

**April 2021 Enrollment**

**Graduate School of Chemical Sciences and Engineering  
Hokkaido University**

**Master's Degree Program  
(Master's Course)**

**[2nd Round of Application]**

# **Application Guidelines**

**(Including International Student Admission Information)**

[Important]

There is a possibility that admission tests may be conducted with different contents from those described in this application guideline to prevent the spread of new coronavirus infection. If there are any changes, they will be posted on our homepage (<http://www.cse.hokudai.ac.jp>), so be sure to check our homepage regularly.

**October 2020**

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## **Overview of the Graduate School of Chemical Sciences and Engineering and the Division of Chemical Sciences and Engineering**

Hokkaido University reorganized the Department of Chemistry in its Graduate School of Science along with three chemistry-related divisions in its Graduate School of Engineering (the divisions of Chemical Process Engineering, Biotechnology and Macromolecular Chemistry, and Materials Chemistry) to form the Graduate School of Chemical Sciences and Engineering and the Division of Chemical Sciences and Engineering in April 2010 (admission quotas in master's course: 129; admission quotas in doctoral course: 38).

In the Graduate School of Chemical Sciences and Engineering, chemistry and biochemistry professors of science and engineering who are affiliated with the Faculty of Science, Faculty of Engineering, Research Institute for Electronic Science, Institute for Genetic Medicine, and the Institute for Catalysis work closely together on research and education activities. Researchers affiliated with the National Institute for Materials Science, National Institute of Advanced Industrial Science and Technology, RIKEN, and the National Cerebral and Cardiovascular Center participate as instructors in related fields. These diversely experienced instructors offer not only specialized lectures in the Molecular Chemistry and Engineering Course, Materials Chemistry and Engineering Course, and Biological Chemistry and Engineering Course established within the Division of Chemical Sciences and Engineering but also a rich diversity of classes, including lectures in English. As a result, they are able to provide instruction and research guidance so that students will be able to view the field of chemistry from both the perspectives of science and engineering and contribute to society in related fields.

### **Educational Goals**

By providing a systematic education that integrates research findings in the various fields of chemistry, such as molecular chemistry, materials chemistry, and biochemistry, the Graduate School of Chemical Sciences and Engineering strives to equip students with both basic and advanced specialized knowledge in the field of chemistry; to cultivate individuals with broad-based knowledge, a strong sense of discernment, and the ability to use their knowledge in practical applications to meet the needs created by trends toward internationalization, advanced developments in science and technology, and interdisciplinary approaches; and to nurture students who have the depth of knowledge and skills necessary for conducting basic and applied research and who will therefore be well equipped to conduct innovative research going forward.

### **Admission Policy**

The Graduate School of Chemical Sciences and Engineering accepts talented applicants who want to learn about the specialized fields of science and engineering and earn their master's or doctoral degrees in the field of integrated chemistry as well as applicants who want to earn their doctoral degrees while continuing their employment. The graduate school also actively accepts international students. Admission periods are in April and October.

The master's course entrance examination consists of written and oral exams in specialized subjects. The examination is administered to measure the applicant's level of knowledge in basic and specialized subjects in his/her field of specialization, but considerations are made to ensure that a wide variety of applicants is accepted.

The doctoral course entrance examination consists of an oral assessment to evaluate the applicant's specialized knowledge and research skills.

Also, in order to demonstrate the required knowledge and skills of English language, applicants are required to provide the score report of English proficiency exam.

In both the master's and doctoral courses, applicants with particularly remarkable academic transcripts or especially impressive research and development experience at their companies or institutions may be exempt from taking the written exam.

# I. General Admission

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## 1. Admission Quotas

Division	No. of Admission Quota	Graduate School Web Site
Chemical Sciences and Engineering	Several	<a href="http://www.cse.hokudai.ac.jp">www.cse.hokudai.ac.jp</a>

Note:

Please contact the research advisor of your first choice Research Lab for details about research field prior to your application.

## 2. Application Qualifications

- (1) Individuals who have graduated or are expected to graduate from a Japanese university by March 2021
- (2) Individuals who have been awarded or expect to be awarded a bachelor's degree pursuant to Article 104, Clause 7, of the School Education Act (Act No. 26, 1947) by March 2021 (hereinafter referred to as "individuals with a bachelor's degree from the National Institution for Academic Degrees and University Evaluation")
- (3) Individuals who have completed or are expected to complete 16 years of school education in a foreign country by March 2021 (hereinafter referred to as "individuals from a foreign educational system")
- (4) Individuals who have completed or are expected to complete 16 years of school education of a foreign country by taking a correspondence course in Japan offered by a school of that foreign country by March 2021 (hereinafter referred to as "individuals from a foreign educational system via correspondence course")
- (5) Individuals who have completed a coursework of a foreign university at an educational institution in Japan that is positioned within the school education system of that foreign country as an educational body with a university course or who are expected to complete such coursework by March 2021 (The completion of the coursework needs to be considered equivalent to the completion of 16 years of school education in that foreign country. In addition, the educational institution is required to be designated by the Japanese Minister of Education, Culture, Sports, Science, and Technology.)  
(Hereinafter referred to as "individuals who have completed coursework in a school designated as equivalent to a university")
- (6) Individuals who have received, or are expected to receive by March 31, 2021, a degree equivalent to a bachelor's degree from a university or a school in a foreign country (which has been evaluated by an authority certified by the government of the country concerned or an authority concerned in regard to the overall performance of its education and research activities, or which has been separately designated by the Minister of Education, Sports, Science and Technology as an educational establishment equivalent to the above) upon completion of a program or a course of study requiring 3 or more years (including completion of a correspondence course of a foreign institute taken in Japan, and completion of a course of study designated in the preceding item at a foreign educational establishment within the public education system of the country concerned).

- (7) Individuals who have completed a specialized course at a specialized training college on or after the date determined by the Japanese Minister of Education, Culture, Sports, Science, and Technology (The course must be designated by the minister, and the course term must be four years or more. It also must meet other standards established by the minister.) and individuals who are expected to complete such a course by March 2021.
- (8) Individuals designated by the Minister of Education, Culture, Sports, Science, and Technology (1953 Notice No. 5, Ministry of Education, Science and Culture)
- (9) Individuals who, by March 2021, have attended a Japanese university for three years or more or individuals who, as of March 2021, meet one of the following:
- Those who have completed 15 years of school education in a foreign country
  - Those who have completed 15 years of school education of a foreign country by taking a correspondence course in Japan offered by a school of that foreign country
  - Those who have completed a coursework of a foreign university at an educational institution in Japan that is positioned within the school education system of that foreign country as an educational body with a university course (The completion of the coursework needs to be considered equivalent to the completion of 15 years of school education in that foreign country. In addition, the educational institution is required to be designated by the Japanese Minister of Education, Culture, Sports, Science, and Technology)

Furthermore, all individuals who apply to this qualification need to be deemed by this graduate school to have achieved excellent grades in the subjects prescribed by Hokkaido University (hereinafter referred to as “individuals who apply through the early admission system”).

- (10) Applicants who are recognized by the graduate school as possessing the equivalent or greater academic skill as that of a Japanese university graduate based on an individualized admission qualification investigation and who will be 22 years of age as of March 31, 2021 (hereinafter referred to as “individuals who apply through an individualized admission qualification investigation”)

Notes:

**If you have any questions regarding the application qualifications, contact the Administration Office of the Graduate School of Chemical Sciences and Engineering (hereafter referred to as “CSE office”).**

### **3. Preliminary Review of Application Qualifications (Application Period, Etc.) December 14 (Mon.) through December 17 (Thu.), 2020**

We will conduct a preliminary review of application qualifications before accepting applications from individuals applying based on the following qualifications:

- (7) Individuals who have completed a specialized course at a specialized training college
- (9) Individuals who apply through the early admission system
- (10) Individuals who apply through an individualized admission qualification investigation

Individuals applying based on the application qualifications listed above should submit the documents indicated in section 5, “Application Documents,” with the exception of item No. 2 (submission form for the validated portion of the prescribed payment slip), during this period.

**The applicant should not pay the examination fee when requesting a preliminary review of application qualifications.** The examination fee is to be paid as per instructions in the notes below. (Documents can be submitted from 9:00 a.m. to 5:00 p.m, on weekdays only. If you send your documents by postal mail, they must be received by the deadline indicated.)

Notes:

The results of the preliminary review of application qualifications will be mailed out around

mid-January 2021. Those who are deemed eligible to apply should pay the examination fee as per section 7, “Examination Fee,” during the period indicated in section 4, “Application Period.” After payment is made, please submit the validated portion (portion E) of the prescribed payment slip to the university. If you do not pay the examination fee by the deadline indicated, your application will not be processed.

Applicants residing outside Japan who are allowed to submit their applications via the Internet should follow the on-screen instructions to arrange payment of the examination fee and the administrative fee (¥500).

**Note that Japanese government (MEXT) scholarship students, China Scholarship Council (CSC) supported students, Hokkaido University President’s Fellowship recipients (as well as those who are expecting to receive one of these scholarships) and Hokkaido University Special Grant Program international students (as well as those who are expecting to receive one of these scholarships) may be exempt from paying the examination fee. If there is a possibility that you will be eligible for an exemption, please contact the CSE office in advance.**

#### 4. Application Period

**January 19 (Tue.) through January 25 (Mon.), 2021**

Individuals applying based on the application qualifications listed below should submit the documents listed in section 5, “Application Documents,” during this application period.

- (1) Individuals who have graduated or expect to graduate from a university by March 2021
- (2) Individuals with a bachelor’s degree from the National Institution for Academic Degrees and University Evaluation
- (3) Individuals from a foreign educational system
- (4) Individuals from a foreign educational system via correspondence course
- (5) Individuals who have completed coursework in a school designated as equivalent to a university
- (6) Individuals who have received a degree equivalent to a bachelor's degree from a foreign university/school
- (8) Individuals designated by the Minister of Education, Culture, Sports, Science, and Technology

If you send your documents by postal mail, it must be received by the deadline indicated.

(Documents can be submitted between 9:00 a.m. and 5:00 p.m. on weekdays only.)

#### 5. Application Documents

No.	Documents to Be Submitted	Application Qualifications				Notes
		(1) (2) (8)	(3) (4) (5) (6) (7)	(9)	(10)	
1	Admission application, resume, examination admission card, and examinee photo card	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Prescribed forms
2	Submission form for the validated portion of the prescribed payment slip	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Prescribed form See section 7, “Examination Fee,” and complete the payment of the examination fee.
3	Transcript from the applicant’s (undergraduate) university or other school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Those who have graduated (or expect to graduate) from a college of technology should submit transcripts of general and advanced courses.

No.	Documents to Be Submitted	Application Qualifications				Notes
		(1) (2) (8)	(3) (4) (5) (6) (7)	(9)	(10)	
4	Certificate of graduation (or expected graduation) or completion (or expected completion)	○	○		○	<p>(a) This is not required of graduates (or prospective graduates) or currently enrolled students of School of Science or School of Engineering, of Hokkaido University.</p> <p>(b) Those who have graduated (or expect to graduate) from a college of technology should submit a certificate of diploma conferment issued by the National Institution for Academic Degree and University Evaluation or a certificate of expected application for diploma conferment issued by the president of the college of technology.</p> <p>(c) Those who graduated or will graduate from a university in People's Republic of China (excluding Hong Kong and Macau) must submit the following documents in addition to a Certificate of (Expected) Graduation.</p> <p>Graduates:</p> <p>a. Online Verification Report of Higher Education Qualification Certificate (教育部学历证书电子注册备案表)</p> <p>b. Graduation Diploma (毕业证书) and Degree Diploma (学位证书)</p> <p>Expected Graduates:</p> <p>a. Online Verification Report of Student Record (教育部学籍在线验证报告)</p> <p>* Obtain documents “a” above by requesting it at “中国高等教育学历证书查询”: <a href="http://www.chsi.com.cn/xlcx/bgys.jsp">http://www.chsi.com.cn/xlcx/bgys.jsp</a>.</p> <p>Also, be sure that there are 15 or more days left until the expiration date of the online verification at the time of its submission.1</p>
5	Certificate of enrollment			○		
6	Envelope in which the examination admission card is to be mailed	○	○	○	○	<p>Prescribed envelope</p> <p>(a) Write your name, address, and postal code on the envelope provided and affix ¥384 worth of postage stamps to it.</p> <p>(b) If your address changes after you submit your application, be sure to inform the CSE office.</p>
7	Contact information stickers used to mail the notification of examination results and other information	○	○	○	○	<p>Prescribed form</p> <p>(a) Write your name, address, and postal code on the stickers.</p> <p>(b) If your address changes after you submit your application, be sure to inform the CSE office.</p>
8	Research laboratory preference indication form	○	○	○	○	<p>Prescribed form</p> <p>Select and indicate the order of your laboratory preferences (top five) from the “List of Instructors and Their Fields of Research.”</p>
9	Letter of recommendation from your academic advisor at the last school attended, etc.			○		Unspecified format
10	Envelope in which preliminary review results are to be mailed to the applicant		△	○	○	A Japanese standard-sized, self-addressed envelope bearing ¥84 in postage is required.

No.	Documents to Be Submitted	Application Qualifications				Notes
		(1) (2) (8)	(3) (4) (5) (6) (7)	(9)	(10)	
11	A copy of your Residence card	△	△	△	△	This is required only for international student applicants. Those who live outside of Japan should submit a copy of their passport.
12	Certificate of completion or withdrawal from a graduate school, and a graduate school transcript	△	△	△	△	This is required only for international student applicants who have been enrolled in a graduate school program at some point in the past.
13	Letter of approval for taking the entrance examination	△	△	△	△	Unspecified format This is required only for currently employed public officials who are expecting to remain employed while attending. The letter must be issued by someone who has authority over human resource matters at their place of employment.
14	A document verifying that the applicant possesses the equivalent or greater academic skill as that of a university graduate				○	Unspecified format Example: Documents explaining the applicant's international activities, practical experience, history of learning languages, etc.; research papers; patent reports; documents indicating the acquisition of various certificates; and recommendation letters from relevant professors

**Note:** ○ indicates that the document is required;

△ indicates that the document only needs to be submitted by specified individuals.

## 6. Where to Apply

Administration Office, Graduate School of Chemical Sciences and Engineering, Hokkaido University (CSE Office)

Kita 13, Nishi 8, Kita-ku, Sapporo, 060-8628 Japan

Tel :(+81)-11-706-7246

Note:

If your application is submitted by postal mail, **be sure to use registered mail and write “Graduate School Admission Application” in red** on the front of the envelope.

## 7. Examination Fee

¥30,000

- (a) **Japanese government (MEXT) scholarship students, China Scholarship Council (CSC) supported students, Hokkaido University President's Fellowship recipients (as well as those who are expecting to receive one of these scholarships) and Hokkaido University Special Grant Program international students (as well as those who are expecting to receive one of these scholarships) may be exempt from paying the examination fee. If there is a possibility that you will be eligible for an exemption, please contact the CSE office in advance.**
- (b) Applicants should pay the examination fee at a bank or other financial institution (including Japan Post Bank) in Japan using the enclosed prescribed payment slip and attach the validated portion (portion E) of the payment slip to the submission form. Applicants residing outside Japan and admitted to apply via Internet should follow the on-screen instructions to arrange for payment of examination fee and the administrative fee (¥500).
- (c) In principle, entrance examination fees are not refundable. Only the following cases are

refundable:

- If an individual paid the examination fee but did not apply for admission (did not submit an application or submitted an application that was not accepted).
- If the examination fee was accidentally paid twice.
- If an individual, who is not required to pay the examination fee has made payment.

## 8. Submission of English Scores

It is not necessary to submit the score sheet of the English external examination.

## 9. Selection Method

Admission decisions will be made comprehensively based on the examination results (written and oral), academic transcript, etc.

## 10. Examination Schedule, Etc.

### March 1 (Mon.), 2021

Note:

The oral examination schedule, examination venue, and other details will be provided when the examination admission card is sent out.

Exam Date	Time	Examination Subject	Examination Venue
Mar. 1 (Mon.)	10:00 to 11:30 a.m.	Specialized subject (Comprehensive Basic Chemistry)	To be specified when the examination admission card is sent out
	1:00 p.m.	Oral examination	

## 11. Announcement of the result

The examination admission numbers of those who passed the examination will be posted in the entrance hall of the School of Engineering, the first-floor hall of the School of Science Bldg. 2, and the first-floor hall of the School of Engineering's Materials Engineering and Chemistry Bldg. at 4:30 p.m. (tentatively) on **March 10 (Wed.), 2021**. In addition, all examinees will be notified of their results individually.

(Information about whether an applicant has passed or failed the examination will not be provided over the phone.)

## 12. Enrollment Procedures and Expenses

Details regarding enrollment procedures are provided in the notifications mailed to those who have been accepted.

Enrollment fee (expected): ¥282,000

First semester tuition for academic year 2021 (expected): ¥267,900

(total annual amount (expected): ¥535,800)

Notes:

1. If any revision is made while the student is enrolled, the new amount will be applied from the time of the revision.
2. If the enrollment fee is not paid during the admission procedure period, the applicant will be treated as having no intent to enroll.
3. If tuition is not paid for one semester, the student will be expelled, and his/her record of enrollment will be deleted. If you are having problems paying tuition due to financial hardship, you may be eligible for a tuition exemption or deferral.

### 13. Important Notes

- (1) Be sure to bring your examination admission card with you on the day of the entrance examination and place it on your desk.
- (2) Incomplete applications may not be accepted. Be sure that there are no errors in your application.
- (3) If the name on your certificate of graduation or other documents is different from your current name, for example, your surname has changed, attach a certificate of family registry or other official document that verifies the change.
- (4) If any falsified information is found in the application documents, the applicant's admission may be revoked.
- (5) Our graduate school generally does not allow dual enrollment.

### 14. Long-Term Study Program

Our graduate school has a long-term study system. Those wishing to take advantage of this system should carefully read and follow the application instructions in the section entitled "Information on the Long-Term Study Program" on page 19.

### 15. Others

- (1) Examination admission cards will be sent out in **mid-February 2021** to those whose applications have been accepted.
- (2) Applicants who are physically disabled and who may need special accommodations to take examinations and attend classes should notify the CSE office of their condition by January 18 (Mon.), 2021.
- (3) If you wish to receive a copy of the application guidelines by mail, send a self-addressed stamped envelope with your request. (The envelope should be large enough to fit an A4-sized booklet and be stamped with ¥250 worth of postage stamps or ¥540 if you prefer express delivery.)  
Address the outer envelope to CSE office and write "Request for Master's Degree Program Application Guidelines" in red on the front. Also enclose a note indicating the telephone number where you can be reached.

If you have any questions regarding the application process, contact the office below.

Administration Office, Graduate School of Chemical Sciences and Engineering, Hokkaido University  
(CSE Office)

Kita 13, Nishi 8, Kita-ku, Sapporo, 060-8628 Japan

Tel: (+81)-11-706-7246

## II-1. International Student Admission (For Residents in Foreign Countries)

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### 1. Admission Quotas

Division	No. of Admission Quota	Graduate School Web Site
Chemical Sciences and Engineering	Several	<a href="http://www.cse.hokudai.ac.jp">www.cse.hokudai.ac.jp</a>

### 2. Application Qualifications

Individuals who are recognized as possessing the skills and capabilities required based on a recommendation from a specialized professor (hereinafter referred to as “the prospective supervisor”) in our graduate school whom the applicant would like to have as his/her research advisor after enrollment and individuals who fulfill one of the following application qualifications:

- (1) Individuals who have completed or are expected to complete 16 years of school education in a foreign country by March 2021
- (2) Individuals who have completed or are expected to complete 16 years of school education of a foreign country by taking a correspondence course in Japan offered by a school of that foreign country by March 2021
- (3) Individuals who have completed a coursework of a foreign university at an educational institution in Japan that is positioned within the school education system of that foreign country as an educational body with a university course or who are expected to complete such coursework by March 2021 (The completion of the coursework needs to be considered equivalent to the completion of 16 years of school education in that foreign country. In addition, the educational institution is required to be designated by the Japanese Minister of Education, Culture, Sports, Science, and Technology.)
- (4) Individuals who have received, or are expected to receive by March 31, 2021, a degree equivalent to a bachelor’s degree from a university or a school in a foreign country (which has been evaluated by an authority certified by the government of the country concerned or an authority concerned in regard to the overall performance of its education and research activities, or which has been separately designated by the Minister of Education, Sports, Science and Technology as an educational establishment equivalent to the above) upon completion of a program or a course of study requiring 3 or more years (including completion of a correspondence course of a foreign institute taken in Japan, and completion of a course of study designated in the preceding item at a foreign educational establishment within the public education system of the country concerned).
- (5) Individuals who, by March 2021, have attended a university for three years or more or individuals who, as of March 2021, meet one of the following:
  - Those who have completed 15 years of school education in a foreign country
  - Those who have completed 15 years of school education of a foreign country by taking a correspondence course in Japan offered by a school of that foreign country
  - Those who have completed a coursework of a foreign country at an educational institution in Japan that is positioned within the school education system of that foreign country as an educational body with a university course (The completion of the coursework needs to be considered equivalent to the completion of 15 years of school education in that foreign country.

In addition, the educational institution is required to be designated by the Japanese Minister of Education, Culture, Sports, Science, and Technology.)

Furthermore, all individuals who apply to this qualification need to be deemed by this graduate school to have achieved excellent grades in the subjects prescribed by Hokkaido University

- (6) Applicants who are recognized by the graduate school as possessing the equivalent or greater academic skill as that of a university graduate based on an individualized admission qualification investigation and who will be 22 years of age as of March 31, 2021

Notes:

- 1. Applicants must contact their prospective supervisor in advance.**
- 2. If you have any questions regarding the application qualifications, contact the Administration Office of the Graduate School of Chemical Sciences and Engineering (hereafter referred to as “CSE office”).**

### **3. Preliminary Review of Application Qualifications (Application Period, Etc.)**

**October 30 (Fri.) through November 5 (Thu.), 2020**

We will conduct a preliminary review of application qualifications before accepting applications from individuals applying based on the above-mentioned application qualification (5) or (6). The applicants should submit the documents indicated in section 5, “Application Documents,” with the exception of item No. 2 (submission form for the validated portion of the prescribed payment slip), during this period.

**The applicant should not pay the examination fee when requesting a preliminary review of application qualifications.** The examination fee is to be paid as per instructions in the notes below.

(Documents can be submitted from 9:00 a.m. to 5:00 p.m., on weekdays only. If you send your documents by postal mail, they must be received by the deadline indicated.)

Notes:

The results of the preliminary review of application qualifications will be mailed out around mid-November 2020. Those who are deemed eligible to apply should pay the examination fee as per section 7, “Examination Fee,” during the period indicated in section 4, “Application Period.” After payment is made, please submit the validated portion (portion E) of the prescribed payment slip to the university. If you do not pay the examination fee by the deadline indicated, your application will not be processed.

Applicants residing outside Japan who are allowed to submit their applications via the Internet should follow the on-screen instruction to arrange payment of the examination fee and the administrative fee (¥500).

**Note that Japanese government (MEXT) scholarship students, China Scholarship Council (CSC) supported students, Hokkaido University President’s Fellowship recipients (as well as those who are expecting to receive one of these scholarships) and Hokkaido University Special Grant Program international students (as well as those who are expecting to receive one of these scholarships) may be exempt from paying the examination fee. If there is a possibility that you will be eligible for an exemption, please contact the CSE office in advance.**

### **4. Application Period**

**November 16 (Mon.) through November 20 (Fri.), 2020**

If you send your application by mail, it must be received during this application period. (Documents can be submitted between 9:00 a.m. and 5:00 p.m. on weekdays only.)

## 5. Application Documents

No.	Documents to Be Submitted	Notes
1	Admission application, resume, examination admission card, and examinee photo card	Prescribed forms
2	Submission form for the validated portion of the prescribed payment slip	Prescribed form See section 7, "Examination Fee," and complete the payment of the examination fee.
3	A recommendation letter from your prospective supervisor	Unspecified format
4	A transcript from the applicant's (undergraduate) university	
5	A certificate of graduation (or expected graduation)	Those who graduated or will graduate from a university in People's Republic of China (excluding Hong Kong and Macau) must submit the following documents in addition to a Certificate of (Expected) Graduation. Graduates: a. Online Verification Report of Higher Education Qualification Certificate (教育部学历证书电子注册备案表) b. Graduation Diploma (毕业证书) and Degree Diploma (学位证书) Expected Graduates: a. Online Verification Report of Student Record (教育部学籍在线验证报告) * Obtain documents "a" above by requesting it at "中国高等教育学历证书查询": <a href="http://www.chsi.com.cn/xlcx/bgys.jsp">http://www.chsi.com.cn/xlcx/bgys.jsp</a> . Also, be sure that there are 15 or more days left until the expiration date of the online verification at the time of its submission.1
6	A recommendation letter from your academic advisor at the last university attended	Unspecified format
7	Certificate of completion or withdrawal from a graduate school, and a graduate school transcript	This is required only if you had enrolled in a graduate school program in the past.
8	A copy of your passport	
9	Other required documents from the accepting professor	

## 6. Where to Apply

Administration Office, Graduate School of Chemical Sciences and Engineering, Hokkaido University (CSE Office)

Kita 13, Nishi 8, Kita-ku, Sapporo, 060-8628 Japan

Tel: 011-706-7246

Note:

If your application is submitted by postal mail, **be sure to use registered mail and write "Graduate School Admission Application" in red** on the front of the envelope.

## 7. Examination Fee

¥30,000

- (a) **Japanese government (MEXT) scholarship students, China Scholarship Council (CSC) supported students, Hokkaido University President's Fellowship recipients (as well as those who are expecting to receive one of these scholarships) and Hokkaido University Special Grant Program international students (as well as those who are expecting to receive one of these scholarships) may be exempt from paying the examination fee. If there is a possibility that you**

**will be eligible for an exemption, please contact the CSE office in advance.**

- (b) Applicants should pay the examination fee at a bank or other financial institution (including Japan Post Bank) in Japan using the enclosed prescribed payment slip and attach the validated portion (portion E) of the payment slip to the submission form. Applicants residing outside Japan and admitted to apply via Internet should follow the on-screen instruction to arrange for payment of examination fee and the administrative fee (¥500).
- (c) In principle, entrance examination fees are not refundable. Only the following cases are refundable:
- If an individual paid the examination fee but did not apply for admission (did not submit an application or submitted an application that was not accepted)
  - If the examination fee was accidentally paid twice
  - If an individual, who is not required to pay the examination fee has made payment.

Note:

For more detailed information on the methods of paying the examination fee, contact your accepting professor.

## **8. Submission of English Scores**

It is not necessary to submit the score sheet of the English external examination.

## **9. Selection Method**

Admission decisions will be made based on a comprehensive review of the applicant's knowledge of the subject matter, etc.

**If you apply for a special program approved by the Graduate School of Chemical Sciences and Engineering, you may be exempt from taking the entrance examination, and thus may only be subject to the document review.**

## **10. Examination Schedule, Etc.**

**December 18 (Fri.), 2020**

Note:

The oral examination schedule, examination venue, and other details will be provided when the examination admission card is sent out.

Examination Date	Time	Examination Subject	Examination Venue
Dec. 18 (Fri.)	9:00 a.m. or 1:00 p.m.	Oral Examination	To be specified when the examination admission card is sent out

## **11. Announcements of the Result**

The examination admission numbers of those who passed the examination will be posted in the entrance hall of the School of Engineering, the first-floor hall of the School of Science Bldg. 2, and the first-floor hall of the School of Engineering's Materials Engineering and Chemistry Bldg. at 4:30 p.m. (tentatively) on **February 4 (Thu.), 2021**. In addition, all examinees will be notified of their results individually.

(Information about whether an applicant has passed or failed the examination will not be provided over the phone.)

## 12. Enrollment Procedures and Expenses

Details regarding enrollment procedures are provided in the notifications mailed to those who have been accepted.

Enrollment fee (expected): ¥282,000

First semester tuition for academic year 2021 (expected): ¥267,900

(total annual amount (expected): ¥535,800)

Notes:

1. If any revision is made while the student is enrolled, the new amount will be applied from the time of the revision.
2. If the enrollment fee is not paid during the admission procedure period, the applicant will be treated as having no intent to enroll.
3. If tuition is not paid for one semester, the student will be expelled, and his/her record of enrollment will be deleted. If you are having problems paying tuition due to financial hardship, you may be eligible for a tuition exemption or deferral.

## 13. Important Notes

- (1) Be sure to bring your examination admission card with you on the day of the entrance examination and place it on your desk.
- (2) Incomplete applications may not be accepted. Be sure that there are no errors in your application.
- (3) If any falsified information is found in the application documents, the applicant's admission may be revoked.
- (4) Our graduate school generally does not allow dual enrollment.

## 14. Long-Term Study Program

Our graduate school has a long-term study system. Those wishing to take advantage of this system should carefully read and follow the application instructions in the section entitled "Information on the Long-Term Study Program" on page 19.

## 15. Others

- (1) Examination admission cards will be sent out in **Late November 2020** to those whose applications have been accepted.
- (2) Applicants who are physically disabled and who may need special accommodations to take examinations and attend classes should notify the CSE office of their condition by November 20 (Fri.), 2020.

If you have any questions regarding the application process, contact the office below.

Administration Office, Graduate School of Chemical Sciences and Engineering, Hokkaido University  
(CSE Office)

Kita 13, Nishi 8, Kita-ku, Sapporo, 060-8628 Japan

Tel: +81-11-706-7246

## II-2. International Student Admission (For Residents in Japan and foreign countries)

[Important] There is a possibility that admission tests may be conducted with different contents from those described in this application guideline to prevent the spread of new coronavirus infection. If there are any changes, they will be posted on our homepage (<http://www.cse.hokudai.ac.jp>), so be sure to check our homepage regularly.

### 1. Admission Quotas

Division	No. of Admission Quota	Graduate School Web Site
Chemical Sciences and Engineering	Several	<a href="http://www.cse.hokudai.ac.jp">www.cse.hokudai.ac.jp</a>

### 2. Application Qualifications

Individuals who are recognized as possessing the skills and capabilities required based on a recommendation from a specialized professor (hereinafter referred to as “the prospective supervisor”) in our graduate school whom the applicant would like to have as his/her research advisor after enrollment and individuals who fulfill one of the following application qualifications:

- (1) Individuals who have completed or are expected to complete 16 years of school education in a foreign country by March 2021
- (2) Individuals who have completed or are expected to complete 16 years of school education of a foreign country by taking a correspondence course in Japan offered by a school of that foreign country by March 2021
- (3) Individuals who have completed a coursework of a foreign university at an educational institution in Japan that is positioned within the school education system of that foreign country as an educational body with a university course or who are expected to complete such coursework by March 2021 (The completion of the coursework needs to be considered equivalent to the completion of 16 years of school education in that foreign country. In addition, the educational institution is required to be designated by the Japanese Minister of Education, Culture, Sports, Science, and Technology.)
- (4) Individuals who have received, or are expected to receive by March 31, 2021, a degree equivalent to a bachelor’s degree from a university or a school in a foreign country (which has been evaluated by an authority certified by the government of the country concerned or an authority concerned in regard to the overall performance of its education and research activities, or which has been separately designated by the Minister of Education, Sports, Science and Technology as an educational establishment equivalent to the above) upon completion of a program or a course of study requiring 3 or more years (including completion of a correspondence course of a foreign institute taken in Japan, and completion of a course of study designated in the preceding item at a foreign educational establishment within the public education system of the country concerned).
- (5) Individuals who, by March 2021, have attended a university for three years or more or individuals who, as of March 2021, meet one of the following:
  - Those who have completed 15 years of school education in a foreign country
  - Those who have completed 15 years of school education of a foreign country by taking a correspondence course in Japan offered by a school of that foreign country
  - Those who have completed a coursework of a foreign country at an educational institution in Japan that is positioned within the school education system of that foreign country as an educational body with a university course (The completion of the coursework needs to be considered equivalent to the completion of 15 years of school education in that foreign country.

In addition, the educational institution is required to be designated by the Japanese Minister of Education, Culture, Sports, Science, and Technology.)

Furthermore, all individuals who apply to this qualification need to be deemed by this graduate school to have achieved excellent grades in the subjects prescribed by Hokkaido University

- (6) Applicants who are recognized by the graduate school as possessing the equivalent or greater academic skill as that of a university graduate based on an individualized admission qualification investigation and who will be 22 years of age as of March 31, 2021

Notes:

- 1. Applicants must contact their prospective supervisor in advance.**
- 2. If you have any questions regarding the application qualifications, contact the Administration Office of the Graduate School of Chemical Sciences and Engineering (hereafter referred to as “CSE office”).**

### **3. Preliminary Review of Application Qualifications (Application Period, Etc.) December 14 (Mon.) through December 17 (Thu.), 2020**

We will conduct a preliminary review of application qualifications before accepting applications from individuals applying based on the above-mentioned application qualification (5) or (6). The applicants should submit the documents indicated in section 5, “Application Documents,” with the exception of item No. 2 (submission form for the validated portion of the prescribed payment slip), during this period.

**The applicant should not pay the examination fee when requesting a preliminary review of application qualifications.** The examination fee is to be paid as per instructions in the notes below.

(Documents can be submitted from 9:00 a.m. to 5:00 p.m, on weekdays only. If you send your documents by postal mail, they must be received by the deadline indicated.)

Notes:

The results of the preliminary review of application qualifications will be mailed out around mid-January 2021. Those who are deemed eligible to apply should pay the examination fee as per section 7, “Examination Fee,” during the period indicated in section 4, “Application Period.” After payment is made, please submit the validated portion (portion E) of the prescribed payment slip to the university. If you do not pay the examination fee by the deadline indicated, your application will not be processed.

Applicants residing outside Japan who are allowed to submit their applications via the Internet should follow the on-screen instruction to arrange payment of the examination fee and the administrative fee (¥500).

**Note that Japanese government (MEXT) scholarship students, China Scholarship Council (CSC) supported students, Hokkaido University President’s Fellowship recipients (as well as those who are expecting to receive one of these scholarships) and Hokkaido University Special Grant Program international students (as well as those who are expecting to receive one of these scholarships) may be exempt from paying the examination fee. If there is a possibility that you will be eligible for an exemption, please contact the CSE office in advance.**

### **4. Application Period**

**January 19 (Tue.) through January 25 (Mon.), 2021**

If you send your application by mail, it must be received during this application period. (Documents can be submitted between 9:00 a.m. and 5:00 p.m. on weekdays only.)

## 5. Application Documents

No.	Documents to Be Submitted	Notes
1	Admission application, resume, examination admission card, and examinee photo card	Prescribed forms
2	Submission form for the validated portion of the prescribed payment slip	Prescribed form See section 7, "Examination Fee," and complete the payment of the examination fee.
3	A recommendation letter from your prospective supervisor	Unspecified format
4	A transcript from the applicant's (undergraduate) university	
5	A certificate of graduation (or expected graduation)	Those who graduated or will graduate from a university in People's Republic of China (excluding Hong Kong and Macau) must submit the following documents in addition to a Certificate of (Expected) Graduation. Graduates: a. Online Verification Report of Higher Education Qualification Certificate (教育部学历证书电子注册备案表) b. Graduation Diploma (毕业证书) and Degree Diploma (学位证书) Expected Graduates: a. Online Verification Report of Student Record (教育部学籍在线验证报告) * Obtain documents "a" above by requesting it at "中国高等教育学历证书查询": <a href="http://www.chsi.com.cn/xlcx/bgys.jsp">http://www.chsi.com.cn/xlcx/bgys.jsp</a> . Also, be sure that there are 15 or more days left until the expiration date of the online verification at the time of its submission.1
6	A recommendation letter from your academic advisor at the last university attended	Unspecified format
7	Envelope in which the examination admission card is to be mailed	(Not required for those who live outside of Japan) Prescribed envelope (a) Write your name, address, and postal code on the envelope provided and affix ¥384 worth of postage stamps to it. (b) If your address changes after you submit your application, be sure to inform the CSE office.
8	Contact information stickers used to mail the notification of examination results and other information	(Not required for those who live outside of Japan) Prescribed form (a) Write your name, address, and postal code on the stickers. (b) If your address changes after you submit your application, be sure to inform the CSE office.
9	Envelope in which preliminary review results are to be mailed to the applicant	(Not required for those who live outside of Japan) A Japanese standard-sized, self-addressed envelope bearing ¥84 in postage is required.
10	Certificate of completion or withdrawal from a graduate school, and a graduate school transcript	This is required only if you had enrolled in a graduate school program in the past.
11	A copy of your residence card or passport.	A copy of your residence card (for residences in Japan) or your passport (for residences in foreign countries)
12	Other required documents from the accepting professor	

## 6. Where to Apply

Administration Office, Graduate School of Chemical Sciences and Engineering, Hokkaido University (CSE Office)

Kita 13, Nishi 8, Kita-ku, Sapporo, 060-8628 Japan

Tel: 011-706-7246

Note:

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¥30,000

- (a) **Japanese government (MEXT) scholarship students, China Scholarship Council (CSC) supported students, Hokkaido University President’s Fellowship recipients (as well as those who are expecting to receive one of these scholarships) and Hokkaido University Special Grant Program international students (as well as those who are expecting to receive one of these scholarships) may be exempt from paying the examination fee. If there is a possibility that you will be eligible for an exemption, please contact the CSE office in advance.**
- (b) Applicants should pay the examination fee at a bank or other financial institution (including Japan Post Bank) in Japan using the enclosed prescribed payment slip and attach the validated portion (portion E) of the payment slip to the submission form. Applicants residing outside Japan and admitted to apply via Internet should follow the on-screen instruction to arrange for payment of examination fee and the administrative fee (¥500).
- (c) In principle, entrance examination fees are not refundable. Only the following cases are refundable:
- If an individual paid the examination fee but did not apply for admission (did not submit an application or submitted an application that was not accepted)
  - If the examination fee was accidentally paid twice
  - If an individual, who is not required to pay the examination fee has made payment.

Note:

For more detailed information on the methods of paying the examination fee, contact your accepting professor.

## 8. Submission of English Scores

It is not necessary to submit the score sheet of the English external examination.

## 9. Selection Method

Admission decisions will be made based on a comprehensive review of the applicant’s knowledge of the subject matter, etc.

**If you apply for a special program approved by the Graduate School of Chemical Sciences and Engineering, you may be exempt from taking the entrance examination, and thus may only be subject to the document review.**

## 10. Examination Schedule, Etc.

**March 1 (Mon.), 2021**

Note:

The oral examination schedule, examination venue, and other details will be provided when the examination admission card is sent out.

Examination Date	Time	Examination Subject	Examination Venue
Mar. 1 (Mon.)	9:00 a.m. or 1:00 p.m.	Oral Examination	To be specified when the examination admission card is sent out

## 11. Announcements of the Result

The examination admission numbers of those who passed the examination will be posted in the entrance hall of the School of Engineering, the first-floor hall of the School of Science Bldg. 2, and the first-floor hall of the School of Engineering's Materials Engineering and Chemistry Bldg. at 4:30 p.m. (tentatively) on **March 10 (Wed.), 2021**. In addition, all examinees will be notified of their results individually.

(Information about whether an applicant has passed or failed the examination will not be provided over the phone.)

## 12. Enrollment Procedures and Expenses

Details regarding enrollment procedures are provided in the notifications mailed to those who have been accepted.

Enrollment fee (expected): ¥282,000

First semester tuition for academic year 2021 (expected): ¥267,900

(total annual amount (expected): ¥535,800)

Notes:

1. If any revision is made while the student is enrolled, the new amount will be applied from the time of the revision.
2. If the enrollment fee is not paid during the admission procedure period, the applicant will be treated as having no intent to enroll.
3. If tuition is not paid for one semester, the student will be expelled, and his/her record of enrollment will be deleted. If you are having problems paying tuition due to financial hardship, you may be eligible for a tuition exemption or deferral.

## 13. Important Notes

- (1) Be sure to bring your examination admission card with you on the day of the entrance examination and place it on your desk.
- (2) Incomplete applications may not be accepted. Be sure that there are no errors in your application.
- (3) If any falsified information is found in the application documents, the applicant's admission may be revoked.
- (4) Our graduate school generally does not allow dual enrollment.

## 14. Long-Term Study Program

Our graduate school has a long-term study system. Those wishing to take advantage of this system should carefully read and follow the application instructions in the section entitled "Information on the Long-Term Study Program" on page 19.

## 15. Others

- (1) Examination admission cards will be sent out in **mid-February 2021** to those whose applications have been accepted.
- (2) Applicants who are physically disabled and who may need special accommodations to take examinations and attend classes should notify the CSE office of their condition by January 18 (Mon.), 2021.

If you have any questions regarding the application process, contact the office below.

Administration Office, Graduate School of Chemical Sciences and Engineering, Hokkaido University  
(CSE Office)

Kita 13, Nishi 8, Kita-ku, Sapporo, 060-8628 Japan Tel: +81-11-706-7246

# **Information on the Long-Term Study Program**

## **1. Overview**

This system is available to students who would not be able to complete the program within the standard course term (two years) due to full-time employment or other circumstances (including responsibilities related to the care of elderly or disabled family members or the raising of children) and therefore want a longer period of time to conduct their studies systematically. Students must file an application and may be approved for a systematically planned course of study (hereinafter referred to as “long-term study”) after an individual review.

## **2. Eligibility**

Individuals who are applying for the long-term study program must meet one of the terms listed below, be unable to make a commitment to full-time studies as a consequence of the circumstances described, and would therefore like to extend in advance the number of years over which they will conduct their studies (research).

- (1) Individuals who are engaged in full-time employment, such as those currently employed by government agencies or companies (excluding those who will continue to receive salaries while being relieved of their work duties), and self-employed individuals
- (2) Individuals who are engaged in temporary or part-time employment that is deemed by this graduate school to adversely affect their studies
- (3) Individuals who have responsibilities, such as raising children or caring for other family members, that are deemed by this graduate school to adversely affect their studies to the same degree as the responsibilities listed in item (2) above

## **3. Enrollment Period**

The allowable length of period under the long-term study program is up to four years for the master’s degree program. Study periods for long-term study applicants are approved in one-year increments.

The maximum length of enrollment (including the period for time off, etc.) for a student who has been approved for long-term study is up to an additional two years beyond the approved long-term study period in the master’s degree program, the same maximum length of time as students under the standard term of study.

The period of time off that this graduate school will allow is the same for students under either the standard term of study or long-term study program, i.e., two years for master’s students.

## **4. Application Procedures**

### **(1) Application Deadline**

In general, those wishing to apply for the long-term study program should apply at the time they submit their admission applications.

### **(2) Submission of Documents**

Submit the following documents to CSE Office

- (a) An application for long-term study (form 1)
- (b) A long-term study plan (form 2)
- (c) Documents verifying your reasons for needing long-term study approval

### **(3) Review and Notification of Results**

Applications for the long-term study program will be reviewed by the graduate school, and

applicants will be notified of the results of that review.

(Notification of results: mid-March [tentatively])

## **5. Contraction or Extension of the Long-Term Study Period**

If deemed necessary by the graduate school, approval may be granted for a contraction or extension of the long-term study period once, and only once, during the student's period of enrollment. However, the long-term study period can only be contracted from four years to three years (one year beyond the standard two-year course term).

## **6. Tuition**

The tuition of students who have been approved for the long-term study program shall be calculated in annual amounts by dividing the total tuition for the standard term of study (annual tuition  $\times$  2 years) by the number of years for which the long-term study has been approved. In cases where the tuition amount is revised or a change to the long-term study period is approved, tuition will be recalculated at that time. However, any tuition already paid will not be adjusted retroactively.

**\*Be sure not to pay the tuition for your current term of study until you are notified of whether your application for the long-term study program or a change thereof has been approved.**

## **7. Other**

To request an application form or clarify any issues, contact CSE Office

## Handling of Personal Information

- (1) All personal information collected by Hokkaido University will be completely protected in compliance with the Act on the Protection of Personal Information Held by Independent Administrative Agencies, etc., and other related acts and pursuant to the Hokkaido University Personal Information Management Regulations.
- (2) Names, addresses, and other personal information provided to the university through application procedures will be used solely for (a) enrollee selection, (b) the announcement of exam results, (c) admission procedures, (d) surveys and research on enrollee selection methods, and (e) related processes.
- (3) Some of these processes may be outsourced by the university to a contracted service provider (hereinafter referred to as “contractor”). All or some of the personal information provided by applicants may be provided to the contractor only as needed to perform the tasks for which it has been contracted.
- (4) Personal information obtained through application procedures will be used only for those who are admitted for (a) school administration purposes (student registration, academic counseling, etc.), (b) student support services (health management, scholarship applications, etc.), and (c) tuition and other administrative purposes.
- (5) Of the personal information described in item (4) above, only names and addresses will be used to facilitate communication with students from the Hokkaido University Frontier Foundation and organizations related to Hokkaido University, such as (a) the Hokkaido University Athletic Union, and (b) the Hokkaido University School of Engineering and School of Science Alumni Association.

Graduate School of Chemical Sciences and Engineering, Hokkaido University

## List of Instructors and Their Fields of Research

Molecular Chemistry and Engineering Course					
No.	Laboratory		Staff	Research Contents	Faculty
<b>Microscopic Chemical Analyses Unit</b>					
01	Quantum Chemistry	Professor	Tetsuya TAKETSUGU	Development of "Predictive" Chemical Theory for Reaction, Electron, and Spectroscopy and programs, as well as advanced computational chemistry applications. First-principle excited-state reaction dynamics, theory-guiding catalytic design with element strategy, development of a large-scale electronic structure theory, near-field molecular theory, reaction informatics.	Faculty of Science
		Lecturer	Masato KOBAYASHI		
		Assistant Professor	Takeshi IWASA		
02	Theoretical Chemistry	Professor	Satoshi MAEDA	Development of new theories and computational programs aimed at predicting reaction pathways in molecules and materials, and their applications. The main targets of the applications are organic reaction, photoreaction, enzyme reaction, catalysis, and crystal phase transition.	Faculty of Science
		Associate Professor	Keisuke TAKAHASHI		
		Assistant Professor	Yu HARABUCHI		
03	Physical Chemistry	Professor	Kei MURAKOSHI	Surface electrochemistry: detection, characterization and photoexcitation of target molecules on solid surfaces under electrochemical potential control for novel photoenergy conversion systems and interdigit devices. Electrochemical synthesis of nano-materials with well-defined defect density, heteroatom insertion, and chirality for novel catalysis.	Faculty of Science
		Assistant Professor	Hiro MINAMIMOTO		
		Assistant Professor	Tomohiro FUKUSHIMA		
		Assistant Professor	Xiaowei LI		
		Assistant Professor	Ruifeng ZHOU		
04	Analytical Chemistry	Professor	Kosei UENO	Nanophotonics. Analytical chemistry, photochemistry, and spectroscopy in minute dimensions including chemistry of single micro-/nano-particles. Photochemistry and photophysics of transition metal complexes and organic compounds.	Faculty of Science
		Associate Professor	Atsushi MIURA		
		Assistant Professor	Sho FUJII		
		Assistant Professor	Keisuke IMAEDA		
<b>Fine Chemical Reactions Unit</b>					
05	Organic Reaction	Associate Professor	Hisanori SENBOKU	Synthetic chemistry, electroorganic synthesis, organofluorine chemistry Synthesis and structural analysis of unique functional molecules.	Faculty of Engineering
		Associate Professor	Yasuhide INOKUMA		
		Assistant Professor	Tomoki YONEDA		
06	Organoelement Chemistry	Professor	Hajime ITO	The research purpose of our laboratory is development of novel synthetic reactions, valuable catalytic process and new functional materials in the field of organoelement chemistry. We aim to challenge to establish a new chemistry frontier that includes organometallics, heteroatom chemistry and coordination chemistry.	Faculty of Engineering
		Associate Professor	Tatsuo ISHIYAMA		
07	Organic Synthesis	Professor	Takeshi OHKUMA	Molecular catalysis, catalytic asymmetric reactions, practical organic synthesis.	Faculty of Engineering
		Associate Professor	Noriyoshi ARAI		
		Assistant Professor	Taiga YURINO		
08	Organic Transformations	Associate Professor	Yasunori YAMAMOTO	Synthetic organic chemistry, organometallic chemistry, development of catalytic organic reactions and catalytic asymmetric reactions using organoboron compounds, development of chiral catalytic process	Faculty of Engineering
09	Organometallic Chemistry	Professor	Masaya SAWAMURA	Catalyst design using supramolecules, solid surfaces, and light for the development of transformative chemical reactions. Quantum chemical calculations for exploring chemical reaction mechanisms and catalyst design.	Faculty of Science
		Lecturer	Yohei SHIMIZU		
		Assistant Professor	Arteaga Arteaga FERNANDO		
10	Organic Chemistry I	Professor	Takanori SUZUKI	Structural and physical organic chemistry on novel heat- and light-responsive redox systems and strained molecules.	Faculty of Science
		Assistant Professor	Ryo KATOONO		
		Assistant Professor	Yusuke ISHIGAKI		
<b>Catalytic Reactions Unit</b>					
11	Catalytic Transformation	Professor	Atsushi FUKUOKA	Molecular design of heterogeneous catalysts and application to renewable energy and environmental protection. Depolymerization of biomass such as cellulose and chitin, low-temperature oxidation of ethylene and keeping freshness of vegetables and fruits, partial oxidation of methane and catalysis of mesoporous materials.	Institute for Catalysis
		Associate Professor	Kiyotaka NAKAJIMA		
		Assistant Professor	Hirokazu KOBAYASHI		
		Assistant Professor	Abhijit SHROTRI		
12	Macromolecular Science	Professor	Tamaki NAKANO	Design and synthesis of chiral polymers and supramolecular systems having innovative functions such as pharmaceutical activities, light emission, electronic and ionic conduction, separation, and catalytic activities focusing on helical polymers, $\pi$ -stacked polymers, liquid crystals, and biopolymers.	Institute for Catalysis
		Associate Professor	Zhiyi SONG		
		Assistant Professor	Masayoshi BANDO		
13	Catalyst Material	Professor	Kenichi SHIMIZU	Development of metal nanocluster catalyst for direct synthesis of chemicals. Development of supported metal catalysts for automobile emission control. Surface chemistry and surface spectroscopy for catalyst design.	Institute for Catalysis
		Professor	Mayumi NISHIDA		
		Associate Professor	Shinya FURUKAWA		
		Assistant Professor	Takashi TOYAO		
14	Catalysis Theory	Professor	Junya HASEGAWA	Theoretical and computational chemistry for catalysis. Analysis of potential energy surface and dynamics of catalytic reactions. Development of chemical concepts, theoretical and computational models, and first-principle molecular simulation method for catalytic reactions.	Institute for Catalysis
		Associate Professor	Kenji HIDA		
		Assistant Professor	Min GAO		
<b>Chemical Process Engineering Unit</b>					
15	Chemical System Engineering	Professor	Takao MASUDA	Simultaneous catalytic reaction and separation processes, production of inedible biomass-derived useful chemicals by catalysis, upgrading of heavy oil to lighter fuels by catalysis.	Faculty of Engineering
		Associate Professor	Yuta NAKASAKA		
		Assistant Professor	Takuya YOSHIKAWA		
16	Material Design and Engineering	Professor	Shin MUKAI	Material design and engineering, adsorption engineering, separation engineering, precise structural controlling of porous materials, development of new production systems of nanomaterials, development of devices for reaction and separation using nanomaterials, material recycling.	Faculty of Engineering
		Associate Professor	Isao OGINO		
		Assistant Professor	Shinichiro IWAMURA		
17	Chemical Reaction Engineering	Lecturer	Shinichiro FUJITA	Chemical transformation of carbon dioxide to valuable organic chemicals, Preparation and catalytic properties of metal-free carbon alloy, Hydrogen production for fuel cell, Multiphase catalytic reaction system using supercritical fluids.	Faculty of Engineering
		Assistant Professor	Nobuhiro IWASA		
18	Chemical Energy Conversion Systems	Associate Professor	Naoto TSUBOUCHI	Clean carbon technology for efficient reduction of CO <sub>2</sub> emissions; fundamental research about advanced and novel technologies for biomass, low rank coals, heavy oil residues and low-valued natural gas.	Faculty of Engineering
		Assistant Professor	Haruo KUMAGAI		

※Laboratory No.20, No.22, No.27 are not recruiting students for admission in April, 2021.

※Laboratory No.27, No.28, No.33~No.36, No.46, No.49 are not recruiting Master's Degree Program students.

Materials Chemistry and Engineering Course					
No.	Laboratory	Staff		Research Contents	Faculty
<b>Molecular Materials Chemistry Unit</b>					
19	Coordination Chemistry	Professor	Masako KATO	Development of the chemistry concerning photofunctional metal complexes. In particular, the construction of assembled metal complexes and the investigation of their structures, spectroscopic properties, and functionalities such as chromic luminescence and photocatalysis.	Faculty of Science
		Associate Professor	Atsushi KOBAYASHI		
		Assistant Professor	Masaki YOSHIDA		
		Assistant Professor	Yu SUN		
20	Condensed Matter Chemistry	Associate Professor	Jun HARADA	Evaluation and control of physical and functional properties developed by hierarchical aggregation and condensation of atoms, molecules and ions: such as magnetism, conductivity, and dielectricity of materials, and dynamics and self-organization in molecular systems.	Faculty of Science
		Assistant Professor	Yoshiyuki KAGEYAMA		
		Assistant Professor	Yukihiro TAKAHASHI		
21	Molecule & Life Nonlinear Science	Professor	Tamiki KOMATSUZAKI	Practical-oriented theoretical chemistry. The fundamental principles of chance and necessity of chemical reactions, and new concepts and methodologies to bridge theory and experiments for biological molecular systems.	Research Institute for Electronic Science
		Assistant Professor	Yuta MIZUNO		
<b>Inorganic Materials Chemistry Unit</b>					
22	Inorganic Chemistry	Associate Professor	Makoto WAKESHIMA	Inorganic solid state chemistry. Studies on magnetic and electronic properties of condensed matter including rare-earth and 4d, 5d transition elements. Design of crystal/electronic structures, evaluation of magnetic and electronic properties, and development of new ferromagnets and superconductors.	Faculty of Science
23	Structural Inorganic Chemistry	Associate Professor	Mikio HIGUCHI	Preparation of emerging functional ceramics, microstructure control of ceramics and their property evaluation, new oxynitrides for optical, electromagnetic and chemical application. Growth of oxide single crystals for optical devices.	Faculty of Engineering
		Associate Professor	Yuji MASUBUCHI		
24	Inorganic Synthesis Chemistry	Professor	Kiyoharu TADANAGA	Development of functional inorganic materials using liquid phase. Preparation of nano-structured thin films and materials for energy conversion and storage by solution processes.	Faculty of Engineering
		Associate Professor	Akira MIURA		
		Assistant Professor	Nataly Carolina ROSETO NAVARRO		
25	Solid State Chemistry	Professor	Toshihiro SHIMADA	Synthesis and new functions of nano-structured solids and thin films including inorganic nanomaterials, organic semiconductors, spintronics devices and nanocarbons.	Faculty of Engineering
		Associate Professor	Taro NAGAHAMA		
		Assistant Professor	Takashi YANASE		
26	Nanostructured Functional Materials	Professor	Junji NISHII	Fabrication and characterization of new optical and electrical functional materials and magnetic devices with nano-structures to realize a strong coupling with photon or electron.	Research Institute for Electronic Science
		Professor	Yasutaka MATSUO		
		Associate Professor	Madoka ONO		
		Assistant Professor	Masaya FUJIOKA		
27	Nano Ceramics	Guest Professor	Tetsuo UCHIKOSHI	Design of nano/micro-structures and control of functional properties of new functional ceramics based on processing science of fine particles and powders.	National Institute for Materials Science
		Guest Professor	Takashi TAKEDA		
28	Applied Materials Chemistry	Guest Professor	Katsuya KATO	Preparation of ceramics nanoparticles and their applications for biocatalysis and biosensing. Synthesis, crystal structure, and functional properties of inorganic materials for energy storage.	National Institute of Advanced Industrial Science and Technology
		Guest Professor	Norihito KIJIMA		
<b>Frontier Materials Chemistry Unit</b>					
29	Electronic Materials Chemistry	Professor	Kazuhisa AZUMI	Designing high performance and long life materials using surface finishing, electrochemistry and structural control techniques, physical chemistry of organic electronic materials and their application to electronic devices and computational chemistry.	Faculty of Engineering
		Associate Professor	Hitoshi KOIZUMI		
		Assistant Professor	Hiroto TACHIKAWA		
30	Interfacial Electrochemistry	Professor	Hiroki HABAZAKI	Fabrication of functional oxide nanofilms, nanoporous films and functional surfaces using electrochemical processes, tailoring of novel materials for batteries and fuel cells for next generation.	Faculty of Engineering
		Associate Professor	Yoshitaka AOKI		
		Assistant Professor	Sho KITANO		
31	Advanced Materials Chemistry	Professor	Yasuchika HASEGAWA	Development of strong-luminescent and opto-magnetic nano-materials based on photochemistry, advanced electrochemical analyses using novel micro electrodes.	Faculty of Engineering
		Associate Professor	Koji FUSHIMI		
		Lecturer	Yuichi KITAGAWA		
32	Material Chemistry	Professor	Kazuki SADA	Discovery of new physical phenomena and development of new functional materials through fabrication of complex systems beyond their hierarchy from nanometer to millimeter by controlling intermolecular interactions among chemical and biological components.	Faculty of Science
		Associate Professor	Akira KAKUGO		
<b>Functional Materials Chemistry Unit</b>					
33	Interfacial Energy Conversion Materials Chemistry	Guest Professor	Hidenori NOGUCHI	Fundamental study of chemical-electric energy conversion including novel batteries, and fuel cell catalyst, and genetically-engineered microbial electrode catalysts. In situ determination of geometric, electronic and molecular structures at solid/liquid interfaces and electron transfer dynamics by ultra fast laser spectroscopy.	National Institute for Materials Science
		Guest Professor	Akihiro OKAMOTO		
34	Superconducting Materials	Guest Professor	Kazunari YAMAURA	Emphasizes materials synthesis, advanced characterizations, and studies of materials properties, all aimed at developing materials that have potential for applications. We focus on strongly correlated electrons, multi-ferroic properties, half-metal properties, and the like.	National Institute for Materials Science
		Guest Associate Professor	Yoshihiro TSUJIMOTO		
35	Photo Functional Materials	Guest Professor	Jinhua YE	Research and development of nano-structured semiconductor materials with novel functionalities (photocatalyst, light-emitters, etc), and their applications in the fields of environment preservation, new energy production, information technology, biomedical applications.	National Institute for Materials Science
		Guest Professor	Naoto SHIRAHATA		
36	Nano-Assembled Materials Chemistry	Guest Professor	Masafumi YOSHIO	Development of energy and environmental materials exhibiting electron, ion, and mass transport and stimuli-responsive properties using supramolecular and polymer chemistry and electrochemistry, and their device applications including fuel cells and transistors. Design and synthesis of sophisticated molecules and electrode catalysts, control of nanoscale assembly, and advanced characterization using synchrotron radiation.	National Institute for Materials Science
		Guest Professor	Takuya MASUDA		

※Laboratory No.20, No.22, No.27 are not recruiting students for admission in April, 2021.

※Laboratory No.27, No.28, No.33~No.36, No.46, No.49 are not recruiting Master's Degree Program students.

Biological Chemistry and Engineering Course					
No.	Laboratory	Staff	Research Contents	Faculty	
<b>Biomolecular Chemistry Unit</b>					
37	Biological Chemistry	Professor	Kazuyasu SAKAGUCHI	Functional regulation of tumor suppressor-related proteins through post-translational modification and localization. Function and evolution of oligomeric structure in tumor suppressor protein p53. Regulation of differentiation, metabolism, and function in innate immune cells.	Faculty of Science
		Associate Professor	Rui KAMADA		
38	Biostructural Chemistry	Professor	Koichiro ISHIMORI	Functional and structural characterization and molecular design of proteins using spectroscopy.	Faculty of Science
		Associate Professor	Takeshi UCHIDA		
39	Bioorganic Chemistry	Professor	Yota MURAKAMI	Studies of structure-function of chromatin and chromosome, which is involved in maintenance and expression of genetic information; studies of regulatory mechanism of cell shape and movement.	Faculty of Science
		Associate Professor	Masayuki TAKAHASHI		
		Assistant Professor	Shinya TAKAHATA		
40	Bioanalytical Chemistry	Professor	Manabu TOKESHI	Development of bio- and medical-analysis systems using microdevices and new measurement technologies.	Faculty of Engineering
		Associate Professor	Hirofumi TANI		
		Assistant Professor	Akihiko ISHIDA		
		Assistant Professor	Masatoshi MAEKI		
<b>Biofunctional Chemistry Unit</b>					
41	Mechanistic Organic Chemistry	Professor	Hideaki OIKAWA	Elucidation of mechanisms on enzymatic reactions in the biosynthesis of bioactive natural products, and their applications to the organic synthesis to provide useful chemical library.	Faculty of Science
		Associate Professor	Atsushi MINAMI		
		Assistant Professor	Taro OZAKI		
42	Organic Chemistry II	Professor	Keiji TANINO	Total synthesis of natural products having a complex structure and novel bioactivities. Development of efficient methodologies and new reactions to construct polycyclic skeleton with various functional groups on the basis of carbocation chemistry, heteroatom chemistry, and organometallic chemistry.	Faculty of Science
		Associate Professor	Takahiro SUZUKI		
		Assistant Professor	Kazutada IKEUCHI		
43	Chemistry of Molecular Assemblies	Associate Professor	Shinichiro SATO	Synthesis and computational chemistry of functional molecular assemblies based on soft matter such as synthetic polymers and carbohydrate chains.	Faculty of Engineering
		Associate Professor	Takuya YAMAMOTO		
44	Polymer Chemistry	Professor	Toshifumi SATOH	Synthesis of various architecturally complex polymers; molecular design of functional polymers such as stimuli-responsive polymers and conductive polymers; the study of micro-phase separation using block copolymers; creation and application of environmental zero-waste macromolecular materials with multi-functions.	Faculty of Engineering
		Associate Professor	Kenji TAJIMA		
		Assistant Professor	Takuya ISONO		
45	Biosynthetic Chemistry	Professor	Ken'ichiro MATSUMOTO	Biosynthesis of useful and unnatural chemicals using engineered biosynthetic systems, and in vitro evolution of enzymes to achieve the goal. The targets are biodegradable plastics, biocompatible polymers, chiral compounds and CO <sub>2</sub> fixation.	Faculty of Engineering
		Associate Professor	Toshihiko OOI		
		Assistant Professor	Chiaki HORI		
46	Laboratory of Chemical Biotechnology	Guest Professor	Tomohiro HIRAISHI	Elucidation of reaction mechanism of bio-based polymer-degrading enzymes, and development of highly functional and efficient enzymes for biotechnological applications. Nucleic acid antibody. Macromolecular system for genetic diagnosis, structural and functional studies of DNA conjugates, and base-substituted type sensitive morphogenesis system.	RIKEN
		Guest Associate Professor	Masahiro FUJITA		
<b>Cell Engineering Unit</b>					
47	Applied Biochemistry	Professor	Tohru DAIRI	Search for and characterization of novel primary/secondary metabolic pathways in microorganisms and their application for production of useful compounds by biosynthetic and metabolic engineering.	Faculty of Engineering
		Assistant Professor	Yasuharu SATOH		
		Assistant Professor	Yasushi OGASAWARA		
48	Cell Processing Engineering	Professor	Mutsumi TAKAGI	Cell processing engineering (process development with stem cells, noninvasive quality estimation of adherent mammalian cells), animal cell cultivation engineering for pharmaceuticals production, cell control using clock gene, bioresource chemistry (structural analysis of cellulose and related enzymes).	Faculty of Engineering
		Associate Professor	Tomoki ERATA		
		Assistant Professor	Masashi FUJIWARA		
49	Cell Engineering	Guest Professor	Hiroshi HOSODA	Regenerative medicine, artificial organs, endovascular treatment, biomedical materials, cardiovascular medicine, vascular regeneration, cell therapy.	National Cerebral and Cardiovascular Center Research Institute
<b>Molecular Medical Biochemistry Unit</b>					
50	Signaling in Cancer and Immunology	Professor	Akinori TAKAOKA	Research on molecular mechanisms underlying cellular response to infection and cancer. (i) Pathogen recognition receptors (innate sensors) and their signaling pathways, (ii) Innate immune response against cancer)	Institute for Genetic Medicine
		Lecturer	Seiichi SATO		
		Assistant Professor	Taisho YAMADA		

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