

Course Number	06079
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## 2006 「The International Priority Graduate Programs (PGP)」

～Advanced Graduate Courses for International Students～

### 【1. Profile of the University】

①University Department	The Graduate University for Advanced Studies, School of Multidisciplinary Sciences		
②President	KODAIRA, Keiichi		
③Address (Headquarters)	〒240-0193 Shonan Village, Hayama, Miura-gun, Kanagawa, Japan		
④Contact	Division	Director for Academic and Student Affairs	
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	TEL/FAX Number	TEL. +81-46-858-1521 / FAX +81-46-858-1541	
⑤Web-Address	<a href="http://www.soken.ac.jp/en/">http://www.soken.ac.jp/en/</a>		
⑥Enrollment (only Graduate School)	90 (includes MEXT's Scholarship Students: 45 )		

### 【2. Outline of the Course】

①Course	An International Ph.D. Program based on MOU
②Degree	Doctor (5 years)
③Graduate Course, Department	Department of Informatics, School of Multidisciplinary Sciences
	(Address) 2-1-2, Hitotsubashi, Chiyoda-ku, Tokyo, 101-8430 Japan
④Collaboration (Universities, Graduate courses, Departments)	School of Multidisciplinary Sciences / Department of Statistical Science, Department of Polar Science
⑤Quota	4 (including MEXT's Scholarship Students: 2 ) (including Japanese: 0 )
⑥Faculties	105 (Full-time(only for this course): 102, Full-time(at the department offering this course): 2, Part time: 1 )
⑦Representative of the Course	Job Title: Dean of the School of Multidisciplinary Sciences, Professor
	Name: NEGISHI, Masamitsu

### **【3. Contents of the Course】**

#### **Summary**

The School of Multidisciplinary Sciences fosters researchers and advanced specialists who can pursue multidisciplinary research, especially from the view point of information and systems, for solving important problems related to the metamorphosis of the human society in the 21<sup>st</sup> century. The school was initiated in order to promote collaborative research not restricted to the framework of each field, and to nurture the ability to contribute to the solution of complex and diverse problems related to the earth, environment and society. As a part of the activity, we pursue research and education geared to an international Ph.D. degree, whose nuclei are excellent students from esteemed universities and research institutes with which the founding research institutes of the school have research exchange MOU (Memorand-um of Understanding).

#### **Contents and Characteristics**

##### **(International Research and Education System)**

At the school, comprehensive research and education are pursued on scientific and technological approach to observation, collection and management of data, analysis, modelling, estimation, simulation etc., which are necessary for solving problems in natural phenomena or various phenomena related to man, nature, and society. The originality to cope with the multidisciplinary sciences is cultivated, and a wide perspective and flexible thinking which can contribute to a richer human society and to the solution of the earth's environmental problems are developed. This is realized by Ph.D. education at the forefront of research at the international research institutes. There are no other schools in our country where researchers in statistics, informatics and polar science are gathered in such abundance. The faculty of the three departments of our school not only cover the research fields of the multidisciplinary sciences, but also staff for the major boundary domains are arranged with an unmatched density. Hence, the curriculum is distinguished in Japan for its coverage and depth. It trains students with various backgrounds in education and experience to become researchers and advanced specialists of the next generation with international competitiveness.

The National Institute of Informatics (NII), which is the founding institute of the Department of Informatics, has about 30 MOU's with leading universities and research institutes all over the world, and is actively promoting exchange with a budget for faculty, researchers and postgraduate students to visit each other to exchange or collaborate in research. In addition, every year, 20 or so postgraduate students from the MOU institutes come to NII for an internship for 2 to 6 months. They are supervised by the faculty of NII, and some of the students apply for the Ph.D. course of our department.

The Department of Statistical Science aims to broaden the practical application of statistical science such as the statistical paradigm based on the AIC (Akaike Information Criterion), ABIC Bayes method and modelling, and together with the research of related fundamental theories, to spread and develop the creative tradition and research results of the world leading Institute of Statistical Mathematics, by the international upbringing of successors. Unlike in the west, in Japan there are at present no universities with statistical departments. As such, we are the only department carrying out a comprehensive postgraduate education in statistical science in wide ranging research fields.

The Polar Science Department is aiming at conducting an education characterized in the sense of field science, by participating in the activities of the International Antarctic Institute concerning the South Pole, which is planned with the University of Tasmania of Australia as its nucleus, as well as the international exchange between universities (UNIS) already taking place at the Nielsen Base in the Sbarbal Islands, concerning the North Pole.

##### **(A Program Oriented to Foreign Students)**

The National Institute of Informatics has many foreign faculty members and researchers, and is accepting many foreign students. The students' rooms are virtually an exchange place of multi-culture. Moreover, from the initiation of the postgraduate course, we have offered free Japanese language courses twice a week according to level, by specialist lecturers, so that foreign students can adapt to life in Japan, and pursue study, research and everyday life smoothly. Further, every year, we support tours for students so that they can get acquainted with Japanese culture etc.

At the Department of Statistical Science, the Institute of Statistical Mathematics regularly has world-famous researchers from various countries, as full-time, visiting faculty members, collaborative researchers, or post-doctoral fellows. We plan to organize advanced intensive lectures by visiting foreign members of faculty.

At the Department of Polar Science, world-famous foreign researchers of the Antarctic visit or stay with us one after another, so that students constantly participate in seminars in English.

Further, at our school, we have lectures entitled “Presentation in English” given by faculty members from different departments, who are either English, American or have rich experiences abroad. These lectures not only help research and presentation for foreign students, but also Japanese students attend, and are offering a good opportunity to students and teachers from different departments to communicate with each other.

The office of each department is prepared to support foreign students to apply for visa, offer information about lodging, etc. Also, the university appoints Japanese students as tutors to support foreign students in research and everyday life.

### **Education and Supervision System**

In our university, we have many teachers per student, and offer a supervision and support system by several teaching staff as well as thesis supervision by the main supervisor. By having close contact with researchers active in the forefront of research at the founding institutes, it is expected that students will naturally learn the attitude and methodology towards research. Domestic and foreign visiting staff sometimes join the jury of the Ph.D. thesis. Also, seminars by domestic and foreign visiting professors and researchers are held, frequently in English when necessary, and students are encouraged to participate and communicate on these occasions.

The Department of Informatics has as its foundation, information engineering and computer science, and covers a wide range of fields, from fields close to physics as quantum computing to the humanities and social sciences, and pursues research and education in various phases from fundamental, applied to practical. In order that students obtain their degrees within the standard period of study, they are asked to present intermediate progress reports twice before submitting the thesis. Further, the students are financially supported to present their research results at international conferences. Situated in central Tokyo, it is convenient to obtain information and for academic communication.

The Department of Statistical Science is the only comprehensive doctoral course in statistical science, and have accepted students from wide ranging fields of science. Education and research covering the whole field of statistical science is done by the faculty of various fields from theory to application. Sometimes, students take part in joint research projects with researchers at other universities or institutes, in order to gather research material for their thesis. Foreign students also take part in the annual students’ research presentation meeting of the whole department and institute, and the proceedings is published. Students are also encouraged to present their research results at domestic conferences and seminars related to statistical science, and to participate in seminars or joint research projects abroad.

The Department of Polar Science is the only comprehensive Ph.D. course in polar science in Japan, and have accepted students from wide-ranging fields, and pursues education and research in the whole area of polar science.

### **Language Used**

At the Department of Informatics, 70% of the lectures are done in English whenever there is a foreign student. The seminars are basically done in English in presence of a foreign student. At the Department of Statistical Science, teaching is basically done in English for foreign students, unless he is fluent in Japanese. At the Department of Polar Science, seminars and lectures are done in English when a foreign researcher or student is participating.

### **Admission Process, Countries etc.**

The nationality of the student is not specified, but students from Asia as a region close to Japan are welcome. The actual admission process is based on submitted documents, sufficient interview in person, by telephone, or by internet, by several members of the faculty. After recommendation from each department, the final selection of the students are decided by the meeting of the dean of the school and the heads of the departments.

### **Expected Careers after Graduation and the Follow-up System**

From past records, faculty members of universities, research institutes of the student’s home country, researchers at companies, post-doctoral fellows or assistant professors at the founding institutes are expected careers after graduation. We intend to initiate MOU’s with the graduates’ organizations with the graduate as the key-person, and to promote communication and exchange in research. We also plan a follow-up of the graduates using an internet OB network, and regular home-coming lectures and research exchange.

### **Others**

The University (Sokendai) is characterized by its whole-university education program which extends the framework of each founding institute, so that an international exchange among faculty and students across different schools and fields become possible. In addition, the departments in this school are all situated within the wards of Tokyo, so that transport is convenient and students and faculty can easily move around and do research and teaching face-to-face.