



Global Science Course



Undergraduate Transfer Program, Japan

Coordinator's Message



Global Science Course was designed to create an international platform enhancing cross-cultural interactions among young minds from around the world coming together to learn science at one of the top universities in the world, the University of Tokyo.

The curriculum covers a variety of interdisciplinary research areas in basic sciences. We therefore encourage students from various scientific backgrounds to apply for GSC. All classes are conducted in English by world-leading professors who are pursuing cutting-edge research in the most advanced fields, while also focusing on the fostering of students who will lead the next generation in science communities.

In October 2014, we welcomed seven bright undergraduate transfer students from overseas under GSC. We were pleased to learn that they enjoyed not only their academic lives at the University of Tokyo but also their everyday lives in Tokyo.

I strongly believe that the University of Tokyo's long established history of commitment to excellence in research and education will help develop the potentials of the young students in GSC.

A handwritten signature in Japanese calligraphy, reading '山内 薫' (Yamanouchi Kaoru).

Kaoru Yamanouchi

Professor of Chemistry
Vice Dean
School of Science

The University of Tokyo (UTokyo)



Yasuda Auditorium, Hongo Campus

The oldest and most prestigious university in Japan

Since our foundation as a national university in 1877, UTokyo has led research and education in Japan. For more than a century, our graduates have gone on to explore space and expand the frontiers of human knowledge. Today, over 5,500 faculty and over 27,000 students make UTokyo one of the most important global hubs of research and education in one of Asia's most exciting cities.

Academic Excellence

The School of Science provides outstanding opportunities for intellectual development and the acquisition of professional knowledge and skills. As represented by our Nobel Prize and Fields Medal recipients, students learn in an environment that produces internationally recognized research and promotes scientific advancement.



School of Science Building 1 ©The University of Tokyo



A laboratory in the Department of Chemistry

Fostering Internationalization

Our students are equipped with the means to solve future problems and address new, previously unencountered issues. In recognizing the strength of our school, we hope to nurture students with global perspectives to become future leaders in the world of science.

Global Science Course (GSC)


In 2014, the University of Tokyo launched an all-English undergraduate transfer program, which is the first of its kind. GSC offers a unique opportunity for international students to pursue studies at the School of Science where Japanese language proficiency is not a requirement.

Under the GSC Undergraduate Transfer Program, the School of Science accepts undergraduate transfer students from abroad into the third year. Traditional core areas of science are integrated with advanced concepts in order for students to build a solid foundation of knowledge and allow them to embrace new challenges at the same time. Lectures in GSC are delivered in English by world-leading professors, creating an academic environment in which students from around the globe can learn alongside current UTokyo students. In addition, renowned professors from abroad deliver special lectures and seminar talks.

Upon fulfilling all graduation requirements, students are awarded with a Bachelor of Science degree from the University of Tokyo.

1st and 2nd Year University Abroad



 Global Science Course	
3 rd Year	4 th Year
Semester 1 <ul style="list-style-type: none">• Compulsory chemistry courses• Japanese language education course• Rotations in 6 research laboratories Semester 2 <ul style="list-style-type: none">• Compulsory elective chemistry courses• Laboratory work in student laboratories	Semester 1 <ul style="list-style-type: none">• Compulsory elective chemistry courses• Laboratory work in student laboratories Semester 2 <ul style="list-style-type: none">• Compulsory elective chemistry courses• Laboratory work at one of the 12 research laboratories

*GSC is currently only being offered in the Department of Chemistry.



Eligibility

- ✓ Completion of two years of undergraduate studies with courses in Chemistry, Mathematics, and Physics
- ✓ Secondary and tertiary education received outside of Japan
- ✓ Outstanding academic background
- ✓ English language proficiency

Our Support

1 School of Science Scholarship

150,000 Japanese yen per month to aid in paying tuition and support living expenses

2 Housing

Accommodation provided with fully supported monthly rent

3 Student Tutors

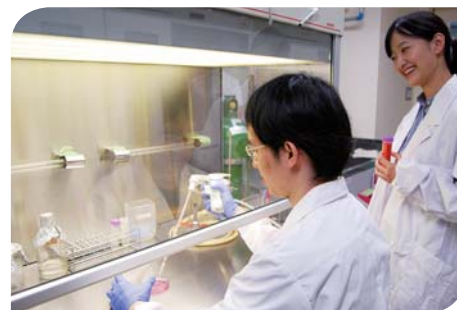
Student tutors to assist new GSC students with settling into Tokyo

4 Japanese language classes

Beginner Japanese language classes to help students with everyday life in Japan

5 Faculty and administrative staff

Internationally diverse faculty and administrative staff members to provide year-round support



Classes on GSC

GSC classes are currently offered in the Department of Chemistry, which is the oldest research facility in Japan. Notable research that originated from the department includes the discovery of the fifth taste element, umami, by Prof. Ikeda in 1908, development of the concept of rotation isomers by Prof. Mizushima in 1933, and the discovery of organic semiconductors by Prof. Akamatsu in 1958.

Under the guidance of dedicated faculty, GSC students studying in the Department of Chemistry are able to learn advanced concepts that integrate chemistry with physics, biology, earth science, and related fields. As the Department places a strong emphasis on research, each laboratory meets the highest international standard and is equipped with state-of-the-art technology, giving students the opportunity to experience different approaches to research during their time on the program.

Physical Chemistry

- Structural chemistry to learn geometrical structure of molecules
- Molecular spectroscopy to learn molecular vibration and rotation
- Quantum chemistry to learn electronic states of molecules
- Chemical kinetics and dynamics to learn chemical reactions

Analytical Chemistry

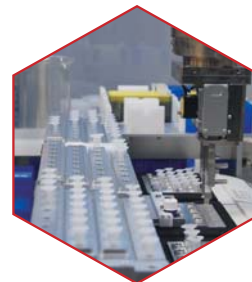
- Handling of experimental errors
- Basic knowledge of acid-base equilibria and titrations
- Fundamentals of spectroscopy and electrochemistry
- Introduction to analytical separations

Inorganic Chemistry

- Introduction to the chemistry of elements and their compounds
- Periodic table and periodicity of properties for main group elements
- Group theory and its applications to molecular orbitals and spectroscopy
- Advanced concepts in acidity/basicity and nature of different solvents

Organic Chemistry

- Basic knowledge in organic compounds
- Learn the mechanisms of organic chemical reactions
- Use the chemical reactions to synthesize organic compounds



Instructor Interview



N
Prof. Hiroshi Nishihara
Inorganic Chemistry
Department of Chemistry
School of Science



O
Prof. Takeaki Ozawa
Analytical Chemistry
Department of Chemistry
School of Science



I
Assoc. Prof. Laurean Ilies
Organic Chemistry
Department of Chemistry
School of Science

How does GSC differ from other science courses?

O Well, we really wanted to focus on bringing together bright young minds from all around the world. This way we hope that they will be able to really help one another to excel, producing new and innovative work that pushes scientific boundaries of current theories and ideas.

N By incorporating access to first class resources and the latest developments in laboratory hardware, we have built a strong platform with a course designed to allow students to take the first steps into pioneering a new era of science.

I One of the best features of the program besides the solid support provided is that the transfer students have the opportunity to work in research laboratories at an early stage which is definitely a rare case for undergraduate students.

What do you expect from GSC candidates?

N We are looking for the kind of students who are really motivated to excel academically. They must be able to exhibit the potential for intellectual growth.

I Of course being passionate about learning, but we are creating something new and exciting here so they must also have the skills and confidence to help realize the university's ultimate goal of nurturing them into global leaders.

O We want students who are also enthusiastic and proactive about introducing and sharing their own cultures within the university's campus.

Obviously, the course is aimed at English speaking students, how well will they be able to work with the current students?

N One of our key aims is to create an internationalized Faculty of Science. The international GSC transfer students we select will work alongside the current students, all of whom are proficient in the English language.

O There are also Japanese language lessons which we hope the international students will enjoy thoroughly, enabling them to fully immerse themselves in Japanese society and gain a better understanding of the Japanese culture!

What can students expect from living and studying in Tokyo?

N Japan has always been on the front line when it comes to creative science which we have already assimilated heavily into our everyday lives here. I feel students will really be inspired living and studying in such a fascinating environment thus facilitating an enthusiastic research culture in new and challenging areas.

I I agree. Tokyo is a vibrant and fun city, there is always something going on, with new and interesting ideas springing up all the time. Students will be astounded by the traditions and innovations Tokyo has to offer.

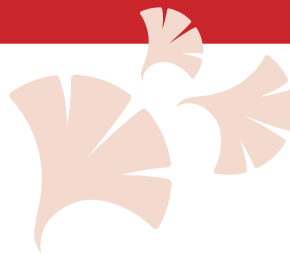
What are your future hopes for the program?

O Naturally, it is our ambition to see the program expand and flourish. At the moment the course is run by the Department of Chemistry only, but we hope to develop courses in the other departments within the School of Science.

N We have renowned professors and top researchers delivering lectures and conducting seminars. This way, we hope to establish an ever growing worldwide faculty in order to be consistently and effectively adapting the course to cover new scientific issues as well as the core fundamentals.

I We are also looking forward to a future where students from a wide variety of diverse cultures can come together and prosper from having a world class faculty who are committed to innovation and excellence in teaching at their disposal.

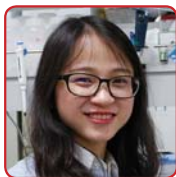
Student Voices



W

Wenxuan

University of Fudan
China



Y

Yan

Nankai University
China



K

Kunal

IIT Guwahati
India

What motivated you to apply to GSC?

Y UTokyo is a great university and the Chemistry Department is especially famous. Mostly, I wanted to explore more and this program provided a perfect chance, as well as a good scholarship and accommodation in a great city.

K I looked into this program and the ranking of the University of Tokyo, as well as each laboratory and their specializations. They were doing very cutting edge research, so I decided to transfer from my previous university to the University of Tokyo.

What are the best features of the program?

K In the first semester, we experienced lab rotations and it was really good for helping us to determine our research paths. Also, the Project Assistant Professors helped us during labs and classes, and with whatever doubts or misconceptions we had about our academic or social life. This is one reason why we didn't feel lonely when we initially came to Japan.

Y GSC has helped me to build a solid foundation in chemistry. We learn different fundamental chemistry topics and apply that knowledge in the student laboratory course. Also, I have made a lot of friends, and people such as the GSC staff and student lab coordinators are all great. Whenever I think about my time on GSC, I feel that it's a very memorable experience.

How does participating in GSC help you achieve your long term aspirations?

W I want to do pharmaceutical science so I am currently getting experience in a lab which specializes in bioinorganic chemistry. My work is related to artificial DNA and may be applicable to pharmacy.

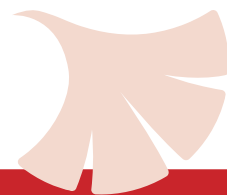
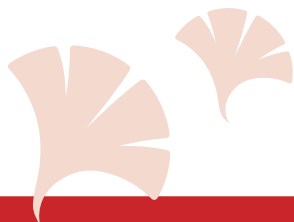
K Now I want to become a researcher in chemistry. Living in Tokyo and doing research, a blend of both things, is what I want to do. I think because the culture in Japan is very similar to that in India, life here is very comfortable for me.

Do you have any advice for prospective applicants?

W If you want to apply for this program, you have to transfer to GSC for the remaining two years of your degree. It's a really big decision, but for me, it was worth it.

Y If you want to experience new cultures, you should just come. This program has also just started but I think it will become a famous and well-established program, so in the long-term it's a big strength.
Just go for it!

Visit our website to read more student interviews:
<http://www.s.u-tokyo.ac.jp/GSC/studentlife/studentvoices.html>



EXPERIENCING JAPAN ON GSC



1



2



3



4



5



6



7



8



9

1. Trip to Shimodashi (Qiqi)

2. Beach in Okinawa (Youyuan)

3. Nara Park (Wenxuan)

4. Lake Akan (Jennie)

5. Omotesando in Tokyo (Junhao)

6. Sagano in Kyoto (Yan)

7. Mount Fuji (Kunal)

8. Winter in Hokkaido (Wenyu)

9. Miyajima, Hiroshima (Anna)

Future Prospects

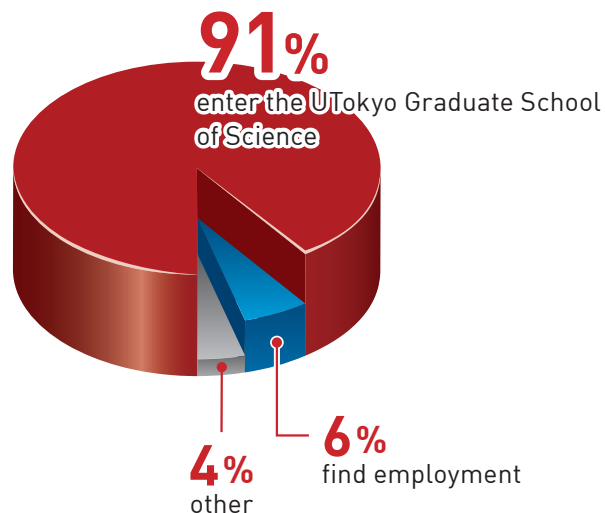
As an undergraduate course, GSC prepares students for success. Our graduates have gone on to pursue postgraduate studies at UTokyo and other renowned universities, as well as find employment in the sciences. There are endless possibilities as to which path students graduating from the Faculty of Science can take after completing their studies.

1 Graduate School of Science

We encourage our undergraduate students to pursue further studies at the Graduate School of Science where all five departments cover a wide range of specialized fields of science. The graduate school provides an excellent environment for first-rate intensive research with the world's leading researchers, and students can learn at the cutting edge of their field.

2 Seeking Employment

The most useful tool for carving students future is the extensive UTokyo alumni network. Upon graduation, students automatically become part of this invaluable global network and have the best chance at the brightest futures.



2015 Annual Figures

UTokyo undergraduates find a variety of job opportunities in renowned global organizations and prestigious institutions, such as:

Accenture Japan Ltd	Lenovo Japan
All Nippon Airways Co., Ltd.	Max Planck Institute
BMW Japan Corp.	Mazda Motor Corporation
Bridgestone Corporation	McKinsey & Company
Citigroup Japan Holdings Corp.	Mitsui & Co., Ltd.
Credit Suisse Group AG	Morgan Stanley Japan Holdings Co., Ltd.
Deloitte Touche Tohmatsu Limited	NEC Aerospace Systems, Ltd.
Fujifilm Holdings Corporation	Nikon Corporation
GE Healthcare Japan	Novartis Pharmaceuticals Japan
GlaxoSmithKline	NTT Electronics Corporation
Google Inc.	Olympus Corporation
Hewlett-Packard Japan, Ltd.	Panasonic Corporation
High Energy Accelerator Research Organization	Pfizer, Inc.
Hitachi Solutions, Ltd.	Pricewaterhouse Coopers
IBM Japan, Ltd.	Procter & Gamble Japan K. K.
Japan Airlines Co., Ltd.	SanDisk Corporation
Japan Tobacco Inc.	Shiseido Company, Limited
Johnson & Johnson K. K.	Sony Corporation
J. P. Morgan & Co.	Toyota Motor Corporation
JX Nippon Oil & Gas Exploration Corporation	Yahoo! JAPAN Corporation
Kao Corporation	

and more...

FAQ

When can I apply for GSC?

→ The application period for GSC is typically from January to April. Please check our website regularly for announcements regarding when the application period opens.

How many students are accepted onto the program?

→ Approximately five students are accepted onto GSC each year.

Can I apply if I'm not a chemistry major?

→ If you have fulfilled all the necessary course requirements, you may be eligible to apply. Please visit our website for further details.

What is the minimum GPA requirement?

→ No minimum GPA has been set as the GSC Faculty Committee reviews all aspects of the application (i.e. academic records, TOEFL / IELTS scores, personal statement, evaluation forms, etc.)

What application documents are required to apply?

→ Alongside the GSC online application form, the following documents must be submitted:

- Personal Statement
- TOEFL / IELTS Score Report (if applicable)
- Two Evaluation Forms
- Certificate of Student Enrollment
- Copies of course syllabi
- University/College Transcript
- Middle School and High School Transcript(s)
- A copy of your passport (photo page)

My native language is not English, but I am currently attending an all-English university. Do I have to submit English proficiency test scores?

→ You are not required to submit English proficiency test scores if you have received a formal education entirely in English for the past 8 years or English is your native language.

For further inquiries, please visit our website:
<http://www.s.u-tokyo.ac.jp/GSC/>



Ginkgo trees in the fall



Spring on Hongo campus



Sanshiro Pond



Akamon (Red Gate)



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