics	A few students	http://phys.sci.hokudai.ac.jp/quantum/index-e.html
Cosmosciences	A few students	http://www.ep.sci.hokudai.ac.jp/~cosmo/index-e.htm
Natural History Sciences	A few students	Earth and Planetary Dynamics / Earth and Planetary System Science / Seismology and Volcanology http://www.sci.hokudai.ac.jp/grp/epsdc/exam/ Biodiversity http://www.sci.hokudai.ac.jp/biodiversity/English.html Science Communication http://sc.sci.hokudai.ac.jp/

Notes

- ① For details about a department, please inquire to the department concerned.
- ② Applicants to the Department of Natural History Sciences should choose 1) Earth and Planetary Dynamics / Earth and Planetary System Science / Seismology and Volcanology, 2) Biodiversity, or 3) Science Communication, and check an appropriate box on the Application Form.

2. Eligible Applicants

Applicants must fulfill one of the following criteria:

- (1) Graduated or are expected to graduate from a college, prior to admission to the Graduate School.
- (2) Received or are expected to receive a Bachelor degree in conformity with Article 104, Clause 4, of the School Education Law (1947, Law No. 26), prior to admission to the Graduate School.
- (3) Completed or are expected to complete a 16-year overseas school education course, prior to admission to the Graduate School.
- (4) Completed or are expected to complete a 16-year course of education in Japan through a distant learning course offered by an overseas educational institution, prior to admission to the Graduate School.
- (5) Completed or are expected to complete education at an institution in Japan that is recognized as equivalent to a university by a foreign country (limited to individuals who are recognized by a foreign educational system as having completed 16 years of education) and that is designated by the Minister of Education, Culture, Sports, Science, and Technology, prior to admission to the Graduate School.
- (6) Completed a specialized course at a vocational school (limited to courses with a duration of four years or more and that satisfy the conditions set by the Ministry of Education, Culture, Sports, Science and Technology) designated by the Ministry after the date set by the Ministry, prior to admission to the Graduate School.
- (7) Designated by the Ministry of Education, Culture, Sports, Science and Technology (February 7, 1953 Ministry of Education Notification No. 5).
- (8) Have spent three or more years studying at a college or completed a 15-year overseas school education course, and be recognized by the Graduate School as having completed the prescribed number of credits with an excellent academic record.
- (9) Be recognized by the Graduate School as having reached an academic level equivalent to or higher than that of university graduates, as verified by individual admission qualification screening, and be at least age 22 before admission to the Graduate School.

3. Pre-assessment of Applicants' Qualifications

Application Period for Pre-assessment: December 10 – 14, 2015

The Pre-assessment of Applicants' Qualifications is held prior to the application period for the entrance examination. **Applicants under (8) or (9) in "2. Eligible Applicants"** must apply for this by submitting "5. Application Documents" during the above period.

Applicants who apply for the Pre-assessment of Applicants' Qualifications should not pay the entrance examination fee when they apply for the pre-assessment. They should pay the entrance examination fee after referring to the notes below. The Graduate School Educational Affairs Section is open from 9:00 AM – 4:00 PM, except on Saturdays, Sundays, and national holidays; if you mail the documents, they must be received by the deadline.

Notes:

The pre-assessment application results will be sent by mail to applicants around December 24, 2015; once their qualifications have been accepted by the pre-assessment, applicants must pay the examination fee, referring to "7. Entrance Examination Fee," and submit the payment certificate (E) by January 12, 2016. If the Educational Affairs Section does not receive the payment certificate (E) during the application period, the application will not be accepted and will be regarded as canceled.

Japanese Government (MEXT) scholarship students, students in the State-Sponsored Scholarship Program of the China Scholarship Council, and students having a Hokkaido University President's Fellowship (including those who are expected to receive these scholarships) are not required to pay the examination fee.

4. Application Period

January 6 – 12, 2016

Applicants under (1) – (7) in "2. Eligible Applicants"

Submit the completed application documents (see "5. Application Documents") with the payment certificate (E) (see "7. Entrance Examination Fee") during the application period. Applications will be accepted 9:00 AM – 4:00 PM, except on Saturdays, Sundays, and national holidays. If you mail the application documents, they must be received by the deadline.

5. Application Documents

- Applicants under (8) or (9) in "2. Eligible Applicants" must submit the following documents during the application period for "3. Pre-assessment of Applicants' Qualifications."
- In the following chart, "○" indicates documents that must be submitted; "△" indicates documents that must be submitted for those who fall into the following "Remarks".

Documents	Applicants			Remarks
	(1) (2) (3) (4) (5) (6) (7)	(8)	(9)	
1 Application Form, Resume, Admission Ticket and Photo Card.	○	○	○	Prescribed. Applicants who have completed a correspondence course offered by an overseas educational institution or an overseas school education course are required to attach Resume B .
2 Official transcript issued by the last academic institution previously attended.	○	○	○	① Applicants from the Bachelor's Course in the School of Science, Hokkaido University, are not required to submit this document. ② Applicants under (8) in "2. Eligible applicants" should submit a transcript issued by their current academic institution.
3 Official certificate of graduation, or expected graduation, issued by the last academic institution previously attended; certificate of degree conferral, or certificate of expected degree conferral.	○	○	○	① Applicants from the Bachelor's Course in the School of Science, Hokkaido University, are not required to submit this document. ② Applicants under (2) in "2. Eligible Applicants" should submit an Official Certificate of Degree (expected) issued by the National Institution for Academic Degrees and University Evaluation (NIAD-UE).
4 Documents certifying that the applicant has academic skills equal to or greater than those of a college graduate.			○	Discretionary format. e.g., documents detailing international activities, work experience, or language learning experience; research papers; patent publications; certificates of qualification; recommendation letters from supervisors at schools previously attended.
5 Documents to be submitted according to the department	○	○	○	Refer to "Documents to be Submitted to Particular Departments."

	applied for.				
Documents		Applicants			Remarks
		(1) (2) (3) (4) (5) (6) (7)	(8)	(9)	
6	Self-addressed envelope to receive the admission ticket for the entrance examination.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Prescribed. Write your name and mailing address on an envelope with a 362-yen stamp attached. If you change your address after applying, please notify the Graduate School Educational Affairs Section, Science and Life Science Administration Department, Hokkaido University.
7	Stickers for notification of the application results and for communication purposes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Prescribed. Write your name and mailing address on each sticker. If you change your address after applying, please notify the Graduate School Educational Affairs Section, Science and Life Science Administration Department, Hokkaido University.
8	Recommendation letter(s) issued by a university previously attended or a dean at a university previously attended. (sealed up)	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	Discretionary format, A-4 size pages. ① Applicants under (8) in “2. Eligible Applicants” should submit these documents. ② Applicants under (1) – (7) or (9) in “2. Eligible Applicants” and who are applying to the Department of Mathematics, Condensed Matter Physics, or CosmoSciences may submit these documents (optional).
9	Self-addressed envelope for notification of the pre-assessment results.		<input type="radio"/>	<input type="radio"/>	Write your name and mailing address on a standard envelope with an 82-yen stamp attached.

◎Documents to be Submitted to Particular Departments

Department	Documents to be submitted	Remarks
Mathematics	1. Reasons for applying (prescribed). 2. Mathematics report and summary (the summary is a prescribed form).	1. Provide the reasons for applying to this department. 2. Report in 10 or fewer A-4 or letter-size pages on the fields you wish to study after admission, and on a theorem or theory you are particularly interested in, fully understand, and can explain in detail. In the oral examination, applicants are questioned on the basis of their written report. They must also outline the mathematics report on the prescribed form.
Condensed Matter Physics	List of preferred laboratories or fields (prescribed).	Write your first, second, and third choices of laboratories selected from the List of Supervisors and Research Fields.
Cosmosciences	1. List of preferred laboratories or fields (prescribed). 2. Cosmosciences report.	1. Write your first, second, and third choices of laboratories selected from the List of Supervisors and Research Fields. 2. Report in two pages or less (A-4 or letter-size pages) on your graduation research or cosmoscience-related themes you are interested in.
Natural History Sciences	1. List of preferred laboratories or fields (prescribed). 2. List of examination subjects (prescribed). 3. Statement of reasons (only applicants under (8) in “2. Eligible Applicants”)	1. Write your first and second choices of groups, laboratories, or centers selected from the List of Supervisors and Research Fields. If you do not have a second choice, please leave the section blank. 2. Choose two specialized subjects among five (mathematics, physics, chemistry, earth science I , and earth science II) and circle them. No change is permitted after the documents are accepted. 3. Applicants under (8) in “2. Eligible Applicants” must submit this statement of reasons. Report in three A4 size pages or less. e.g., documents detailing international activities, work experience, or language learning experience; research papers; patent publication; certificates of qualification; recommendation letters from supervisors at schools previously attended.
	Biodiversity	List of preferred supervisors (prescribed).

	Science Communication	1. List of preferred laboratories or fields (prescribed). 2. Reasons for applying (prescribed).	
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6. Submission of Application Documents

Submit to: Graduate School Educational Affairs Section
 Science and Life Science Administration Department
 Hokkaido University
 Kita-10 Nishi-8, Kita-ku, Sapporo 060-0810, Japan

※If you send your application documents by mail, please indicate “**Enclosed Application for Graduate School**” in red on the envelope and send it by **registered mail**.

7. Entrance Examination Fee 30,000 yen

- ① **Japanese Government* (MEXT) scholarship students, students in the State-Sponsored Scholarship Program of the China Scholarship Council, or students having a Hokkaido University President’s Fellowship (including those who are expected to receive these scholarships) are not required to pay the examination fee.**

*MEXT scholarship students recommended by universities other than Hokkaido University are required to submit a copy of a letter verifying that they have received this scholarship.

- ② Remit the examination fee to the bank account or post office account designated by this University, using the attached examination fee transfer form specifically prepared for this purpose, and attach the payment certificate (E) to the appropriate section on the application form.
- ③ The examination fee is not refundable except in the following cases:
- The applicant has not submitted an application, or the application was rejected after the application fee was remitted.
 - The applicant paid the examination fee twice by mistake.

8. Selection Method

The Graduate School will assess applicants on the basis of their entrance examination (oral and written exams), official transcript, etc.

9. Examinations (Written and Oral Exams) in Academic Subjects February 4 – 5, 2016

		February 4		February 5	
		AM	PM	AM	PM
Mathematics		Oral examination (9:00-)	Oral examination (13:00-)		
Condensed Matter Physics		Oral examination (9:00-)	Oral examination (13:00-)		
Cosmosciences		Oral examination (9:00-)	Oral examination (13:00-)		
Natural History Sciences	Earth and Planetary Dynamics Earth and Planetary System Science Seismology and Volcanology	English (9:30-11:30)	Specialized subjects (13:00-16:00)	Oral examination (9:00-)	
	Biodiversity	English (9:00-12:00)	Specialized subjects (13:00-16:00)		Oral examination (13:00-)
	Science Communication	English (9:00-11:00)	Essays (11:10-12:40)	Oral examination (14:00-)	

Notes:

- ① English examinations are conducted as follows:

Department of Natural History Sciences

- Applicants to the Division of Earth and Planetary Dynamics, Earth and Planetary System Science, and Seismology and Volcanology must take an English-Japanese and Japanese-English translation examination. Applicants are not permitted to use any dictionary.
 - Applicants to the Division of Biodiversity must take an English-Japanese and Japanese-English translation examination. Applicants are not permitted to use any dictionary.
 - Applicants to the Division of Science Communication must take an English comprehension examination. Applicants are permitted to use an English-Japanese dictionary (excluding electronic devices).
- ② Applicants for the Departments of Condensed Matter Physics and CosmoSciences are required to take oral examinations in specialized subjects and in English.
 - ③ For the Divisions of Earth and Planetary Dynamics, Earth and Planetary System Science, and Seismology and Volcanology in the Department of Natural History Sciences, applicants are required to answer questions from two of five specialized subject areas: mathematics, physics (including optional questions on earth and planetary physics), chemistry (including optional questions on earth and planetary chemistry), Earth Science I (Earth history, tectonics, and sedimentology), and Earth Science II (lithology, mineralogy and volcanology) based upon the list of examination subjects they submitted as application documents. Applicants cannot change their specialized subjects once the documents are accepted.
 - ④ For the Division of Biodiversity in the Department of Natural History Sciences, a list of keywords indicating the areas covered by the subject examination will be sent to applicants along with the admission ticket for the entrance examination. The list of keywords can also be obtained from the following website:
<http://www.sci.hokudai.ac.jp/biodiversity/> (This list is written in Japanese.)
 - ⑤ For their essay examination for the Division of Science Communication in the Department of Natural History Sciences, applicants must choose two of the eight designated topics listed on the following website:
<http://sc.sci.hokudai.ac.jp/examination/thesis> (This list is written in Japanese.)

10. Announcement of Application Results

Successful applicants will be announced on the bulletin board on the ground floor of the Graduate School of Science (large lobby inside north entrance to Building 2), Hokkaido University, **around 4:30 PM on February 18, 2016**. All applicants will also receive the results by mail.

11. Procedures for Enrollment Registration and Fees

All successful applicants will be notified about how to proceed with enrollment registration along with their letter of acceptance.

Enrollment Fee: 282,000 yen (estimated).

Tuition Fee: 267,900 yen [For the first semester. Total annual fee = 535,800 yen] (estimated).

* The above tuition fees are subject to revision at the time of or during your enrollment. In the event of a revision, the revised amounts are immediately applied.

12. Precautions

- (1) Make sure to bring your admission ticket and put it on the desk when you take the examination.
- (2) Changes by applicants in the department to which they apply are not accepted for any reason.
- (3) If you have a physical disability that requires special considerations in order for you to take the entrance examination or attend classes, contact the Graduate School Educational Affairs Section at the time of application.

13. Long-term Graduate System

If you wish to take advantage of the Long-term Graduate System established by the Graduate School of Science, please apply after referring to “Information on the Long-term Graduate System.”

14. Other Information

The admission ticket for the entrance examination will be sent around January 21, 2016 to applicants whose application forms have been accepted.

※If you wish to receive the Guidelines for Application by mail, please send a request and enclose an A4-sized, self-addressed envelope.

Please write “**Request for the Guidelines for Application for the Entrance Examination, Master’s**”

Course” in red on the envelope, enclose a note indicating the department selected (and the division selected in the case of the Department of Natural History Sciences) and your telephone number, and send it to the Graduate School Educational Affairs Section, Science and Life Science Administration Department, Hokkaido University.

©If you have any questions regarding application procedures, please contact:

Graduate School Educational Affairs Section
Science and Life Science Administration Department
Hokkaido University
Kita-10 Nishi-8 Kita-ku, Sapporo 060-0810, Japan
Tel: (011) 706-3677

Graduate School of Science, Hokkaido University

URL: <http://www.sci.hokudai.ac.jp/english/index.html>

Information on the Long-term Graduate System

1. Aims of the Long-term Graduate System

Under the Long-term Graduate System, a student can request an individual review by the graduate school and be accepted to complete a course in a planned manner within a period longer than the regular course term (2 years), for certain reasons such as responsibilities of work, or child and family care.

2. Intended Students

Applicants fulfilling one of the criteria below, who want to set a period of study in advance longer than the regular course term to complete an academic (research) course.

- (1) Have a full-time job in a public office or company (excluding people who are exempt from job duty but receive a salary), or are self-employed.
- (2) Have a part-time job that makes it stressful to engage in full-time academic work.
- (3) Are taking care of children or other family members, which makes it stressful to engage in full-time academic work.

3. Attendance Period

The attendance period for the Long-term Graduate System is up to 4 years, and a student can apply for the system by the year. Once the application is accepted, the student can attend school for up to the accepted period, with the possibility of an additional 2 years. Students can also take a temporary leave of absence from school for up to 2 years.

4. Procedures for Applying for Long-term Graduate Status

(1) Application Period

Please submit complete application documents for the Long-term Graduate System and for the entrance examination together.

(2) Required Documents

- ① Application Form for Long-term Graduate System (Form 1).
- ② Research Plan Under Long-term Graduate System (Form 2).
- ③ Documents that prove that the applicant needs to complete an academic course under the Long-term Graduate System (the format is discretionary).

(3) Announcement of Application Results

The Graduate School individually assesses each application for Long-term Graduate Status, and will notify only applicants who successfully pass the entrance exam of the results.

5. Annual Tuition Fee

The annual tuition fee is determined by the calculation below for every year of the term.

$$\begin{array}{l} \text{Annual tuition fee as} \\ \text{a Long-term Graduate} \\ \text{Student} \end{array} = \begin{array}{l} \text{Annual tuition fee for} \\ \text{his/her attending year} \end{array} \times \frac{\text{Regular course term (2 years)}}{\text{Period of his/her accepted} \\ \text{Long-term Course (years)}}$$

6. Other Information

For the details regarding the Long-term Graduate System, please contact the Graduate School Educational Affairs Section, Science and Life Science Administration Department, Hokkaido University.

List of Supervisors and Research Fields

As of April 1, 2016

Department of Mathematics, Graduate School of Science

Master's Course

Fields	Supervisors		Keywords	Remarks
Algebra	Professor	Mutsumi Saito	Algebraic analysis, rings of differential operators	
	Professor	Keiji Matsumoto	Special functions	
	Professor	Hiroshi Yamashita	Representation theory	
	Specially Appointed Professor	Hiroaki Terao	Singularity theory, combinatorics	
	Associate Professor	Masanori Asakura	Arithmetic geometry	
	Associate Professor	Noriyuki Abe	Representation theory	
	Associate Professor	Youichi Shibukawa	Yang-Baxter equations and quantum groups	
	Associate Professor	Kenichiro Tanabe	Vertex algebras, algebraic combinatorics	
	Associate Professor	Daisuke Matsushita	Algebraic geometry	
	Associate Professor	Masahiko Yoshinaga	Algebraic geometry, combinatorics	
	Specially Appointed Lecturer	Simona Settepanella	Singularity theory, combinatorics	
Geometry	Assistant Professor	Kazuma Morita	Arithmetic geometry	
	Professor	Goo Ishikawa	Real algebraic geometry, singularity theory	
	Professor	Shyuichi Izumiya	Geometry, singularity theory	
	Professor	Katsunori Iwasaki	Complex geometry, dynamical systems, Painleve systems	
	Professor	Toru Ohmoto	Singularity theory, topology	
	Associate Professor	Toshiyuki Akita	Topology	
	Associate Professor	Shimpei Kobayashi	Differential geometry	
	Associate Professor	Masao Jinzenji	Mathematical physics	
	Associate Professor	Hitoshi Furuhata	Differential geometry	
	Assistant Professor	Yutaka Kanda	Differential topology	
Analysis	Assistant Professor	Kenta Hayano	Topology	
	Professor	Hiroaki Aikawa	Potential theory, real analysis	
	Professor	Asao Arai	Mathematical physics, functional analysis	
	Professor	Hideo Takaoka	Differential equations	
	Professor	Akihito Hora	Functional analysis, probability theory	
	Associate Professor	Masaharu Kobayashi	Harmonic Analysis	
	Associate Professor	Reiji Tomatsu	Operator algebras	
	Associate Professor	Naofumi Honda	Algebraic analysis	
	Associate Professor	Tadahiro Miyao	Mathematical physics, functional analysis	
Applied Mathematics	Assistant Professor	Takahiro Hasebe	Probability theory, complex analysis, functional analysis	
	Assistant Professor	Nao Hamamukai	Nonlinear partial differential equations, Theory of viscosity solutions	
	Professor	Shin-ichiro Ei	Nonlinear analysis, nonlinear partial differential equations	
	Professor	Hideo Kubo	Partial differential equations, scattering theory	
	Professor	Shuichi Jimbo	Applied analysis, partial differential equations	
	Professor	Ichiro Tsuda	Complex systems, chaotic dynamical systems, brain theory	
	Professor	Masaharu Nagayama	Reaction-diffusion systems, mathematical modeling, numerical simulation	
	Professor	Michiko Yuri	Ergodic theory, dynamical systems, complex systems	
	Associate Professor	Zin Arai	Dynamical systems, computational topology	
	Associate Professor	Akira Sakai	Mathematical physics, probability theory	
	Associate Professor	Yuzuru Sato	Complex systems, chaotic dynamical systems	
	Associate Professor	Takao Namiki	Ergodic theory, dynamical systems, complex systems	
	Associate Professor	Kenji Matsumoto	Biophysical complex systems, chaotic dynamical systems	
	Associate Professor	Chun Biu Li	Nonequilibrium statistical mechanics, biophysics, time series analysis	
Assistant Professor	Masakazu Akiyama	Mathematical modeling, mathematical and theoretical biology, numerical calculation		
Assistant Professor	Elliott Ginder	Variational methods, free boundary problems, numerical analysis		

Department of Condensed Matter Physics, Graduate School of Science
Master's

Laboratories	Professors		Keywords	Remarks
High-Pressure Physics	Professor	Migaku Oda	High-Tc superconductivity, cuprates, scanning tunneling microscopy, scanning tunneling spectroscopy	
	Assistant Professor	Tohru Kurosawa		
	Assistant Professor	Hiroyuki Yoshida		
Electronic Properties of Low-dimensional Conductors	Specially Appointed Professor	Kazushige Nomura	Low-dimensional organic conductors, scanning tunneling microscopy (STM), scanning tunneling spectroscopy (STS), nonlinear conductivity, symmetry of Cooper pairs, spin density waves (SDWs), chiral superconductivity, mesoscopic systems	Will retire in March, 2017
	Associate Professor	Noriaki Matsunaga		
	Assistant Professor	Hiroyoshi Nobukane		
Magnetism in Strongly Correlated Electron Systems	Specially Appointed Professor	Kazuyuki Koike	Spin, nano, surface, thin films, spin-polarized scanning electron microscopy (spin SEM), spin-polarized scanning tunneling microscopy (SP-STM), spin-polarized spectroscopy, superconductivity, magnetism, heavy fermion behavior, quantum criticality, non-Fermi-liquid behavior, very low temperatures, high magnetic fields, high pressure, transport measurements, ultrasonic measurements, muSR, RXS	Will retire in March, 2016
	Associate Professor	Hideo Matsuyama		
	Professor	Hiroshi Amitsuka		
	Associate Professor	Tatsuya Yanagisawa		
	Assistant Professor	Hiroyuki Hidaka		
Low Temperature Physics	Professor	Atsushi Kawamoto	NMR, strongly correlated electron systems, superconductivity, magnetism	
	Lecturer	Yoshihiko Ihara		
Optical Science and Semiconductor Physics	Associate Professor	Tomobumi Mishina	Laser spectroscopy, THz time domain spectroscopy, femtosecond pump-probe spectroscopy	
	Assistant Professor	Sekika Yamamoto		
Laboratory of Dielectrics	Specially Appointed Professor	Akira Onodera	Complex liquids, glass transition, broadband dielectric spectroscopy, ferroelectrics, multiferroics, electronic ferroelectricity, phase transition, photoinduced cooperative phenomena	Will retire in March, 2016
	Associate Professor	Ryusuke Nozaki		
	Associate Professor	Masaki Takesada		
Condensed Matter Theory I	Professor	Koji Nemoto	Statistical physics, non-equilibrium, non-linearity, random systems, complex networks, phase transition, self-organization, critical phenomena, scale-free structures, numerical simulation	
	Assistant Professor	Koji Okuda		
Condensed Matter Theory II	Associate Professor	Takafumi Kita	Superconductivity, superfluidity, Bose-Einstein condensation	
Condensed Matter Theory III	Professor	Shoji Yamamoto	Transition-metal complexes, organic polymers, single-molecule nanomagnets, photoinduced phase transition, optically switchable magnetism, nuclear magnetic relaxation	
	Lecturer	Jun Ohara		

Laboratories	Professors		Keywords	Remarks
Nanostructure Physics (RIES)	Professor	Akira Ishibashi	Nano-structured devices, new photovoltaic devices, next-generation solar cells, clean unit system platforms	
	Associate Professor	Kenji Kondo	Quantum field theory, many-body perturbation theory, spintronics devices, magnetism, electronic correlations, Dirac electron, topological insulator	
Phase Transition (RIES)	Specially Appointed Associate Professor	Yuhji Tsujimi	Time domain light scattering, ferroelectrics, quantum ferroelectrics, glass transition, frequency domain light scattering, complex liquids, relaxor ferroelectrics	Will retire in March 2017

Laboratories	Supervisors		Keywords	Remarks
Observational Astronomy	Associate Professor	Kazuo Sorai	Observational astronomy, galactic and extragalactic astronomy, interstellar matter, star formation	
Particle Theory Group	Professor	Hisao Suzuki	Particle physics, beyond the standard model, dark matter, dark energy, grand unified theory, superstrings, supersymmetry, early universe	
	Professor	Tatsuo Kobayashi		
	Associate Professor	Ryuichi Nakayama		
	Lecturer	Kazuhiko Suehiro		
	Assistant Professor	Eun-Kyung Park		
Theoretical Nuclear Physics	Associate Professor	Masaaki Kimura	Quantum many-body problems, nuclear force, unstable nuclei, nucleosynthesis, hadronic matter	
	Assistant Professor	Wataru Horiuchi		
Theoretical Astrophysics	Professor	Asao Habe	Theoretical astronomy, numerical simulations, galaxy formation, galaxy clusters, supermassive black holes, interstellar matter, star formation, interstellar dust	
	Professor	Takashi Kozasa		
	Assistant Professor	Elizabeth Jane Tasker		
	Assistant Professor	Takashi Okamoto		
Theoretical Planetary Science	Associate Professor	Hidekazu Tanaka	Planet formation, cosmic dust, protoplanetary disks, nucleation theory	
Planetary and Space Group	Professor	Kiyoshi Kuramoto	Origin and evolution of planets and satellites, material evolution during planetary system formation, structure and dynamics of Earth and planetary atmospheres, comparative planetology, space exploration and ground-based observation, experimental studies, theory and hierarchical numerical simulation models, applications of information technology	
	Professor	Yukihiro Takahashi		
	Associate Professor	Akihiko Hashimoto		
	Associate Professor	Masaki Ishiwatari		
	Specially Appointed	Junichi Kurihara		
	Lecturer	Mitsuteru Sato		
	Assistant Professor	Masatsugu Odaka		
	Specially Appointed	Makoto Watanabe		
	Specially Appointed	Shunichi Kamata		
	Specially Appointed	Tetsuro Ihida		

Laboratories	Supervisors		Keywords	Remarks
Astrophysical Chemistry / Ice and Planetary Science	Professor	Akira Kouchi	Interstellar molecules, ice dust, amorphous solid water, surface reactions	
	Professor	Naoki Watanabe		
	Associate Professor	Yuki Kimura		
	Assistant Professor	Hiroshi Hidaka		
	Assistant Professor	Tetsuya Hama		
	Assistant Professor	Yasuhiro Oba		
Phase Transition Dynamics	Professor	Gen Sazaki	Phase transition dynamics, crystal growth, ice, snow, interferometry, advanced optical microscopy, atomic force microscopy	Will retire in March 2016
	Specially Appointed Professor	Yoshinori Furukawa		
	Assistant Professor	Ken Nagashima		
	Assistant Professor	Ken-ichiro Murata		
Information Media Science	Professor	Izumi Fuse	Learning science, learning platforms, open education	
	Assistant Professor	Yuichi Yamamoto		
Nuclear Reaction Data Science	Professor	Masayuki Aikawa	Nuclear data, nuclear reactions, evaluation	Inter-field Cooperation with the Japan Atomic Energy Agency (JAEA) in the field of nuclear data.
	Associate Professor	Yoshiharu Hirabayashi		
	Specially Appointed Assistant	Shuichiro Ebata		
	Visiting Professor	Keiichi Shibata		
	Visiting Professor	Hideo Harada		
	Visiting Professor	Tokio Fukahori		
Spacecraft Observation Group	Visiting Professor	Takehiko Sato	Planetary exploration, infrared astronomy from space, radio astronomy from space	Inter-field Cooperation with the Japan Aerospace Exploration Agency (JAXA) in the field of spacecraft observation
	Visiting Associate Professor	Yasuhiro Murata		
	Visiting Associate Professor	Issei Yamamura		

Department of Natural History Sciences, Graduate School of Science

Master's

Research Fields	Research Groups & Laboratories	Supervisors		Keywords	Remarks
Earth and Planetary Dynamics	Physical Oceanography and Climate	Professor	Shoshiro Minobe	Physical oceanography, meteorology, air-sea interactions, climate variability & change, oceans' role in climate, multidisciplinary challenges, numerical modelling, data analysis	
		Associate Professor	Masaru Inatsu		
		Lecturer	Yoshinori Sasaki		
		Assistant Professor	Hanna Na		
	Physical Hydrology	Specially Appointed Associate Professor	Kazuhisa Chikita	Drainage basins, water and material cycles, sedimentation, lake hydrodynamics	
	Space Geodesy	Professor	Kosuke Heki	Space geodesy, GNSS, GPS, INSAR, GRACE, gravity, Earth rotation, atmospheric sensing, crustal deformation, glaciology, planetary geodesy, ionosphere	
		Professor	Masato Furuya		
		Associate Professor	Youichiro Takada		
	Seismology	Professor	Kiyoshi Yomogida	Seismic wave propagation, Earth structure, seismic tomography, broadband waveform analysis, lateral heterogeneity and anisotropy	
		Associate Professor	Kazunori Yoshizawa		
Earth and Planetary Science System	Petrology and Volcanology	Professor	Mitsuhiro Nakagawa	Evolution and eruption processes of magma plumbing systems of volcanos; magma generation and eruption processes of caldera volcanos; spatial and temporal variation in arc volcanism; long-term forecasting of volcanic activity and mitigation of volcanic disasters	
		Associate Professor	Takeshi Kuritani		
		Assistant Professor	Shumpei Yoshimura		
	Geochemistry	Professor	Hisayoshi Yurimoto	Geochemistry, cosmochemistry, planetary chemistry, galaxies, stars, planetary systems, protoplanetary disks, planets, meteorites, Earth, core, mantle, crust, oceans, atmosphere, life, magma, geofluids, mass spectrometry, spectroscopy, microscopy, dust formation, crystal growth, high pressure, solar system evolution, planetary exploration	Hokkaido University Museum
		Associate Professor	Shogo Tachibana		
		Associate Professor	Junji Yamamoto		
		Assistant Professor	Ken-ichi Bajo		

Research Fields	Research Groups & Laboratories	Supervisors		Keywords	Remarks
E a r t h a n d P l a n e t a r y S y s t e m S c i e n c e	Earth Materials Science	Professor	Takaya Nagai	Mineralogy, crystallography, crystal growth, physics and chemistry of minerals	Creative Research Institution, Hokkaido University
		Specially Appointed Assistant Professor	Jun Kawano		
	Earth Environmental History · Paleontology	Associate Professor	Yoshitsugu Kobayashi	Vertebrate evolution, dinosaurs, reptiles, birds, phylogenetic relationships, functional morphology, comparative anatomy, embryology	Hokkaido University Museum
		Assistant Professor	Yasuhiro Iba	Evolution of Mesozoic marine biota, paleobiogeographic responses, global environmental change, origin of modern marine biota	
	Earth System Evolution	Professor	Noriyuki Suzuki	Fate of organic matter in sediments and sedimentary rocks, Earth hydrocarbon resources, long-term carbon cycle, evolution of Earth systems	
		Associate Professor	Ken Sawada	Molecular paleobiology, paleoenvironmental reconstruction, biogeochemistry of geomacromolecules, biomarker paleothermometry, algal biofuels	
		Lecturer	Tsuyoshi Watanabe	High-resolution reconstruction of palaeoenvironments, biogeochemical cycles in reef ecosystems on the geological time scale	
	Geotectonics	Professor	Toru Takeshita	Structural geology, tectonics, rheology, microstructures, metamorphic geology	
		Associate Professor	Makoto Kawamura	Tectonostratigraphy, soft-sediment deformation, clastic composition, forearc geology, accretion tectonics	
		Specially Appointed Associate Professor	Jinichiro Maeda	Igneous petrology and geochemistry of deep crustal rocks from modern and ancient plate boundaries, magmatic processes in mid-oceanic ridges, deep crustal magmatic processes, history of the Hidaka Magmatic Belt, tectonics of Hokkaido	Will retire in March 2016.
		Associate Professor	Jun Kameda	Subduction zone seismogenesis, water-rock interactions, diagenesis, electron microscopy, clay mineralogy	
		Assistant Professor	Marie Python	Petrography and chemistry of the crust and mantle in ophiolites and the Pacific Ocean, mantle melting, magmatic evolution of the oceanic crust, hydrothermal circulation, interactions within the oceanic crust and mantle	

Research Fields	Research Groups & Laboratories	Supervisors		Keywords	Remarks
B i o d i v e r s i t y	Biodiversity	Professor	Takeo Horiguchi	Biodiversity II: Microalgae, protists, dinoflagellates, phylogeny, endosymbiosis	
		Specially Appointed Professor	Shin Tochinai	Biodiversity III (Evo-Devo Laboratory): Evo-devo, reproduction, development, regeneration, animal models	Will retire in March 2016.
		Professor	Ryuichi Masuda	Biodiversity IV (Laboratory of Genetic Diversity): Molecular phylogenetics, population genetics, biogeography, mammals, birds	
		Associate Professor	Kazuhiro Kogame	Biodiversity II: Taxonomy, phylogeny, evolution, seaweeds	
		Associate Professor	Hiroshi Kajihara	Biodiversity I: Marine invertebrates, Nemertea, taxonomy, phylogeny, morphology	
		Associate Professor	Helena Fortunato	Biodiversity I: Mollusks, coralline algae, Bryozoa, calcification patterns, population genetics, ecology, ocean acidification, biogeography	
		Lecturer	Masaki Eda	Laboratory of Archaeozoology & Zooarchaeology: archaeological remains, birds, bones, bone collagen, DNA	
		Lecturer	Tsuyoshi Abe	Biodiversity II: Seaweeds, taxonomy, phylogeny, component taxonomy	
		Lecturer	Keiichi Kakui	Biodiversity I: Marine invertebrates, Crustacea, Tanaidacea, taxonomy, phylogeny, morphology	
		Assistant Professor	Toru Katoh	Biodiversity I: evolution, phylogeny, populations, insects	
		Assistant Professor	Yoshinori Nishita	Biodiversity IV (Laboratory of Genetic Diversity): Molecular genetics, molecular biology, evolution, immunology, mammals	

Research Fields	Research Groups & Laboratories	Supervisors		Keywords	Remarks
Science Communication	Communication of Science and Technology	Specially Appointed Professor	Shigeo Sugiyama	Sociology, science and technology, public participation, governance and policy, technology assessment	Will retire in March 2016.
		Associate Professor	Naoyuki Mikami		Creative Research Institution, Hokkaido University
		Associate Professor	Shishin Kawamoto		CoSTEP
	Philosophy of Science and Technology	Professor	Masahiro Matsuou	Philosophy of science, ethics of science and technology, philosophy of risk, statistical inference of cause	
	Museum Education and Media Studies	Associate Professor	Makiko Yuasa	Museum communication, museum education, museum evaluation, media studies, museum video production	Hokkaido University Museum
		Associate Professor	Yoshiharu Fujita		Creative Research Institution, Hokkaido University
	Science Education	Professor	Makoto Suzuki	Self-efficacy, cognitive bias, creativity, human-computer interactions, higher education, educational technology, open education	Creative Research Institution, Hokkaido University
		Professor	Toshiyuki Hosokawa		
		Associate Professor	Fumihito Ikeda		
		Associate Professor	Kunimasa Yamada		
Associate Professor		Katsusuke Shigeta	Information Initiative Center, Hokkaido University		
Seismology and Volcanology	Seismological Observation	Professor	Yuichiro Tanioka	Earthquake source processes, generation and propagation of tsunamis, pre-historical earthquakes and tsunamis, seismic tomography, active fault, earthquake prediction, early warning system, tectonics in northeastern Asia	
		Associate Professor	Kei Katsumata		
		Associate Professor	Hiroaki Takahashi		
	Ocean Bottom Seismology	Associate Professor	Yoshio Murai	Subsurface structure at subduction zones, elastic wave propagation, tectonics of Northern Mid Atlantic Ridge, subduction earthquake, paleo-seismological analysis, international field science, disaster mitigation	
		Assistant Professor	Yuichi Nishimura	subduction earthquake, paleo-seismological analysis, international field science, disaster mitigation	
	Volcano Physics	Professor	Makoto Murakami	Volcanology, volcanic seismology, eruption prediction, transport processes, volcano hydrology, crustal deformation, space geodesy, geo-electromagnetism, spectroscopy of volcanic plume, volcano monitoring system	
		Associate Professor	Hiromitsu Ooshima		
		Assistant Professor	Hiroshi Aoyam		
	Subsurface Structure	Professor	Takeshi Hashimoto	Subsurface exploration	
		Specially Appointed Professor	Toru Mogi		