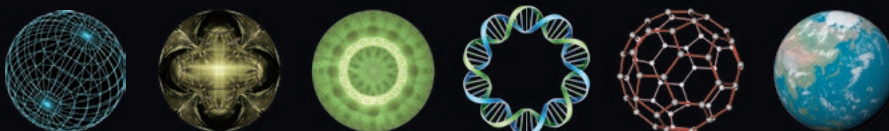


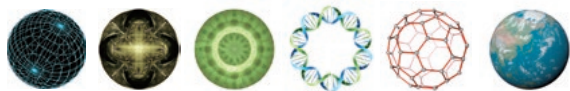


# Graduate School of Science

PROGRAMS FOR INTERNATIONAL STUDENTS



# 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 29 research centers/institutes across four campuses: Suita, Toyonaka, Minoh, and Nakanoshima. Abiding by the university's motto of "Live locally, grow globally," Osaka University is overcoming 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 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 covers two years and is spread over four semesters. Students spend the first three semesters earning credits through lectures and research work, and then write a master's thesis during the final semester.

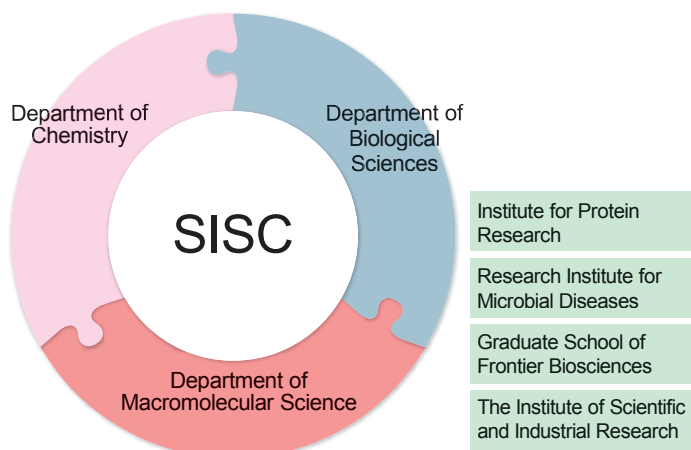
### Doctoral Program

Doctoral program students spend the majority of their time conducting research for their doctoral thesis under the supervision of an experienced faculty member. A PhD recipient will have at least one academic publication and have given an oral presentation of the doctoral thesis/dissertation.

Note: We also accept international students who 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                   | Structural Thermodynamics*       |
| Introductory Biology                   | Analytical Separation Chemistry* |
| Biological Science                     | Chemistry on Catalysis*          |
| Biomolecular Chemistry*                | Natural Product Chemistry*       |
| Basic Macromolecular Science           | Organic Biochemistry*            |
| Basic Chemistry I & II                 | Structural Organic Chemistry*    |
| Advanced Macromolecular Science I & II | Topics in Inorganic Chemistry*   |
| Genome Chemistry*                      | Advanced Chemical Experiments    |
| Physical Organic Chemistry*            | Current Topics                   |
| Protein Chemistry*                     | Interactive Seminar              |
| Quantum Chemistry*                     | Semestral Seminar                |
|                                        | (* offered biennially)           |

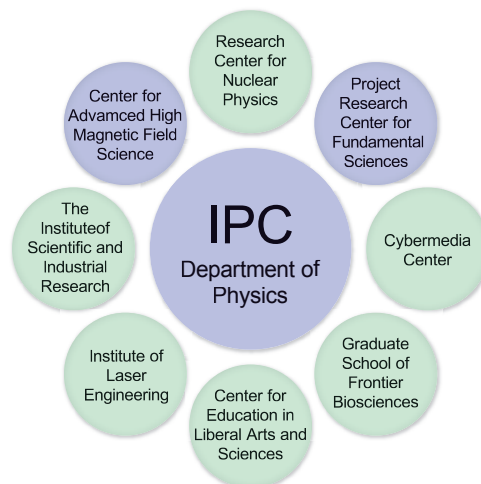
#### Doctoral Program

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                              | Synchrotron Radiation Spectroscopy |
| Quantum Mechanics                            | Computational Physics              |
| Quantum Field Theory I & II                  | Semestral Seminar I ~ IV           |
| Introduction to Theoretical Nuclear Physics* | (* offered biennially)             |
| Quantum Many-Body Systems*                   |                                    |
| Condensed Matter Theory*                     |                                    |
| Solid State Theory*                          |                                    |
| High Energy Physics                          |                                    |
| Nuclear Physics in the Universe              |                                    |
| Optical Properties of Matter*                |                                    |

#### 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 <http://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 Section, Administrative Office at [ri-daigakuin@office.osaka-u.ac.jp](mailto:ri-daigakuin@office.osaka-u.ac.jp)





## Academic Fees (as of 2017)

|                          |                       |                                                             |
|--------------------------|-----------------------|-------------------------------------------------------------|
| Tuition fee              | 267,900 yen/half year | To be paid in May and November                              |
| Enrollment fee           | 282,000 yen           |                                                             |
| Entrance examination fee | 30,000 yen            | No examination fees are required for IPC and SISC admission |



\* 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

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 the successful acceptance of your entrance to the Graduate School of Science.

### Japanese Government (Monbukagakusho: MEXT) scholarship through university recommendation

Osaka University recommends candidates to MEXT for selection. To obtain a recommendation, please contact the professor whom you would like to have as your academic supervisor.

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

## Housing and Living Costs

The number of accommodations 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/>



## Health and Counseling

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

<http://www.healthcarecenter.osaka-u.ac.jp/english.html>



## 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/](http://ciee.osaka-u.ac.jp/en/incoming_student_support/)



## 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 thing is to e-mail a brief overview of your research interests to those who match them. It is advisable to CC our office to;

SISC: [gssadmis@sci.osaka-u.ac.jp](mailto:gssadmis@sci.osaka-u.ac.jp) IPC: [ipc-office@ipc.phys.sci.osaka-u.ac.jp](mailto:ipc-office@ipc.phys.sci.osaka-u.ac.jp)



## 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 are 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](http://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/oussep/index.html>

**iExPO:** Immersion Exchange Program Osaka [http://www.osaka-u.ac.jp/en/international/inbound/exchange\\_program/iexpo](http://www.osaka-u.ac.jp/en/international/inbound/exchange_program/iexpo)



# STRUCTURE OF THE GRADUATE SCHOOL OF SCIENCE



## Departments and Courses

○...Course provided in cooperation with other departments of Osaka University  
●...Course provided in partnership with research institutes outside the university



### Dept. of MATHEMATICS

Algebra  
Geometry  
Analysis  
Global Geometry & Analysis  
Experimental Mathematics  
Mathematical Science



### 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 PHYSICS

Condensed Matter Physics  
Particle and Nuclear Physics  
Fundamental Physics  
Quantum Physics  
Interdisciplinary Physics  
○Interdisciplinary Physics  
○Particle and Nuclear Reactions  
○Particle Physics  
○Science under Extreme Conditions  
○Non-equilibrium Physics  
○Intense Laser Science



### Dept. of MACROMOLECULAR SCIENCE

Macromolecular Synthesis and Reactions  
Macromolecular Structure, Properties and Functions  
Macromolecular Assemblies  
○Informative Polymer Science



### Dept. of CHEMISTRY

Inorganic Chemistry  
Physical Chemistry  
Organic Chemistry  
Interdisciplinary Chemistry  
○Functional Material Synthetic Chemistry  
○Inorganic Compound Function  
○Biomolecular Structure  
●Highly Functional Material Properties  
●Functional Peptides



### Dept. of EARTH AND SPACE SCIENCE

Astrophysics and Planetary Science  
Earth and Planetary Material Science  
Extreme Material Science



## Attached Facilities

### Research Center for Structural Thermodynamics

Structural Thermodynamics Division  
Heat Measurement Science Division  
Complex Heat Science Division  
International Cooperation  
and Research Promotion Laboratory



### 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 (MS-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  
Education Support Office  
Research Support Office  
Information Network Room

## Administrative Office

General Affairs Section  
Personnel Section  
Academic Affairs Section  
Graduate Students Section  
Accounting Section  
Contract Section  
University-Industry Collaboration Section  
Research Support Section  
Section in Charge of Allowances and Mutual Aid



## Campus Locations and Transportation



### Osaka University Overseas Centers

North American Center for Academic Initiatives (San Francisco Office)  
email: [info@osaka-u-sf.org](mailto:info@osaka-u-sf.org)  
URL: <http://www.osaka-u-sf.org>

European Center for Academic Initiatives (Groningen Office)  
email: [info@osaka-u-groningen.org](mailto:info@osaka-u-groningen.org)  
URL: <http://www.osaka-u-groningen.org>

ASEAN Center for Academic Initiatives (Bangkok Office)  
email: [info@osaka-u-bangkok.org](mailto:info@osaka-u-bangkok.org)  
URL: <http://www.osaka-u-bangkok.org>

East Asian Center for Academic Initiatives (Shanghai Office)  
email: [shanghai-ina@ml.office.osaka-u.ac.jp](mailto:shanghai-ina@ml.office.osaka-u.ac.jp)  
URL: <http://www.shanghai-center.osaka-u.ac.jp>

