

Graduate School of Science
and Faculty of Science,

Tohoku University



Astronomy

- ▶ Cosmology
- ▶ General Relativity
- ▶ Galactic Astronomy
- ▶ Stellar Physics
- ▶ Experimental Astronomy

Geophysics

- ▶ Solid Earth Physics
- ▶ Atmospheric and Oceanic Science
- ▶ Planetary and Space Physics

Affiliated Centers

- ▶ Center for Atmospheric and Oceanic Studies (CAOS)
- ▶ Planetary Plasma and Atmospheric Research Center (PPARC)
- ▶ Research Center for Prediction of Earthquakes and Volcanic Eruptions

Chemistry

- ▶ Inorganic and Analytical Chemistry
- ▶ Organic Chemistry
- ▶ Physical Chemistry
- ▶ Interdisciplinary Chemistry
- ▶ Advanced Atomic and Molecular Science
- ▶ Reaction Mechanism and Dynamics
- ▶ Solid-State Chemistry
- ▶ Biofunctional Chemistry

Affiliated Centers

- ▶ Research and Analytical Center for Giant Molecules

Related Research Institutions

- ▶ Institute of Multidisciplinary Research for Advanced Materials (IMRAM)
- ▶ Institute for Materials Research (IMR)
- ▶ WPI Advanced Institute for Materials Research (WPI-AIMR)

Earth Science

- ▶ GeoEnvironmental Science
- ▶ Earth and Planetary Materials Science

Affiliated Centers

- ▶ Museum of Natural History

Related Research Institutions

- ▶ Center for Northeast Asian Studies
- ▶ Tohoku University Museum
- ▶ International Research Institute of Disaster Science
- ▶ Graduate School of Environment Studies

Tohoku University

History

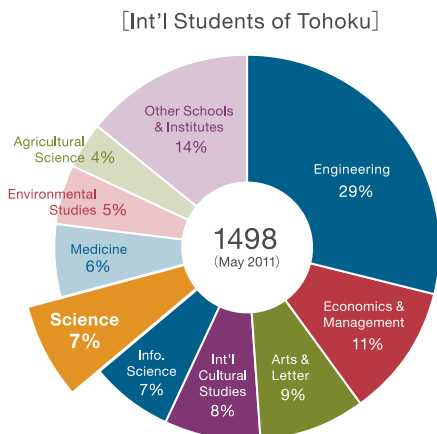
- 1907 Tohoku Imperial University was founded as the 3rd national university
- 1911 College of Science was founded
- 1913 College of Science accepted first female students in Japan
- 1922 Albert Einstein visited Tohoku University
- 1929 Faculty of Science awarded first doctoral degree to international student in Japan
- 1937 Niels H.D. BOHR visited Tohoku University
- 1953 Graduate School of Science was founded
- 2004 International Graduate Program for Advanced Science (IGPAS) established as the first graduate program in English in Japanese national universities
- 2011 Faculty of Science celebrated the centennial anniversary
Advanced Molecular Chemistry Course (AMC) was established

Research/International Programs

- 2002- 21st Century Center of Excellence (COE) Program
- 2007- Global Center of Excellence (COE) Program
- 2009- World Premier International Research Center Initiative (WPI)

Renowned Alumni & Researchers

- LU Xun (Medicine), Chinese writer
- SU Buqing & CHEN Jiangong (Science), Chinese mathematicians
- YAGI Hidetsugu (Science) & UDA Shintaro (Engineering), Inventors of Yagi-Uda antenna
- IJIMA Sumio (Science), discoverer of carbon nanotubes
- TANAKA Koichi (Engineering), Nobel Chemistry Prize 2002 winner
- HONDA Kotaro, Material scientist known for KT steel
- NISHIZAWA Junichi, Engineer known for invention of optical communication system

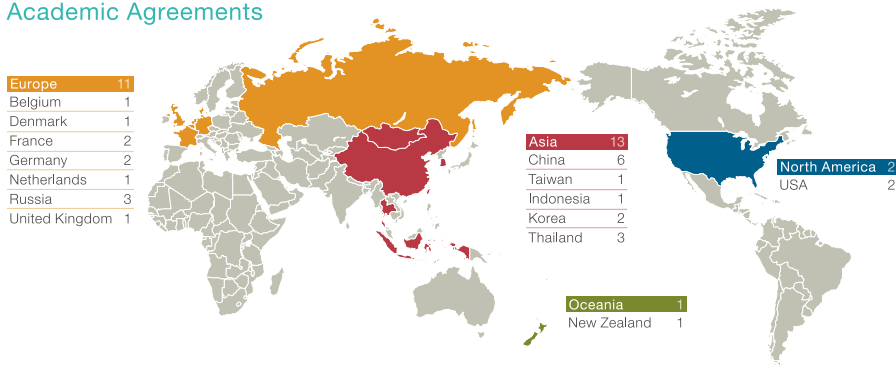


	Tohoku	Science
Faculty & Staff	—	402
Degree Students (2011)	18,225	2,282
Undergraduate	10,967	1,409
Master's	4,471	589
Doctoral	2,787	284
Degree conferred (2010)	4,784	350
Bachelor	2,449	335
Master	1,782	249
Doctor	553	66

School of Science

Faculty of Science(Undergraduate)		Graduate School of Science
Mathematics	→	Mathematics
Physics	→	Physics
Astronomy and Geophysics	→	Astronomy
Chemistry	→	Geophysics
Geoenvironmental Science	→	Chemistry
Earth and Planetary Materials Science	→	Earth Science
Biology	→	Graduate School of Life Sciences

Academic Agreements



Professor 1 Minoru UEDA

The Chemistry Department is one of the most historic department in Tohoku University. Over 100 years since its founding, our faculty has grown to hold its 65-members and is known as the largest in Japan. We cover all area of chemical science from computational molecular science, reaction dynamics of molecular cluster, material sciences including organic and inorganic, organocatalyst, total synthesis of natural products, to chemical biology. The members of the Department of Chemistry are instilled with a strong desire to seek and investigate unknown areas, and many of our outstanding scientists have left a legacy of important work in their respective fields. And we are looking forward to your participation as one of a member of our department.



The aim of our research lies in the discovery of novel chemical concept underlying the mode-of-action of bioactive metabolite through chemical biology.

Research Area: natural products chemistry, chemical biology.

Research Topic:

- ① Chemical biology of diacylglycerol rhythmic plant behavior (phytoestrogen)
- ② Chemical biology of a steroid hormone inducing hypertension in mammals
- ③ Development of new strategy for target ID of natural products

Educational Programs

Undergraduate Degree Programs

- ▶ Advanced Molecular Chemistry Course (AMC) [English](#) [Chemistry only](#)
- ▶ Regular program [Japanese](#)

Graduate (Master's & Doctoral) Degree Programs

- ▶ International Graduate Program for Advanced Science (IGPAS) [English](#)
- ▶ Regular program [Japanese](#)

Non-Degree Programs [English](#) [Japanese](#)

- ▶ Research Student Program
- ▶ Auditing Student Program
- ▶ Limited Programs with Partner Institutions [English](#)

Exchange Programs

- Junior Year Program in English (JYPE)
- Direct Enrollment Program (DEEP)
- Cooperative Laboratory Program (COLABS)

Special Programs

- Double Degree Program (DDP)
Ecoles Centrales (Lille, Lyon, Marseille, Nantes, & Paris), France
Institut National des Sciences Appliquées (INSA) de Lyon, France
- Joint Education Program (JEP)
Tsinghua University, China
- Program for Fostering Global Human Resources (FGHR)
Shanghai Jiao Tong University, China
- Campus Asia Program (CAP) [Chemistry only](#)
Nanjing University & Shanghai Jiao Tong University, China
Seoul University & Pohang University of Science and Technology, Korea

Program		Application Period		Course Period	Degree
		Spring (Apr.)	Fall (Oct.)		
Doctoral	IGPAS	—	November	3 years	Doctor of Science
	General	January	July		
Master's	IGPAS	—	November	2 years	Master of Science
	General	September	July		
Undergrad	AMC	—	Sept-May	4 years	Bachelor of Science
	General	January	—		
Research Student		Anytime	Anytime	1-12 months	N/A
Auditing Student		January	June	1-2 semesters	
Exchange		December	March	1-2 semesters	
Special		Contact home university		Vary depending on program	

Financial Aids

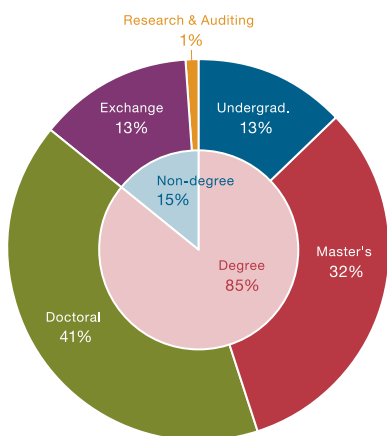
International students may have an opportunity to apply for the fellowships/scholarships before or after admission. In addition, degree students are eligible to apply for admission and/ or tuition fee waiver.

- ▶ Tohoku University President Fellowship
- ▶ Japanese government (MEXT) scholarship
- ▶ Japan Student Services Organization (JASSO) scholarships
- ▶ Japan Society of Promotion of Science (JSPS) research fellowship
- ▶ Private foundations scholarships

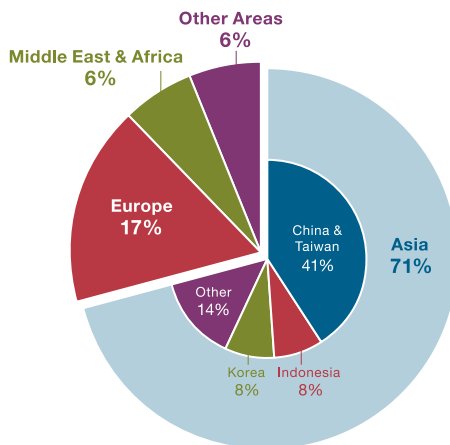
University Dormitories

- ▶ International Houses: 441 rooms up to 1 year
- ▶ University House Sanjo (UHS): 130 rooms up to 1 year

International Students in Science (as of Oct 2011)



[By Program]



[By Nationality]

IGPAS master's student in Geophysics from Indonesia

Septi PERWITASARI

I applied for IGPAS because International Space Station-Ionosphere, Mesosphere, Upper Atmosphere and Plasmasphere Mapping Mission (ISS-IMAP) led by professors of Department Geophysics attracted me a lot. Now I am working with the ISS-IMAP/VISI data for airglow observation at Planetary Plasma and Atmospheric Research Center (PPARC). Being a part of one of the biggest research centers for planetary science has given me a wide range of opportunities. I can work with the most recent data, make collaboration with scientists from other universities, attend international conference, and have a discussion with and receive feedbacks from experts in my field. Sendai is a very livable city, a city where you can find most of the convenience of modern life with the warm greeting of friendly neighborhood. So, come join us, experience the cutting-edge research life in one of prestigious universities in Japan!



Mathematics

- ▶ Algebra
- ▶ Geometry
- ▶ Analysis
- ▶ Global Analysis
- ▶ Applied Mathematics

Physics

Theoretical Physics

- ▶ Particle Physics and Cosmology
- ▶ Nuclear Physics
- ▶ Condensed Matter Physics
- ▶ Statistical Physics



Experimental Nuclear and Particle Physics

- ▶ High Energy Physics
- ▶ Nuclear and Hadron Physics
- ▶ Neutrino Science

Experimental Condensed Matter Physics

- ▶ Low Temperature Physics
- ▶ Quantum Physics
- ▶ Magnetism
- ▶ Materials Research
- ▶ Nanoscience
- ▶ Biophysics
- ▶ Solid State Spectroscopy

Related Research Institutions

- ▶ Institute for Materials Research (IMR)
- ▶ Research Center for Neutrino Science (RCNS)
- ▶ Institute of Multidisciplinary Research for Advanced Materials (IMRAM)
- ▶ Research Center for Electron Photon Science
- ▶ Cyclotron and Radioisotope Center
- ▶ WPI Advanced Institute for Materials Research (WPI-AIMR)

Professor 2 Dapeng ZHAO

Among eight universities I have studied and worked so far in China, USA, and Japan, I love Tohoku University the most. The natural environment and weather here are very nice and pleasant. People are very kind and easy to get along with. The city is safe. The foods are natural, clean, and delicious. That is why I enjoy the life here in Sendai, but these are not the only reasons. Tohoku University is one of the best universities in the world, at least in Seismology and Geophysics. The research facilities and environment here are very excellent. Many famous geophysicists have worked in Department of Geophysics, Graduate School of Science, and they have made a number of important discoveries which have appeared in textbooks of Earth Sciences worldwide, such as seismic tomography studies, early studies of microearthquakes, pioneering studies of earthquake source process, discoveries of the hemispheric structure of the Earth's inner core and the double seismic zone.



Research Area: Earthquake seismology, seismic tomography, earth structure and dynamics, deep structure and origin of volcanoes, structure and dynamics of subduction zones, hotspots and mantle plumes.

Research Topic:
① Seismic tomography and dynamics of the Earth's interior;
② Structure and dynamics of subduction zones;
③ Generating mechanism of earthquakes;
④ Origin of hotspots and mantle plumes;
⑤ Earthquakes and lunar interior structure.

Sendai City

Capital of Miyagi Prefecture

Largest city in Tohoku (Northeast) Region

City of Natural Beauty & Tradition

Population: 1,040,000 (as of Oct. 2012)

Foreign residents: about 9,000 (as of Oct. 2012)*

Area: 788km²

Distance from Tokyo: 350km

Temperature: Annual average 12.4°C

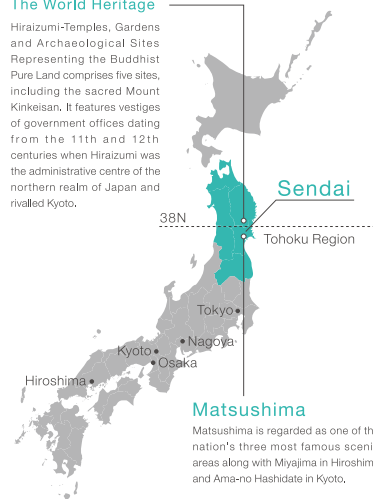
Hottest (August) 27.9°C/21.4°C

Coollest (January) 5.3°C/-1.7°C

Access Tokyo Station: 2 hr. by bullet train
Tokyo (Narita) Airport: 1 hr. by plane
Haneda Airport: 3 hr. by train

Hiraizumi The World Heritage

Hiraizumi-Temples, Gardens and Archaeological Sites Representing the Buddhist Pure Land comprises five sites, including the sacred Mount Kinkeisan. It features vestiges of government offices dating from the 11th and 12th centuries when Hiraizumi was the administrative centre of the northern realm of Japan and rivalled Kyoto.



Matsushima

Matsushima is regarded as one of the nation's three most famous scenic areas along with Miyajima in Hiroshima and Ama-no Hashidate in Kyoto.

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