

Objectives and Descriptions of the Division of Earth and Planetary Materials Science
(five-year doctor's course)

Objectives

Understanding the origin, evolution and dynamics of the Earth and other planets over a broad time span from the formation of the solar system to the present, from the standpoint of materials science, is a fundamental goal of Earth and planetary science. The objective of this division is to train talented young researchers with high abilities to conduct scientific researches and education toward this goal, so that they will potentially become the next generation of leaders in the international Earth and planetary science community. To that end, the educational environments of the division, unlike many conventional Japanese-style graduate schools, have been created to cater for the education of graduate students who have strong desire to pursue a career in scientific research.

Descriptions

This division has adopted a doctoral degree program that has a maximum period of five consecutive years after enrollment and does not require a prior Master's degree. In this way, students will be able to study with a clear goal of obtaining a doctoral degree at the start of the program. For those who have demonstrated exceedingly high abilities and performance, it is possible to earn a doctoral degree in a minimum of three years after completing an undergraduate program. Students who had an educational background in a field other than earth sciences may find the five-year period beneficial and sufficient to systematically build up the necessary knowledge and skills in earth materials science. All graduate students in this division are entitled to receive financial supports, in the form of fellowship or research assistantship, for a maximum of five years to cover their tuition fees and living expenses. It is hoped that this will enable them to concentrate on their research and education and to develop a sense of responsibility as a researcher.

In order to complete the program and receive a doctoral degree, the students must pass a qualifying examination (proposal defense) that will be held within the period before two and a half years after enrollment, as well as a final oral examination (final defense) near the end of the program, in addition to completing required course work. Those who failed to pass the proposal defense will no longer qualify for financial supports, and will be advised to withdraw from the program. Each of these examinations will be held by an examination committee that includes leading researchers from overseas, in addition to faculty members from the division; and the evaluations will be based on internationally recognized standard.

In this division, graduate students with diverse nationalities will be supervised and taught in English, and will benefit from a unique international atmosphere of research and education that allows them to interact closely with the world-class faculty and other researchers. The Institute for Planetary Materials, which is hosting the division, has been designated as a joint-use and collaborative research center in the field of Earth and planetary materials science by the Ministry of Education, Culture, Sports, Science and Technology, and is constantly the host for collaborative researchers both from Japan and worldwide. Graduate students will thus be able to conduct their research under the guidance

of front-line researchers, and develop hands-on scientific communication skills and high research skills in his/her field of specialty. Administrative staffs fluent in English communications are available to assist international students in various ways with their study in Japan.

By providing such an international research and educational environment, the division endeavors to educate the next generation of independent, world-class researchers and to contribute to the advancement of knowledge.

Policy for acceptance of admitted students of the Division of Earth and Planetary
Materials Science
(five-year doctor's course)

The Five-year Doctor's Program aims at fostering researchers with strong abilities in scientific research from the standpoint of materials science, in order to understand the origin, evolution and dynamics of the Earth and planets over a broad time span from the formation of the solar system to the present. The course recruits people from both Japan and overseas, who have strong interests in Earth and planetary materials science and are highly motivated and devoted to pursue a career to become a world-class researcher.

I. Admission Quota

(1) October 2019 Admission

Division name	Quota
Division of Earth and Planetary Materials Science	A few

(2) April 2020 Admission

Division name	Quota
Division of Earth and Planetary Materials Science	4

II. Application Guidelines

1. Eligibility for Application

Applicants must fall into one of the following categories by March 2020 (or September 2019 for those applying for the October 2019 enrollment) to be eligible for application:

- (1) Applicants who have graduated from a university accredited by the School Education Law.
- (2) Applicants who have received a bachelor's degree pursuant to Article 104 Paragraph 4 of the School Education Law (Law No. 26, 1947) (see Note 1).
- (3) Applicants who have completed a 16-year curriculum of education in a foreign country (see Note 2).
- (4) Applicants who have completed a 16-year curriculum of education of a foreign country in Japan via correspondence education offered by schools in that country.
- (5) Applicants who have completed a curriculum of education from a foreign university in Japan, which conforms to that country's educational system (limited to those equivalent to a 16-year curriculum in that country) and has been designated by the Minister of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan.
- (6) Applicants who have received a bachelor's degree from a foreign university or other foreign school (limited to those received an evaluation on their comprehensive situation of education and research activities etc. by a person who received certification from the foreign government or the related agencies or the equivalent which meets other criteria established by the Minister of MEXT) by completing the course of three or more years (including completing the course of the foreign university in Japan via correspondence education, and completing the course of educational facility positioned in the foreign school education system which meets other criteria established by the Minister of MEXT).
- (7) Applicants who have completed a postsecondary course in a specialized training college designated by the Minister of MEXT (limited to courses that are four years or longer and also meet other criteria established by the Minister of MEXT) after the date of designation.
- (8) Applicants designated by the Minister of MEXT (See MEXT decree No. 5, 1953).
- (9) Applicants who are enrolled in another graduate school pursuant to the provisions of the School

Education Law Article 102 Paragraph 2, and are judged to have appropriate academic ability to receive graduate school education (see Note 3).

- (10) Applicants who are judged to have academic ability equivalent to or exceeding that of a university graduate through individual qualification examination, and have reached the age of 22 (see Note 4).
- (11) Applicants who have attended university for three or more years, and are judged to have acquired sufficient credits with excellent academic records from a graduate school (see Note 5).
- (12) Applicants who have completed a 15-year curriculum of education in a foreign country, and are judged to have acquired sufficient credits with excellent academic records from a graduate school (see Notes 5 and 6).
- (13) Applicants who have completed a 15-year curriculum of education of a foreign country in Japan via correspondence education offered by schools in that country, and are judged to have acquired sufficient credits with excellent academic records from a graduate school (see Note 5).
- (14) Applicants who have completed a curriculum of education from a foreign university in Japan that conforms with that country's educational system (limited to those equivalent to a 15-year curriculum in that country) and are judged to have acquired sufficient credits with excellent academic records from a graduate school (see Note 5).

(Note 1) "1. Eligibility for Application (2)" refers to the following:

① Applicants who can submit a certificate of bachelor's degree (or proof of acceptance of application for the certificate of bachelor's degree) issued by the National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE).

② Applicants who are enrolled in an advanced course accredited by NIAD-QE according to Article 6 Paragraph 1 of the Degree Regulations (Notification No. 9 of Ministry of Education, Science and Culture, 1953), and can provide proof from the president of the Junior College or Technical College, where the course is established, for the expectation of the applicant's graduation and application for a bachelor's degree.

(Note 2) Applicants corresponding to "1. Eligibility for Application (3)" refers to those who have completed a 16-year of curriculum of regular school education in a foreign country. Applicants, who have skipped grade(s), but have completed the 16th year of the curriculum in a country where 16 years are normally required before graduation from a university, are regarded equivalent to the above even if under the age of 22 .

(Note 3) Applicants corresponding to "1. Eligibility for Application (9)" refers to those who wish to transfer from another graduate program currently enrolled via early admission, and can submit "⑭ Certificate of Period of Enrollment in Another Graduate Program" in "(5) Documents Required for Application" of "4. Application Procedures".

(Note 4) Applicants corresponding to "1. Eligibility for Application (10)" refers to those who are judged to be eligible for application after qualification evaluation on the basis of application documents, an academic proficiency test (oral). When the academic ability of the applicants can be ascertained from the submitted documents, the academic proficiency test may be waived.

(Note 5) Applicants "judged to have acquired sufficient credits with excellent academic records from a graduate school", referred to in "1. Eligibility for Application" (11-14), are prescribed separately.

(Note 6) Applicants who have "completed a 15-year curriculum of education in a foreign country", referred to in "1. Eligibility for Application" (12), include those who have completed university education

after skipping grade(s) in a country where it normally takes 15 years of education before graduation from a university.

2. Review of eligibility

For applicants corresponding to “1. Eligibility for Application” (10) to (14), a preliminary review of eligibility will be conducted. Submit the following documents during the period indicated below to: the Graduate School Section, Academic Affairs Division, Graduate School of Natural Science and Technology, Okayama University.

Submission period for eligibility review

October 2019 enrollment (second recruitment)	July 1, 2019
April 2020 enrollment (first recruitment)	~ July 2, 2019
April 2020 enrollment (second recruitment)	December 19, 2019 ~ December 20, 2019

Documents to be submitted for eligibility review

① Form of eligibility for application (see note 1)	Use the provided form [Qualification Review (1)].
② Record of academic performance (see note 1)	Use the provided form [Qualification Review (2)]. Please briefly describe the scientific findings of your past research related to your desired major. Attach a reprint or photocopy of published papers, and a summary or abstract of meeting presentations.
③ Certificate of research participation (see note 1)	Use the provided form [Qualification Review (3)]. This should be filled by your affiliated institution.
④ Academic transcript	Submit a transcript issued by the president or dean of the most recent university from which you graduated.
⑤ Graduation certificate	Submit a certificate issued by the president or dean of the most recent university from which you graduated.
⑥ Statement of purpose (see note 1)	Use the provided form [Qualification Review (6)].
⑦ Additional information (see note 2)	If you possess licenses or certifications related to your field of study, attach a copy on A4 paper with a brief explanation.

(Note 1) Forms ①, ②, ③ and ⑥ are attached to the end of the application form.

(Note 2) Submit only if necessary.

3. For applicants with disabilities

Applicants with disabilities, requiring special support during the entrance examination or graduate study, may consult us before application submission during the period shown below. Please try to make contact early in order to allow enough time for the necessary arrangement to be made and for informing you the outcome.

End of consultation period	October 2019 enrollment (second recruitment)	July 2, 2019
	April 2020 enrollment (first recruitment)	
	April 2020 enrollment (second recruitment)	December 20, 2019
Method of consultation	Request a copy of “Pre-consultation Document for Application”, and submit along with a medical certificate (and a copy of disability certificate if available) for consultation.	
Inquiries	Graduate School Section, Academic Affairs Division, Graduate School of Natural Science and Technology, Okayama University 3-1-1, Tsushimanaka, Kita-ku, Okayama, 700-8530, Japan Phone: 086-251-8576	

4. Application Procedure

(1) Submission methods

Applicants should submit the “Documents Required for Application” in (5) during the “Submission Period for Application” described in (2). Please either deliver the documents to the office (open between 8:30 am and 5:00 pm), or send via “registered express mail”, with “Application Enclosed for the Division of Earth and Planetary Materials Science, Graduate School of Natural Science and Technology, Okayama University,” marked in red on the envelope, ensuring that it arrives before the end of the submission period. Perspective applicants should contact the supervisor he/she wishes to work with in advance to discuss research projects. Those who are interested in organic geochemistry should contact faculty in the Department of Analytical Planetary Chemistry.

(2) Submission period for application

October 2019 enrollment (second recruitment)	August 1, 2019
April 2020 enrollment (first recruitment)	~ August 2, 2019
April 2020 enrollment (second recruitment)	January 30, 2020 ~ January 31, 2020

(3) Submit to:

Graduate School Section, Academic Affairs Division,
Graduate School of Natural Science and Technology,
Okayama University
3-1-1, Tsushimanaka, Kita-ku, Okayama, 700-8530, Japan
Phone: 086-251-8576

(4) Remarks

- ① No revisions of the applications are allowed after submission.
- ② Applications will not be returned for any reason after submission.
- ③ Applications that are incomplete or do not have sufficient application fee payment accompanied will not be accepted.
- ④ In case any of the application materials are found fraudulent, the admission may be revoked even after enrollment.
- ⑤ Certificates with applicant's former name (e.g., maiden name) are acceptable. In this case, please attach a document prepared by the applicant in person, indicating your present and former names, and the date the change took place.

(5) Documents required for application

① Application for admission, Curriculum vitae, Admission ticket for examination	The applicant should fill out, in person, the provided forms.
② Photographs	Submit two portrait photos, sized 4 cm (height) x 3 cm (width), taken within the last three months. It must show the front-facing view of the upper body without a hat. Write your name on the back of the photographs. Glue them on the "Applications for admission" and "admission ticket for examination".
③ Entrance examination fee	30,000yen (handling fees will be charged separately) Please refer to "Paying for Entrance Examination Fees" below and pay the entrance examination fee by 17:00 (Japan time) on the last day of the application period on "Payment for Entrance Examination Fee website". In addition, please be sure to choose "Credit Card" for payment method. Other payment methods cannot use from overseas. After confirming the payment of the entrance examination fee, print "Certificate of Entrance Examination Fee Payment" and attach it to the prescribed section of the prescribed form. "Paying for Entrance Examination Fees" https://www.gnst.okayama-u.ac.jp/en/admission/gnst_dtest_youkoutop_en "Payment for Entrance Examination Fee website" https://e-apply.jp/n/okayama-payment-eng If you could not pay by the payment method above, contact Graduate

③ Entrance examination fee	<p>School Section, Academic Affairs Division, Graduate School of Natural Sciences.</p> <p>Refund of Entrance Examination Fee</p> <p>The entrance examination fee paid is not refundable for any reason, except in the following cases:</p> <p>A. Entrance examination fee was paid, but application was not made (application documents were not submitted or not accepted.)</p> <p>B. Entrance examination fee was accidentally transferred twice.</p> <p>C. Those applicants who are Japanese-government sponsored students need not pay the entrance examination fee, in principle. However, in the case in which the period of their scholarship ends by March 31, 2020 (for April 2020 enrollment) or September 30, 2019 (for October 2019 enrollment), the payment of the entrance examination fee is required. When the extension of the scholarship period is approved, the entrance examination fee will be refunded.</p> <p>D. Those to whom the entrance examination fee exemption described below is applicable paid the entrance examination fee and completed the prescribed application procedures because the acquisition of certificates within the application period was difficult.</p> <p>Entrance examination fee exemption</p> <p>Okayama University offers entrance examination fee exemption for those who fell under the Disaster Relief Law after April 2018 to reduce financial burden and secure an opportunity for advancement.</p>
④ Letters of recommendation	<p>Submission is optional. Consult with the faculty member you plan to work with in advance.</p> <ul style="list-style-type: none"> • Two original letters from two supervisor(s) or equivalent (any format).
⑤ Undergraduate academic transcript (see note)	<p>Submit a certificate issued by the president or dean of the university you attended.</p>
⑥ Graduate school academic transcript (see note)	<p>Submit a certificate issued by the president or dean of the graduate school (for applicants who have attended graduate school).</p>
⑦ Certificate of (expected) graduation (see note)	<p>Submit a certificate issued by the president or dean of the university from which you graduated or expect to graduate.</p>
⑧ Certificate of (expected) completion of graduate program (see note)	<p>Submit a certificate issued by the president or dean of the graduate school (for applicants who have attended graduate school).</p>

⑨ Thesis, etc.	For applicants who have attended graduate school, submit one of the followings: <ul style="list-style-type: none"> • Abstract of Master thesis (about 2,000 words on A4 paper, format not specified) for those who have obtained a Master's degree • Progress report (about 2,000 words on A4 paper, format not specified) and other materials such as meeting presentation materials (if available), for those who expect to complete a Master program, but do not have a Master thesis.
⑩ Research plan	On A4 paper, format not specified.
⑪ Summary of past research	On A4 paper, format not specified.
⑫ Certificate of research participation	Only for applicants corresponding to “1. Applicant Eligibility” (3) or (4). Submit a certificate using the provided form.
⑬ Certificate of bachelor's degree or proof of acceptance of application for the certificate of bachelor's degree	Only for applicants corresponding to “1. Applicant Eligibility” (2). For those who expect to receive a bachelor's degree, submit a certificate of expected graduation for the advanced course enrolled and a proof for the expectation of the applicant's application for a bachelor's degree issued by the president of the Junior College or Technical College (Format unspecified)
⑭ Certificate of the period of attendance in graduate school in another course	Only for applicants corresponding to “1. Applicant Eligibility” (9).
⑮ Sticker of Address	Fill in all necessary information.

(Note) Applicants who were judged to be qualified for application at the “review of eligibility” stage do not need to submit items ⑤ to ⑧. Applicants who graduated or expect to graduate from Okayama University do not need to submit items ⑤ to ⑧.

(6) About the use of personal information

The application documents and personal information contained will be used for the purpose of admission selection. The name and examination number of successful applicants will also be used in the tuition management system. For enrolled students, the personal information from the application documents (e.g. name, sex, date of birth, present address, university graduated) will be registered in the student information system. When requests for applications for admission fee exemption, admission fee deferral and tuition exemption, and application for the Japan Student Services Organization scholarships were made, the scores of the entrance examination and academic transcripts submitted may be used to help judge the academic ability of the applicants.

5. Delivery of admission ticket for the examination

Admission tickets for examination will be sent to your prospective supervisor around date stated below.

Please receive it from your prospective supervisor.

October 2019 enrollment (second recruitment)	August 6, 2019
April 2020 enrollment (first recruitment)	
April 2020 enrollment (second recruitment)	February 4, 2020

6. Selection Method

The selection for admission will be conducted based upon comprehensive review of the submitted documents and the oral examination result. Depending on the review outcome of the documents submitted, applicants may be exempted from oral examination.

Oral examination will be conducted on the following date. Notification of the location will be sent out later by the director of the Division of Earth and Planetary Materials Science.

October 2019 enrollment (second recruitment)	August 26, 2019, 9:30am
April 2020 enrollment (first recruitment)	
April 2020 enrollment (second recruitment)	February 10, 2020, 9:30am

Note 1. The schedule of oral examination is subject to change. Applicant will be notified if this happens.

Note 2. If no information about the date, time, or place of the oral examination has been received by August 21 for August 26 selection or February 5 for February 10 selection, please inquire to the office in charge. (p. 10).

7. Announcement of selection results

The announcement of selection results will be posted as follows. The examination numbers of successful applicants will be posted on the bulletin board. Documentations for admission will be mailed out to the successful applicants on the same day. The examination numbers of successful applicants will subsequently be posted on the web site (<https://www.gnst.okayama-u.ac.jp/admission/>). Telephone inquiries regarding the selection results are not accepted.

	Date	Posting location
October 2019 enrollment (second recruitment)	September 6, 2019, 10:00 am	Bulletin board in front of the administrative office, Graduate School Section, Academic Affairs Division (1st floor, faculty of engineering Bldg. 1), Graduate School of Natural Science and Technology, Okayama University
April 2020 enrollment (first recruitment)		
April 2020 enrollment (second recruitment)	February 28, 2020, 10:00 am	

8. Enrollment procedures

(1) Method of enrollment procedures

Successful applicants will be accepted into the graduate school after having completed the enrollment procedures. Details will be separately informed to successful applicants later.

(2) Period of enrollment procedures

The period for enrollment procedures has been scheduled as follows. However, successful applicants will be informed about details later.

October 2019 enrollment (second recruitment)	September 17, 2019 – September 18, 2019
April 2020 enrollment (first recruitment)	March 13, 2020 – March 16, 2020
April 2020 enrollment (second recruitment)	

9. Others

(1) Expected admission fee and tuition

admission fee ¥282,000

tuition fee ¥267,900 (semester) ¥535,800 (annual)

If the fees are revised at enrollment or during your graduate program, the revised fees will apply from the date of revision. Additional expenses such as Personal Accident Insurance for Students Pursuing Education and Research are also necessary.

(2) Scholarship

In this division, all graduate students who have demonstrated scholastic excellence and also need financial support are eligible to receive IPM's scholarship to cover his/her tuition fee and living expenses. Support for travel fee to Japan is also possible.

(3) For inquiries about your application, contact the following office:

Graduate School Section, Academic Affairs Division,
Graduate School of Natural Science and Technology,
Okayama University

3-1-1, Tsushimanaka, Kita-ku, Okayama, 700-8530, Japan

Phone: 086-251-8576

E-mail: agf8576@adm.okayama-u.ac.jp

III Majors

1. Department of Analytical Planetary Chemistry

Research Areas	Subjects	Instructors
Analytical Planetary Chemistry	Fundamental Earth and Planetary Chemistry	MAKISHIMA Akio, Professor
	Stable Isotope Geo- and Cosmochemistry	MORIGUTI Takuya, Associate Professor
	Chemical Geodynamics	NAKAMURA Eizo, Professor
	Chronology of Earth and Planetary Materials	KOBAYASHI Katsura, Professor
	Origin of Solar System Materials	NAKAMURA Eizo, Professor KUNIHICO Takuya, Associate Professor
	Mantle Geochemistry	TANAKA Ryoji, Professor
	Earth and Planetary Geology	KITAGAWA Hiroshi, Assistant Professor
	Analytical Planetary Chemistry on the Early Solar System	KUNIHICO Takuya, Associate Professor
	Seminar on Analytical Planetary Chemistry	respective faculty members in the department
	Advanced Study in Analytical Planetary Chemistry	respective faculty members in the department
	Guidance in Analytical Planetary Chemistry 1	respective faculty members in the department
	Guidance in Analytical Planetary Chemistry 2	respective faculty members in the department
	Guidance in Analytical Planetary Chemistry 3	respective faculty members in the department

2. Department of Experimental Planetary Physics

Research Areas	Subjects	Instructors
Experimental Planetary Physics	Experimental High-pressure Earth Science	YOSHINO Takashi, Professor
	Rheology	YAMAZAKI Daisuke, Associate Professor
	Crystal Chemistry of Earth and Planetary Materials	KANZAKI Masami, Professor
	Spectroscopic Techniques in Earth and Planetary Sciences	XUE Xianyu, Professor
	Experimental Magmalogy	YAMASHITA Shigeru, Associate Professor
	Volatile Element Geo- and Cosmochemistry	NAKAMURA Eizo, Professor TANAKA Ryoji, Professor
	Planetary Exploration: From Meteorites to the Solar System	IZAWA Matthew, Assistant Professor
	Physics of Liquids at High Pressure	OKUCHI Takuo, Associate Professor
	Seminar on Experimental Planetary Physics	respective faculty members in the department
	Advanced Study in Experimental Planetary Physics	respective faculty members in the department
	Guidance in Experimental Planetary Physics 1	respective faculty members in the department
	Guidance in Experimental Planetary Physics 2	respective faculty members in the department
	Guidance in Experimental Planetary Physics 3	respective faculty members in the department

3. Cooperative Course (Department of Organic Geochemistry)

Research Areas	Subjects	Instructors
Organic Geochemistry	Organic Geo- and Cosmochemistry	NAKAMURA Eizo, Professor MAKISHIMA Akio, Professor
	Analysis of Organic Materials on Earth and Planets	MAKISHIMA Akio, Professor
	C-O-H-N-S Volatiles in Silicate Melts and Crystals	NAKAMURA Eizo, Professor MORIGUTI Takuya, Associate Professor
	Astrobiology	NAKAMURA Eizo, Professor KOBAYASHI Katsura, Professor
	Seminar on Organic Geochemistry	respective faculty members in the department
	Advanced Study in Organic Geochemistry	respective faculty members in the department
	Guidance in Organic Geochemistry 1	respective faculty members in the department
	Guidance in Organic Geochemistry 2	respective faculty members in the department
	Guidance in Organic Geochemistry 3	respective faculty members in the department