

Graduate School of Science
Department of Mathematics

Diploma Policy

1. The master's program in the Department of Mathematics aims to train researchers and technicians with a high level of expertise, sense of ethics and the ability to contribute to society. It also aims to create researchers who are highly professional and hold an international perspective. Successful candidates will have attended school for a specified period and acquired the necessary credits for the Department of Mathematics. Furthermore, those who have passed a final examination on their master's thesis will receive a master's degree (Master of Science).

A graduating student will acquire the following abilities:

- (1) The ability to think logically and critically; and actively solve problems based on advanced specialist knowledge, research skills and knowledge of the liberal arts.
 - (2) The ability to understand both basic and applied mathematics and to disseminate or communicate it to the general public.
 - (3) The acquisition of an international perspective and the dialogue skills to deal with related issues in the field of mathematics.
2. The doctoral program aims to train mathematics researchers to be at the core of research and educational institutions with knowledge of ethics and the ability to contribute to society in their field of specialization ; and train educators and skilled professionals with the ability to apply mathematical knowledge. A doctoral degree (Doctor of Science) is accredited and awarded to those who have attended courses in the program for a specified period, acquired the necessary credits for the Department of Mathematics, had their doctoral dissertation been recognized as having reached the required standard, passed a consequent examination and an examination of general academic ability.

A graduating student will acquire the following abilities:

- (1) The ability to obtain new knowledge by analyzing and solving problems with advanced technical knowledge and independent research skills. Furthermore, the ability to educate researchers about your field of study.
- (2) The ability to understand and communicate concepts in basic and applied mathematics bearing in mind different views. Furthermore, the ability to demonstrate leadership as a highly skilled professional; contributing to the creation of a sustainable society.
- (3) The acquisition of the international perspectives and dialogue skills to proactively deal with related issues in the field of mathematics.

Curriculum Policy

1. In the master's program, the curriculum is based on courses in the liberal arts, basic academic ability and expertise in research gained in undergraduate study; and organized so as to realize the purpose set for that major, through Specialist Courses, Courses in the liberal arts, and Research Guidance.

- (1) In order to acquire more advanced specialist knowledge, special lectures and seminars are taught in a focused and effective manner.

- (2) Courses in the liberal arts not only foster the attainment of a broad academic knowledge of the field of study, but also support the attainment of better communication skills, a deeper understanding of ethics, and a greater sense of global literacies.
- (3) Research Guidance helps students acquire the knowledge and experience necessary to conduct research through an understanding of the literature and discussions with supervisors. Moreover, Research Guidance helps students to develop such skills as conducting presentations of research and academic papers at domestic and foreign academic societies. In addition, students will be guided to increase their ability to express themselves effectively, to acquire a mastery of both research and development skills and problem-solving skills. Students will also be given guidance on becoming active as a researcher or highly skilled professional with an international perspective, either at home or abroad. In the two-year process of putting together research results in a master's thesis, research guidance will help foster the ability to analyze, evaluate and communicate research content.

2. The doctoral program is based on the advanced ability to expand on the knowledge about research and development that was acquired up to master's program level. The curriculum is organized on the premise of achieving the purpose set for that major, through Research Guidance and Courses in the liberal arts.

- (1) Research Guidance helps students acquire the knowledge and experience necessary to conduct research through an understanding of the literature and discussions with supervisors. Moreover, Research Guidance helps students to develop such skills as how to conduct presentations of research and academic papers at domestic and foreign academic societies. In addition, students will be guided to increase their ability to express themselves effectively, and to acquire a mastery of both research and development skills and problem-solving skills. Students will be given guidance on how to start becoming active as a researcher or highly skilled professional in their field of study, either at home or abroad. Through the three-year process of putting together research results in a doctoral dissertation, research guidance will help foster the ability to analyze, evaluate and communicate research content.
- (2) Courses in the liberal arts support the high degree of academic knowledge, ethics and practical ability necessary to foster educators with the types of research and development skills in applied mathematics necessary for those wishing to become independent researchers, or highly skilled professionals. For that purpose, it is possible to take courses in other majors and other graduate schools.
- (3) Lectures are organized to reflect current trends.

Admissions Policy

Under the educational research philosophy of the university, which is based on the practice of the scientific method and the meritocratic tradition; the university seeks, through a range of selection methods, those who match the following criteria:

- 1. The master's degree program is based on the basic academic ability and wide range of liberal arts acquired in the bachelor's degree program. The aim is to acquire the necessary skills for those with the intent to discover and solve problems through research in the specialist field of mathematics. The master's degree program seeks those who are willing to learn and study theory and conduct research and collaboration with a diverse range of people.
- 2. The doctoral program is based on the expertise in research acquired up to master's program level. The doctoral program not only seeks those who are willing to independently conduct creative research and, thereby, to contribute to society, but also those who are willing to conduct research with an international

perspective through joint research conducted both in Japan and abroad.

Evaluation methods for the types of abilities required for the admissions policy in differing entrance examinations:

(General entrance examination)

Those with specialist knowledge of mathematics, ability to think for oneself and English ability:

In the master's program, candidates will be selected through an examination of documents submitted, written examinations (basic and specialist subject, English), and through interview. In the doctoral program, candidates will be selected through an examination of documents submitted and on the basis of an oral examination of their master's thesis. The university seeks those who have the thinking skills and English ability commensurate with the characteristics of each major.

(Recommendation entrance examination)

In the master's program, candidates who have specialist knowledge of mathematics, English ability, thinking and communication skills, and who have the determination to conduct independent research; will be selected by an examination of documents submitted and through interview.

(Special selection for working people, foreign student entrance examination)

The university seeks those who have acquired experience of the basics of mathematics in research institutes, companies or universities, have a positive attitude toward learning, and/or have skills acquired abroad. In the master's program, candidates will be selected through an examination of documents submitted, their ability with foreign language(s) and an oral examination of scholarly aptitude. In the doctoral program, candidates will be selected through an examination of documents submitted and an oral examination of their master's thesis. The special selection of mature students is conducted only in the doctoral program.