Graduate School of Science

PROGRAMS FOR INTERNATIONAL STUDENTS
## STRUCTURE OF THE GRADUATE SCHOOL OF SCIENCE

### Departments and Courses

#### Dept. of MATHEMATICS
- Algebra
- Geometry
- Analysis
- Global Geometry & Analysis
- Experimental Mathematics
- Mathematical Science
  - Integrative Mathematical Sciences

#### Dept. of PHYSICS
- Condensed Matter Physics
- Particle and Nuclear Physics
- Fundamental Physics
- Quantum Physics
- Interdisciplinary Physics
- Nuclear and Particle Physics, Accelerator Physics
- Condensed Matter Physics
- Science under Extreme Conditions
- Non-equilibrium Physics
- Intense Laser Science

#### Dept. of CHEMISTRY
- Inorganic Chemistry
- Physical Chemistry
- Organic Chemistry
- Interdisciplinary Chemistry
  - Functional Material Synthetic Chemistry
  - Inorganic Compound Function
  - Biomolecular Structure
  - Complex Molecular Chemistry
  - Computational Biology
  - Highly Functional Material Properties
  - Functional Peptides
  - Structural Biomolecular Chemistry

#### Dept. of BIOLOGICAL SCIENCES
- Molecular Cell Biology
- Animal Developmental and Evolutionary Biology
- Plant Science
- Neurobiology
- Signal Transduction Biology
- Functional Biomolecular Biology
  - Protein Structural Information Biology
  - Chemical Biology
  - Life Sciences

#### Dept. of MACROMOLECULAR SCIENCE
- Macromolecular Synthesis and Reactions
- Macromolecular Structure, Properties and Functions
- Macromolecular Assemblies
  - Informative Polymer Science

#### Dept. of EARTH AND SPACE SCIENCE
- Astrophysics and Planetary Science
- Earth and Planetary Material Sciences
- Extreme Material Science

### Attached Facilities

#### Research Center for Thermal and Entropic Science
- Division of Entropic Science of Molecular Systems
- Division of Non-Equilibrium Thermal Science and Soft Matter Science
- Division of Extremely Small Scale Thermal Science and Nano-Calorimetry
- Division of Micro Biological Thermodynamics
- Division of International Collaborations

#### Project Research Center for Fundamental Sciences
- Core Research Promotion Division
- Challenging Exploratory Research Division
- Project Research Division
- Core for Medicine and Science Collaborative Research and Education (MiS-CORE)
- Core for Subatomic Science Toyonaka Branch (Research Center for Subatomic Science Toyonaka Branch)
- Core for Collaborative Research: RIKEN and Graduate School of Science, Osaka University
- Core for Theoretical Science Research

#### Center for Advanced High Magnetic Field Science
- Research Division of Physics I
- Research Division of Physics II
- Research Division of Chemistry and Biology
- Research Division of Cooperation
- Support Division for Joint-Use

### Office of Research Administration
- Planning and Evaluation
- Educational Planning
- Research Planning
- International Affairs
- University-Industry Collaboration
- Public Relations
- Risk Management
- Safety and Hygiene Management
- Common Equipment Management
- Research Administration Support

### Technical Support Division
- Analytical Instrument Facility
- Promotion Office for Safety and Hygiene
- Support Office for Education and Research
- Promotion Office for Public Relations and Information

### Administrative Office
- General Affairs Section
- Personnel Section
- Academic Affairs Section
- Graduate Students Section
- Accounting Section
- Contract Section
- Research Support Section
EDUCATIONAL GOAL AND POLICY
OF THE GRADUATE SCHOOL OF SCIENCE

Osaka University - “Live Locally, Grow Globally”

Osaka University is one of Japan’s outstanding comprehensive universities. It is situated in Osaka, the second-largest metropolitan area in Japan and historically a merchant city known as the “nation’s kitchen.” The university was founded as Osaka Imperial University in 1931 with the strong support of citizens. Its roots can be traced back even further to Tekijuku, a private “place of learning” founded by Japanese physician Koan Ogata in 1838. Dr. Hantaro Nagaoka, who was the first president of Osaka Imperial University and was the first to advocate the Saturnian model of the atom, had as his motto “Do not imitate others; be always creative.” His spirit is still prevalent at Osaka University. Today, the university has 11 undergraduate schools, 16 graduate schools, and more than twenty research centers/institutes across four campuses: Suita, Toyonaka, Minoh, and Nakanoshima. Abiding by the university’s motto of “Live locally, grow globally,” Osaka University continues to overcome the challenges in education and research.

Graduate School of Science - “Originality and Inspiration”

Inheriting the founding spirit and tradition of the School of Science, which was established at the same time as Osaka Imperial University, the Graduate School of Science has adhered to its “research-first” mission. The Graduate School of Science has about 220 full-time academic staff, 1,200 undergraduates, and 900 graduate students across six departments: mathematics, physics, chemistry, biological sciences, macromolecular science, and earth and space science. Many of the students and faculty are carrying out original and leading-edge research and trying to expand the fields of research and education. Inspired by watching their teachers pursue their research, students are following suit and developing into world-class researchers and scientifically literate public leaders. The activities of the Graduate School of Science cover the entire gamut from fundamental to applied science, thereby promoting the development of new fields and the accumulation of knowledge for the future. The school has accepted a significant number of academic staff from external organizations and launched new educational and research programs in science with a view to promote advanced, interdisciplinary research on a global scale. We also offer courses jointly with other organizations within the university.

Graduate Degree Programs in English

Special Integrated Science Course (SISC)

SISC was developed with the aim of training creative and independent researchers who have the capability to work in a broad range of fields and can work in new interdisciplinary areas. SISC offers a full range of lecture courses from high-level basic knowledge to cutting-edge topics, and students in the departments of chemistry, biological sciences, and macromolecular science can take classes that cross the boundaries of their disciplines.

International Physics Course (IPC)

IPC aims to cultivate open-minded researchers and company employees with a wide range of knowledge and who will proactively engage in international research and rise to the challenge of new subjects for research. IPC offers a curriculum composed of lecture-style learning and research activities in the department of physics and related research institutes.

Requirements for Completion

Osaka University awards a master’s degree or doctoral degree (PhD) to students who have completed all credit requirements and passed the respective degree examinations. The students must have learned the essence of natural science through their efforts to pursue the truth and must have fully honed their research skills through the education provided by the Graduate School of Science.

Master’s Program

The master’s program lasts two academic years and requires a thesis for completion. Students spend the first three semesters earning credits through lectures and research work and then write a master’s thesis during the last semester.

Doctoral Program

Doctoral students spend the majority of their three years conducting research for their doctoral thesis/dissertation under the supervision of an experienced faculty member.

When their thesis is completed, both master’s and doctoral students give an oral presentation about it.

Note: We also accept international students who understand and speak Japanese sufficiently well into the graduate degree programs in Japanese across six departments: mathematics, physics, chemistry, biological sciences, macromolecular science, and earth and space science.
Special Integrated Science Course (SISC)

Curriculum
The SISC curriculum is designed to introduce graduate students to the latest skills used for research and help them gain in-depth knowledge of advanced topics in chemistry, biology, and macromolecular science.

**Master’s Program**
- Basic Biology I & II
- Introductory Biology
- Biological Science
- Bio/Chemoinformatics
- Biomolecular Chemistry
- Basic Macromolecular Science
- Basic Chemistry I & II
- Advanced Macromolecular Science I & II
- Genomic Chemistry
- Protein Chemistry
- Quantum Chemistry
- Thermal and Entropic Science
- Analytical Chemistry for Interface Chemistry on Catalysis
- Complex Molecular Chemistry
- Natural Product Chemistry
- Organic Biochemistry
- Structural Organic Chemistry
- Topics in Inorganic Chemistry
- Advanced Chemical Experiment
- Radiation Science in the Environment
- Current Topics
- Interactive Seminar
- Semintrasal Seminar

**Doctoral Program**
- Current Topics
- Interactive Seminar for Advanced Research
- Seminar for Advanced Researches

Find more information about SISC
http://www.bio.sci.osaka-u.ac.jp/global30/SISC/

International Physics Course (IPC)

Curriculum
The IPC curriculum is composed of classroom learning and research activity under the supervisor of the research group into which the student has been accepted.

**Master’s Program**
- Electrodynamics and Quantum Mechanics
- Quantum Field Theory I & II
- Introduction to Theoretical Nuclear Physics
- Quantum Many-Body Systems
- Condensed Matter Theory
- Solid State Theory
- High Energy Physics
- Nuclear Physics in the Universe
- Optical Properties of Matter
- Synchrotron Radiation Spectroscopy
- Computational Physics
- Radiation Science in the Environment
- Semesters Seminar I – IV

**Doctoral Program**
- Topical Seminar I – IV
- Seminar for Advanced Researches

Find more information about IPC
http://www.rcnp.osaka-u.ac.jp/~ipc/

Application

**Contact a Professor**
Applicants should contact the head of the research lab to which they intend to apply. In order to apply for a program, the applicant must submit a “Letter of Conditional Acceptance” from the prospective supervisor at Osaka University. For more information on our research labs, please go through the researchers’ database at https://www.sci.osaka-u.ac.jp/en/outline/researchers/

**Admission Procedure**
New graduate students will be selected through the screening of documents, a written examination, and an interview.

For more details, please visit our website. If you are unsure about eligibility or have any other query about your application, please contact the Graduate Students, Administrative Office at ri-daigakum@office.osaka-u.ac.jp
1,200 undergraduates, and 900 graduate students across six departments: mathematics, physics, chemistry, biological sciences, macromolecular science. It is situated in Osaka, the second-largest metropolitan area in Japan and home to Osaka University. The university has 11 undergraduate schools, 16 graduate schools, and research institutes across four campuses: Suita, Toyonaka, Minoh, and Kashiwa. Students must have fully honed their research skills through the education provided by the Graduate School of Science. The master's program lasts two academic years and requires a thesis for completion. Students spend the first three semesters earning credits to ensure their research work prior to submission of the thesis. Doctoral students spend the majority of their three years conducting research for their doctoral thesis/dissertation under the supervision of an advisor. The students must have learned the essence of natural science through their efforts to pursue the truth and knowledge of advanced topics in chemistry, biology, and applied science. SISC offers a full range of lecture courses from high-level basic knowledge to cutting-edge topics, and students in the departments of chemistry, biological sciences, and macromolecular science can take courses in fields from fundamental to applied science, thereby promoting the development of new fields and the accumulation of knowledge for future needs.

Requirements for Completion

The Graduate School of Science offers scholarships to privately financed international students who excel in their educational achievements. Most international students receive some scholarships or work as research assistants (RA) or teaching assistants (TA); however, the criteria and amounts vary according to the scholarship programs. The following scholarships are available at the Graduate School of Science: Osaka University Graduate School of Science Scholarship for graduate students, Monbukagakusho Honors Scholarship for privately financed international students by JASSO (Japan Student Services Organization), and other private or public scholarships. For those who wish to apply for a scholarship, please note that your application will be considered after your successful enrollment in the Graduate School of Science.

Academic Fees (as of 2021)

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
<th>Payment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition fee per half year</td>
<td>267,900 yen</td>
<td>To be paid in May and November</td>
</tr>
<tr>
<td>Matriculation fee</td>
<td>282,000 yen</td>
<td></td>
</tr>
<tr>
<td>Entrance examination fee</td>
<td>30,000 yen</td>
<td>No examination fees are required for IPC and SISC admission</td>
</tr>
</tbody>
</table>

* These fees are subject to change.
* Full-time privately funded students enrolled in Osaka University are eligible to apply for a tuition and/or enrollment fee exemption or deferred payment. Applications will be screened based on a student’s academic achievements and financial status.

Scholarships

Osaka University recommends candidates to the Japanese government MEXT (Ministry of Education, Culture, Sports, Science and Technology) scholarship for selection. To obtain a recommendation, please contact the professor whom you would like to have as your academic supervisor.

For more information: https://www.sci.osaka-u.ac.jp/en/overseas-study/international-students/procedure/

The Graduate School of Science offers scholarships to privately financed international students who excel in their educational achievements. Most international students receive some scholarships or work as research assistants (RA) or teaching assistants (TA); however, the criteria and amounts vary according to the scholarship programs. The following scholarships are available at the Graduate School of Science: Osaka University Graduate School of Science Scholarship for graduate students, Monbukagakusho Honors Scholarship for privately financed international students by JASSO (Japan Student Services Organization), and other private or public scholarships. For those who wish to apply for a scholarship, please note that your application will be considered after your successful enrollment in the Graduate School of Science.

Housing and Living Costs

Accommodation offered by Osaka University and public organizations is limited. Many new students live in privately owned accommodation near Osaka University. The average monthly living cost in Osaka is estimated at approximately 100,000 yen, including the rent. Detailed information is available at the Support Office.

https://iss.intl.osaka-u.ac.jp/supportoffice/

FAQ

Q: Do I have a chance to learn Japanese?
A: Yes, we offer an elective Japanese language program for non-Japanese students. For more details, please contact the Center for International Education and Exchange (CIEE) of Osaka University.

Q: How do I contact the professor I would like to work with in the graduate program?
A: Please visit the research pages of the departments in which you are interested. There you will see the names and research interests of our faculty who can supervise MSc and PhD students. The best way is to email a brief overview of your research interests to those who match them. At this stage, it is advisable to cc one of our offices, either gssadmis@sci.osaka-u.ac.jp (for SISC) or ipc-office@ipc.phys.sci.osaka-u.ac.jp (for IPC).

Health and Counseling

Osaka University offers many personal counseling resources, including department faculty advisors, international student advisors, and professional counselors at the Health and Counseling Center.

https://hacc.osaka-u.ac.jp/ja/english/

Career Support

The Graduate School of Science and the Center for International Education and Exchange (CIEE) of Osaka University provide assistance for international students who are seeking employment in Japan. http://ciee.osaka-u.ac.jp/en/incoming_student_support/

Double Degree Programs

Double Degree Programs are offered in partnership with distinguished universities worldwide. These programs enable students enrolled in the master’s program or the doctoral program to obtain a degree at both universities after completing the coordinated curriculum.

Short-Term Non-Degree Programs

Osaka University offers a wide variety of short-term non-degree programs (one year or less) for international students from the foreign universities with whom there are student exchange agreements (these students are known as “short-term exchange students”). Within these programs, there is a number of classes in which Japanese students may also participate. Through these classes, a close interchange with Japanese students can be achieved. For more details, please refer to the following websites:

FrontierLab@OsakaU: for Engineering and Science Majors
www.osaka-u.ac.jp/en/international/inbound/exchange_program/frontierlab

OUSSEP: Osaka University Short-Term Student Exchange Program
http://ex.ciee.osaka-u.ac.jp/ousssp/toppage/index.html

iExPO: Immersion Exchange Program Osaka
https://www.osaka-u.ac.jp/en/international/inbound/exchange_program/iexpo