

AIQDS 2022

Application Guideline

Introduction

We have been conducting Data Sciences Program (DSP, 2015-2017) and DSP II (2018-2020), both of which were focused on development of data scientists and domain experts with data science knowledge and skills. Although many international students have graduated from our programs as potential data scientists and experts, the situations involving data science has changed dramatically in this few years. One of the major changes is rapid improvement of AI technology and its commoditization. The others are emerging computational technologies such as HPC and quantum computing. Recent acceleration of digital transformation involving those changes urge us to launch a brand-new international graduate program of data science which fully incorporates artificial intelligence associated with emerging HPC and quantum computing (AIQDS). It is worth remarking that this unique educational program is only possible with our legacy of DSP and DSP II, and leading achievement of HPC and quantum computing in Tohoku University.

AIQDS is a graduate program to develop highly-specialized globally working researchers who can find out and solve real-world problems by utilizing knowledge and skills of data science and artificial intelligence through HPC and quantum computing. This program started in October, 2021, as a part of “The International Priority Graduate Programs (PGP) -Advanced Graduate Courses for International Students-” supported by the Ministry of Education, Culture, Sports, and Technology (MEXT). In this program, students take courses related to their own expertise in their graduate school, and also learn data science, artificial intelligence, and fundamentals of computations including HPC and quantum computing. On top of that, through various trainings including PBL, students sharpen their sense for finding out real-world problems and learn practical skills for solving them by utilizing state of the art computing technologies such as HPC and quantum computing.

Graduate School of Information Sciences (GSIS) plays a managing role of AIQDS in collaboration with Graduate Schools of Life Sciences, Economics and Management, and Biomedical Engineering at Tohoku University. Actually, the students take their expertise course in their graduate school, and learn most of the subjects/trainings related data science and PBL in GSIS. The courses related to the program are mostly taught in English. In addition to learning of the expertise and data science, AIQDS expects the students to be familiar with Japanese language and culture, and to build various human networks.

Program

The AIQDS is a graduate program that combines a two-year master's program with a three-year doctoral program. A participant in this program must be a student of either of the four graduate schools: Graduate Schools of Information Sciences (GSIS), Life Sciences, Economics and Management, and Biomedical Engineering. Actually, the student's learning and research are supervised by a primary mentor in the student's graduate school. In addition, the program assigns a non-GSIS student with GSIS professor/associate professor as a sub-mentor for supporting the student's application of data science to her/his research.

Master's course

(1) Course work

- I. Expertise course offered by the student's own graduate school
- II. Fundamental data science course
- III. Data science course: sensing, high-performance computing, artificial intelligence, statistics, computer science, data mining, quantum computing, etc.

(2) Practical training and internship

- I. Data science training camps
- II. Internship in private companies (elective subject)

(3) Research work for the master degree in the student's graduate school

Master's course : 2 years

Lectures
Practical training
Master's thesis

Doctor's course

(1) Data science project-based learning of real-world problem solving

(2) Advanced data science seminars

The program assigns international conference, symposium, and/or workshop as advanced data science seminar

(3) Research work for the PhD in the student's graduate school

Doctor's course : 3 years

Advanced seminars
Project-based learning
Doctor's thesis

Eligibility for AIQDS 2022

- Applicant must be an excellent student newly coming from abroad to study as a graduate-level foreign student.
- Applicant must have earned over 2.3 evaluation point average of their latest or current degree program based on the specialized calculation (see note [1]).
- Applicant must be able to leave for and arrive in Japan by the beginning of **October, 2022**.
- Applicant for AIQDS need to satisfy one of the following conditions:

For 5 years Master's and Doctor's Course Applicant

- i) Those who have graduated, or will graduate, from a university, that is, completion of a total of **16** years of school education by **September 30, 2022** (see note [2]).
- ii) Those who have reached **22** years of age by **September 30, 2022** and can be recognized to have an academic ability equivalent or superior to those who have graduated from a university based on individual qualification examinations.

For 3 years Doctor's Course Applicant

- i) Those who have earned, or will earn, Master's degree by **September 30, 2022**.
- ii) Those who have engaged in research activities for at least **2** years at an educational or research institution after graduation from a university and can be recognized to have an academic ability equivalent or superior to those who have earned Master's degree on the basis of their research performance.
- iii) Those who have reached **24** years of age by **September 30, 2022** and can be recognized to have scholastic ability equivalent or superior to those who have earned Master's degree based on individual qualification examinations.

Notes

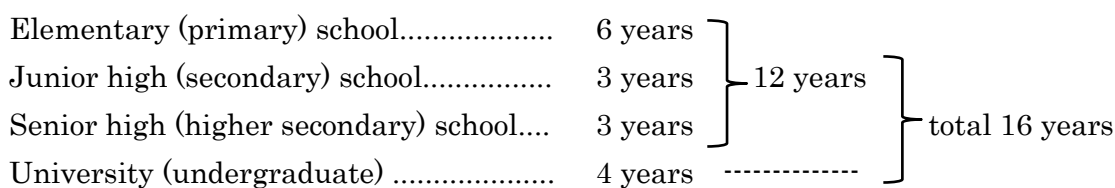
[1] The calculation procedure of the evaluate point average

Scale	Grade				
	4-scale evaluation	A		B	C
100-80		79-70	69-60	59-	
5-scale evaluation	S	A	B	C	D
	A	B	C	D	F
	100-90	89-80	79-70	69-60	59-
Evaluation Point	3	3	2	1	0
Number of your total credit	N4	N3	N2	N1	N0

$$\text{Evaluation Point} = \frac{(N4 + N3) \times 3 + N2 \times 2 + N1 \times 1}{N4 + N3 + N2 + N1 + N0}$$

[2] The term “graduated from a university” means a total of **16** years of educational programs, which consists of **12** years of school education and a **4** years undergraduate (bachelor) program.

e.g. Educational programs in Japan:



Financial Support

Japanese government (MEXT) scholarship will be available for excellent students who intend to be actively engaged in the AIQDS program and contribute to its objectives. A monthly stipend is available; the detail and other information are listed below. Awardees of the scholarship will be selected from the candidates who are successful in the AIQDS screening. The MEXT scholarship scheme applies only to those who live outside of Japan at the time of application and were born on or after **April 2, 1987**.

- (a) Exemption from Application, Admission and Tuition fees
 - (b) Monthly stipend: **146,000 JPY** for 2 years in Master's course.
 - (c) Flight tickets between the applicant's country of nationality and Japan
- * Self-financed students are also encouraged to participate in AIQDS.

For Master and Doctor: 5 years course

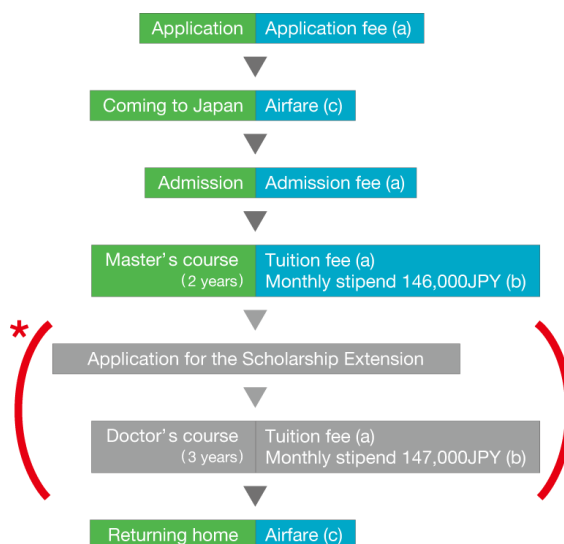
Number of recipient as the candidate of MEXT scholarship: 4 students

Term of the scholarship: **2**-years in Master's course.

***** Please contact AIQDS Admissions Office to see what kind of support can be considered when you go onto your Doctor's course.

For Doctor: 3 years course

Please contact AIQDS Admissions Office to see what kind of support can be considered.



Application

Application period

- Pre-application period: **December 20, 2021 - January 18, 2022**
- Deadline of Application: **January 26, 2022**
- Notification Period: **Middle of April, 2022**
- Program begins on **October 1, 2022** (Fall semester, 2022)

How to Apply

Step 1: Find the candidate of your prospective supervisor among the faculty member in the field of your interest.

Application will not be accepted without the consent of acceptance by your prospective supervisor. Note that the supervisor must be a professor or an associate professor in one of the graduate schools of AIQDS.

To look for the faculty member, refer to the following websites:

- **Graduate School of Information Sciences**
<http://www.is.tohoku.ac.jp/en/laboratory/list_dept/>
- **Graduate School of Life Sciences**
<<https://www.lifesci.tohoku.ac.jp/en/research/fields/>>
- **Graduate School of Economics and Management***
<<https://www.econ.tohoku.ac.jp/english/page-teacher.html>>
- **Graduate School of Biomedical Engineering**
<<http://www.bme.tohoku.ac.jp/english/labo/faculty.html>>

[Attention]

The applicants of Graduate School of Economics and Management need to prepare not only the required documents for AIQDS but also the following required documents (see the following URL), then submit all to the AIQDS Admission office.

- GPEM_Required documents
- GPEM_Pledge_EN

* The above documents can be found on the website.

Step 2: Contact directly to the candidate of your prospective supervisor via e-mail and request the consent of acceptance

To contact the faculty member, it is strongly advisable to:

- Gather information about the faculty member and their field of research by looking at their publications, research papers, and personal website.
- Provide your academic background and application information.
- Inform the name of your current or the latest supervisor as a reference.

Important!

After getting the consent of acceptance, you must ask your prospective supervisor to send a notification of acceptance by e-mail to AIQDS Admissions Office (ilo@is.tohoku.ac.jp) (and to your e-mail address as Carbon Copy (CC) if you want).

A sample of the notification of acceptance as a candidate can be found on the website.

Step 3: Fill out the Pre-application form in the period of December 20, 2021 – January 18, 2022

*The online system “Pre-application” will be open on **December 20, 2021**

Please check the AIQDS website when the period starts

[Attention]

You must have the consent of acceptance from your prospective supervisor to do the Pre-application

Step 4: Send all of the required documents (original) via air mail to AIQDS Admissions Office by January 26, 2022

<Required documents>

- 1) Application for admission: **Form A**
 - *ID Photo should be pasted not stapled and have your name on the back

- 2) Two recommendation letters from different references: **Form B x2**
 - *Must be sealed tightly

- 3) Application for Japanese government (MEXT) scholarship: **Form C**
 - *Duplex printing
 - *ID Photo should be pasted not stapled and have your name on the back

- 4) Field of Study and Research Plan: **Form D**
 - *Duplex printing

- 5) Official recommendation letter from the dean or higher position of your last institute:
Form E
 - *Must be sealed tightly

- 6) Official academic transcript(s)
 - Doctor's course applicant:** official academic transcripts of undergraduate and master's course
 - Master's + Doctor's course applicant:** official academic transcript of undergraduate

- 7) Certificate(s) of graduation
 - Doctor's course applicant:** one of the followings is necessary to submit.
 - Photocopy of master's diploma
 - Certificate of graduation of master's course
 - Certificate of enrollment of master's course with expecting date of graduation
 - Master's + Doctor's course applicant:** one of the followings is necessary to submit.
 - Photocopy of bachelor's diploma
 - Certificate of graduation of undergraduate
 - Certificate of enrollment of undergraduate course with expecting date of graduation

8) Photocopy of a valid score report of designated English test as below

•TOEFL (iBT or PBT) •IELTS •TOEIC(R) Test

*We do not accept TOEFL-ITP

*Unnecessary for native English speakers and those who have completed their education with English as the primary language

*Applicants of Graduate School of Economics and Management should follow the direction “GPEM_Required Documents” in “Step 1”.

* The TOEFL iBT Home Edition score report must be accompanied by a screenshot/PDF of the official ETS website for your country, stating that it can be treated as equivalent to a regular score.

9) Photocopy of your passport or other identification documents

10) Abstracts of thesis of undergraduate and master’s course (if applicable)

11) Other supporting materials

12) 3 extra ID photos (4×3cm (1.6"×1.2"))

*Write your name on the back

* The forms can be found on the website.

[Attention]

– Do not alter the prescribed format of the download files. Attach an additional sheet if necessary.

– Forms should be typed in English. Attach an English translation of the documents written in a language other than English.

– **Any of the application documents will not be returned to the applicant.**

Selection

The AIQDS selection consists of the documents screening and the Skype interview. You will be informed the detail from the examining committee via e-mail after the application deadline.

The result of the selection (AIQDS admission and MEXT scholarship nomination) will be announced by the middle of April from the AIQDS Admissions Office although the final result of MEXT scholarship will be announced in July, 2022.

Contact Information

AIQDS Admissions Office

Graduate School of Information Sciences, Tohoku University
Aramaki-aza-Aoba 6-3-09, Aoba-ku, Sendai, 980-8579 JAPAN

E-mail: ilo@is.tohoku.ac.jp Tel: +81-22-795-4691

*Those who are inquiring by e-mail, please: Include "AIQDS" in the subject line.

Related Websites

Tohoku University

- Academic research staff at Tohoku University <<http://db.tohoku.ac.jp/whois/TunvTopE.html>>
- Websites of graduate schools participating in AIQDS
 - Information Sciences** <<http://www.is.tohoku.ac.jp/index-e.html>>
 - Life Sciences** <<http://www.lifesci.tohoku.ac.jp/en/>>
 - Economics and Management** <<https://www.econ.tohoku.ac.jp/english/page-graduate.html>>
 - Biomedical Engineering** <<http://www.bme.tohoku.ac.jp/english/>>
- Fee Waivers and Deferment of Payments <<http://www2.he.tohoku.ac.jp/menjo/>>

Supports for international students

- Tohoku University International Support Office (TU Support)
<http://sup.bureau.tohoku.ac.jp/index_en.html>
- Global Learning Center, Tohoku University
<<https://www.insc.tohoku.ac.jp/english/>>
- Tohoku University Guide for Prospective International Students
< <https://www.insc.tohoku.ac.jp/english/wp-content/uploads/2021/03/TOHOKU-UNIVERSITY-GUIDE-2021-2022.pdf> >
- Pocket guide for Procedures International Students
<<http://sup.bureau.tohoku.ac.jp/images/PocketGuide.pdf>>

Others

- Ministry of Education, Culture, Sports, Science and Technology (MEXT)
<<http://www.mext.go.jp/english/>>