

Graduate School of Innovative Life Science

Major of Biological Information Systems
Major of Advanced Nanosciences and Biosciences
(Ph.D. Program)

Guidelines for Recruitment of Students (The 2nd)

For admission in April 2020

General Admission
Special Admission for Adult Students
Special Admission for International Students
Special Admission for Persons with Disability

November 2019

University of Toyama

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Although recruitment of students for the Ph.D. program (for entrance in April 2020) of Biological Information Systems and Advanced Nanosciences and Biosciences of the Graduate School of Innovative Life Science of this university is implemented twice, the second recruitment of students will be implemented based on these Guidelines for Recruitment of Students.

The first recruitment of students was implemented at the end of August 2019.

Admission Policy

(Major of Biological Information Systems)

【Admission Policy】

This course gives education and research experience that foster profound expertise in the field of biological information system and broadly traversing areas of learning. For that purpose, a certain level of expertise in the field of life science and biotechnology obtained at a master's course of a graduate school or its equivalent is prerequisite. This course accepts such candidates who are willing to deepen their expertise concerning biological information system science and, at the same time, are willing to attend lectures and seminars for knowledge and skills of other research areas with an interdisciplinary interest and eventually become useful members of a society.

【Basic Policy of Selection (types of examinations and evaluation methods)】

<General Admission>

Based on the results of the written examination, the oral examination, and the certificate of grade report, a candidate's scholastic ability after master's degree and their motivation of learning are judged.

<Special Admission for Adult Students and International Students>

There is no written examination. Based on the oral examination and the certificate of grade report, a candidate's scholastic ability after master's degree and their motivation of learning are judged.

<Special Admission for Persons with Disability>

Based on the certificate of grade report, the results of a short essay, and the oral examination, a candidate's scholastic ability after master's degree and their motivation of learning are judged.

(Major of Advanced Nanoscience and Biosciences)

【Admission Policy】

This course gives education and research experience that foster profound expertise in the field of nanoscience and bioscience based upon molecular science and life science, and broadly traversing areas of learning. Certain level of expertise in the field of molecular science and life science obtained at a master's course of a graduate school or its equivalent is prerequisite. This course accepts such candidates who are willing to deepen their expertise and at the same time, are willing to attend lectures and seminars for knowledge and skills of other research areas with an interdisciplinary interest and eventually become useful members of a society.

【Basic Policy of Selection (types of examinations and evaluation methods)】

<General Admission>

Based on the certificate of grade report and the results of the written examination and the oral examination, a candidate's scholastic ability after master's degree and their motivation of learning are judged.

<Special Admission for Adult Students and International Students>

There is no written examination. Based on the oral examination and the certificate of grade report, a candidate's scholastic ability after master's degree and their motivation of learning are judged.

<Special Admission for Persons with Disability>

Based on the certificate of grade report and the results of a short essay and the oral examination, a candidate's scholastic ability after master's degree and their motivation of learning are judged.

General Admission (For admission in April 2020)

1. Number of students for recruitment (Total No. of students for recruitment for both first and second recruitment periods)

Major	No. of students for recruitment	Remarks
Biological Information Systems	4	The number of students to be recruited includes adult students recruited for special admission (a few), students with disabilities recruited for special admission (about 2 in the Graduate School of Innovative Life Science), and students recruited at the first recruitment.
Advanced Nanosciences and Biosciences	4	

(Note) - Applicants must consult a tutor of the preferred education field in advance about the direction, etc. for education and research, etc.

2. Qualification for application

A person who corresponds to one of the following requirements

- (1) A person who has a Master's degree or professional degree (referring to a professional degree specified by Article 5-2 of Rules for Academic Degrees (No. 9 Ministerial Order from the Ministry of Education in 1953) based on the regulations specified in Article 104, Paragraph 1 of the School Education Act, hereinafter, the same) and a person who is expected to receive the degree by March 2020
- (2) A person who has received a degree equivalent to a Master's degree or professional degree in other countries and a person who is expected to receive the degree by March 2020
- (3) A person who has taken courses of correspondence education offered by a school in other countries or in Japan and received a degree equivalent to a Master's degree or professional degree and a person who is expected to receive the degree by March 2020
- (4) A person who has completed the courses of an educational institution that is positioned in Japan as a school that offers courses for a foreign graduate school in the school education system of that country and designated separately by the Minister of Education, Culture, Sports, Science and Technology and received a degree equivalent to a Master's degree or professional degree and a person who is expected to receive the degree by March 2020
- (5) Hold or are expecting to obtain a Master degree or equivalent by the end of March 2020, through course completion at the United Nations University (hereinafter referred to as UNU) as prescribe in Article 1 paragraph 2 of the Act on Special Measures Incidental to Enforcement of the Agreement between the United Nations and Japan regarding the Headquarters of the United Nations University (Act No.72 of 1976), which was established under the December 11,1972 resolution of the General Assembly of the United Nations.
- (6) Persons who have been recognized by the Graduate School of Medicine and Pharmaceutical Sciences for Education as having academic ability equal to or higher than that of a person holding a master's degree after having completed required course at the United Nations University or an educational institution in a foreign country described in (4) and passed the examination or the equivalent of examination that was prescribed in Article 16 paragraph 2 of the Rules on Graduate Schools.
- (7) A person who is designated by the Minister of Education, Culture, Sports, Science and Technology (Notification No. 118 of the Ministry of Education in 1989)
 - a. A person who has graduated from university, has engaged in research for more than 2 years at the university, research institute, etc., and is recognized by this Graduate School to have academic ability either equaling or surpassing a person with a Master's degree based on the achievements of the research, etc.
 - b. A person engaged in research for more than 2 years after completing a 16-year course of school education in another country or completing a 16-year course of school education in the country by taking a correspondence course of education in Japan offered by a school in another country and is recognized by this Graduate School to have academic ability either equaling or surpassing a person with a Master's degree based on the achievements of the research, etc.
- (8) A person who was recognized by the Graduate School of Innovative Life Science to have the ability equal to or surpassing the person with a Master's or professional degree through the individual examination for admission qualification, and will be at least 24 years old by the time of admission, may apply.

(Note) As for certification of the eligibilities (7) and (8) for application, please see "(4) Filing for certification of eligibility for application" of "1. Application procedures" in the "Common matters."

3. Selection Methods

Enrolled students are selected comprehensively based on the results of written examination, oral examination, and certificate of grade report.

(1) Written examination

Foreign language (English)

(2) Oral examination

The oral examination is about subjects related to the student's Master's thesis, its related research paper, research plan after admission, and other subjects related to his or her preferred education area.

(3) Date and location of examination

Date (day of the week)	Time	Subject for examination, etc.	Site for examination
March 2 (Monday), 2020	9:30~11:00	Foreign language (English)	Faculty of Engineering, University of Toyama 3190 Gofuku, Toyama City
	13:00~ (scheduled)	Oral examination	

* The start time of an oral examination may change depending on the number of applicants. If it is changed, we will inform you when sending an admission ticket for examination.

Special Admission for Adult Students (For admission in April 2020)

1. Number of students for recruitment

Major	No. of students for recruitment	Remarks
Biological Information Systems	A few	To be included in the number of students recruited for general admission
Advanced Nanosciences and Biosciences	A few	

(Note) - **Applicants must consult a tutor of the preferred education field in advance about the direction, etc. for education and research, etc.**

- In this Graduate School, the “Special Provisions for Education Methods” specified in Article 14 of the “Standards for Establishment of Graduate Schools” are applied for paying special consideration to learning opportunities for adult students. If it is judged that there is a special educational need, education is provided using appropriate methods by offering classes or research instruction at night or another specific time or period to adult students so that they do not have to leave work.

2. Qualification for application

A person who is working at various types of research institution educational institution, company, etc. as a researcher, etc. or a person who is expected to start working at such an institution or company from April 2020 and corresponds to any of the following items

- (1) A person who has a Master’s degree or professional degree and a person who is expected to receive the degree by March 2020
- (2) A person who has received a degree equivalent to a Master’s degree or professional degree in other countries and a person who is expected to receive the degree by March 2020
- (3) A person who has taken courses of correspondence education offered by a school in other countries or in Japan and received a degree equivalent to a Master’s degree or professional degree and a person who is expected to receive the degree by March 2020
- (4) A person who has completed the courses of an educational institution that is positioned in Japan as a school that offers courses for a foreign graduate school in the school education system of that country and designated separately by the Minister of Education, Culture, Sports, Science and Technology and received a degree equivalent to a Master’s degree or professional degree and a person who is expected to receive the degree by March 2020
- (5) Hold or are expecting to obtain a Master degree or equivalent by the end of March 2020, through course completion at the United Nations University (hereinafter referred to as UNU) as prescribe in Article 1 paragraph 2 of the Act on Special Measures Incidental to Enforcement of the Agreement between the United Nations and Japan regarding the Headquarters of the United Nations University (Act No.72 of 1976), which was established under the December 11,1972 resolution of the General Assembly of the United Nations.
- (6) Persons who have been recognized by the Graduate School of Medicine and Pharmaceutical Sciences for Education as having academic ability equal to or higher than that of a person holding a master’s degree after having completed required course at the United Nations University or an educational institution in a foreign country described in (4) and passed the examination or the equivalent of examination that was prescribed in Article 16 paragraph 2 of the Rules on Graduate Schools.
- (7) A person who is designated by the Minister of Education, Culture, Sports, Science and Technology (Notification No. 118 of the Ministry of Education in 1989)
 - a. A person who has graduated from university, has engaged in research for more than 2 years at the university, research institute, etc., and is recognized by this Graduate School to have academic ability either equaling or surpassing a person with a Master’s degree based on the achievements of the research, etc.
 - b. A person engaged in research for more than 2 years after completing a 16-year course of school education in another country or completing a 16-year course of school education in the country by taking a correspondence course of education in Japan offered by a school in another country and is recognized by this Graduate School to have academic ability either equaling or surpassing a person with a Master’s degree based on the achievements of the research, etc.
- (8) A person who was recognized by the Graduate School of Innovative Life Science to have the ability equal to or surpassing the person with a Master’s or professional degree through the individual examination for admission qualification, and will be at least 24 years old by the time of admission, may apply.

(Note) As for certification of the eligibilities (7) and (8) for application, please see “(4) Filing for certification of eligibility for application” of “1. Application procedures” in the “Common matters.”

3. Selection Methods

Enrolled students are selected comprehensively based on the results of oral exam and certificate of grade report. A written examination is waived.

(1) Oral examination

The oral examination is about subjects related to the student's Master's thesis, its related research paper and/or work experience, research plan after admission, and other subjects related to his or her preferred education area.

(2) Date and location of examination

Date (day of the week)	Time	Subject for examination, etc.	Site for examination
March 2 (Monday), 2020	13:00~ (scheduled)	Oral examination	Faculty of Engineering, University of Toyama 3190 Gofuku, Toyama City

* The start time of an oral examination may change depending on the number of applicants. If it is changed, we will inform you when sending an admission ticket for examination.

Special Admission for International Students (For admission in April 2020)

1. Number of students for recruitment

Major	No. of students for recruitment
Biological Information Systems	A few
Advanced Nanosciences and Biosciences	A few

(Note) - Applicants must consult a tutor of the preferred education field in advance about the direction, etc. for education and research, etc.

2. Qualification for application

A person who is a foreign national and corresponds to any of the following items

- (1) A person who has received a degree equivalent to a Master's degree or professional degree in other countries and a person who is expected to receive the degree by March 2020
- (2) A person who was recognized by the Graduate School of Innovative Life Science to have the ability equal to or surpassing the person with a Master's or professional degree through the individual examination for admission qualification, and will be at least 24 years old by the time of admission, may apply.

(Note) As for certification of the eligibilities (2) for application, please see "(4) Filing for certification of eligibility for application" of "1. Application procedures" in the "Common matters."

3. Selection Methods

Enrolled students are selected comprehensively based on the results of oral exam and certificate of grade report. A written examination is waived.

(1) Oral examination

The oral examination is about subjects related to the student's Master's thesis, its related research paper, research plan after admission, and other subjects related to his or her preferred education area.

(2) Date and location of examination

Date (day of the week)	Time	Subject for examination, etc.	Site for examination
March 2 (Monday), 2020	13:00~ (scheduled)	Oral examination	Faculty of Engineering, University of Toyama 3190 Gofuku, Toyama City

* The start time of an oral examination may change depending on the number of applicants. If it is changed, we will inform you when sending an admission ticket for examination.

Special Admission for Persons with Disability (For admission in April 2020)

1. Purpose

This University's Graduate School of Innovative Life Science shall improve the educational and research environment that allows a person with physical disability to participate in research on health and welfare devices, medical devices, or universal design on their own initiative and carry out advanced scientific education and research that can provide human resources and technologies that respond to the super-aging society of this country. In accordance with this purpose, this Graduate School shall implement special admission for persons with disability as follows aside from general admission.

2. Number of students for recruitment

Major	No. of students for recruitment	Remarks
Biological Information Systems	A few	To be included in the number of students recruited for general admission (The number of students with disabilities recruited for special admission shall be about 2 persons in the Graduate School of Innovative Life Science.)
Advanced Nanosciences and Biosciences	A few	

(Note) - Applicants must consult a tutor of the preferred major/education field in advance about the direction, etc. for education and research, etc.

- A person with physical disability who requires support or a person who has any questions about a responsible teacher, etc. must contact Admission Office (Educational Affairs Division) of the Faculty of Engineering (in charge of Graduate School of Innovative Life Science) (TEL:076-445-6399,FAX:076-445-6705) 10 days before the deadline for application.

3. Qualification for application

A person with physical disability (who is issued with a physical disability certificate) or a person with developmental disability (who is issued with a doctor's certificate) and corresponds to any of the following items shall be eligible. However, the person is required to be able to study and conduct research using a support device, etc.

- (1) A person who has a Master's degree or professional degree and a person who is expected to receive the degree by March 2020
- (2) A person who was recognized by the Graduate School of Innovative Life Science to have the ability equal to or surpassing the person with a Master's or professional degree through the individual examination for admission qualification, and will be at least 24 years old by the time of admission, may apply.

(Note) As for certification of the eligibilities (2) for application, please see "(4) Filing for certification of eligibility for application" of "1. Application procedures" in the "Common matters."

4. Selection Methods

Enrolled students are selected comprehensively based on the results of a short essay, oral examination, and certificate of grade report.

(1) Short essay

The applicant is asked to write a short essay on a research theme after admission.

(2) Oral examination

The oral examination is about subjects related to the student's Master's thesis, its related research paper, research plan after admission, and other subjects related to his or her preferred education area.

(3) Date and location of examination

Date (day of the week)	Time	Subject for examination, etc.	Site for examination
March 2 (Monday), 2020	9:30~11:00	Short essay	Faculty of Engineering, University of Toyama 3190 Gofuku, Toyama City
	13:00~(scheduled)	Oral examination	

* The start time of an oral examination may change depending on the number of applicants. If it is changed, we will inform you when sending an admission ticket for examination.

Common matters

1. Application procedures

(1) Method of application

An applicant for admission must first **pay an “examination fee” by bank transfer** and send the application documents by **“registered/express mail”** after writing down the necessary information according to the following division on the envelop **in red**.

[1] Period of application

January 14 (Tuesday) to February 13 (Thursday) , 2020 (as indicated by the postmark on the envelop)

Application documents should be mailed to:

Admission Office (Educational Affairs Division) of the Faculty of Engineering

University of Toyama

3190 Gofuku, Toyama City, Toyama 930-8555

As for a method of payment for the “examination fee,” please see “(3) Method of payment for examination fee.”

However, if a person attending an education school (graduate course) of this University plans to continue to the Ph.D. program of the education school, he or she does not need to pay the examination fee.

[2] Necessary information on the envelop

“Enclosed: Application for admission to the Graduate School of Innovative Life Science (general admission to the Ph.D. program)”

“Enclosed: Application for admission to the Graduate School of Innovative Life Science (special admission for adult students to the Ph.D. program)”

“Enclosed: Application for admission to the Graduate School of Innovative Life Science (special admission for international students to the Ph.D. program)”

“Enclosed: Application for admission to the Graduate School of Innovative Life Science (special admission for persons with disability to the Ph.D. program)”

(2) Application documents

	Documents, etc.	Notes
[1]	Application for admission	Please use the form designated by the University.
[2]	Certificate of (expected) completion of Master’s degree	It is prepared by the head of the university (graduate course) from which the applicant graduated.
[3]	Certificate of grade report of graduate school	It is prepared and strictly sealed by the head of the university (graduate course) from which the applicant graduated. The certificate using forgery copy prevention paper is not required to be enclosed in a sealed envelope.
[4]	Certificate of grade report of undergraduate school	It is prepared and strictly sealed by the head (dean) of the university from which the applicant graduated. The certificate using forgery copy prevention paper is not required to be enclosed in a sealed envelope.
[5]	Copy and abstract of dissertation for Master’s degree	1 copy However, for a person who has not yet graduated, please describe the progress of the dissertation. (Please use the form designated by the University.) (Instead of this, a person filing for certification of qualification for admission and a special admission adult applicant can submit a “list of research papers (including those presented at scientific meetings)” (a form designated by the University) and a “outline of research and job description” (within 2,000 words on A4-size paper).)
[6]	Admission ticket for examination/photo card	Please use the form designated by the University, attach a photo of the applicant (4cm H×3cm W, upper body with no hat, headshot taken within the last three months before submitting the application) to the form and fill out necessary items.
[7]	Research plan	Please use the form designated by the University.
[8]	Certificate of Transferred Amount for Examination Fee	After transferring an examination fee from a financial institution using a Request Form for Transfer attached to this Guideline, please attach the “Certificate of Transferred Amount (Examination Fee)” received from the financial institution to the “Certificate of Transferred Amount for Examination Fee.” (The applicant needs to pay a service charge separately when paying the examination fee.) However, if a person attending each education school (graduate course) of this University and plans to continue the Ph.D. program of the education school, he or she does not need to pay the examination fee.
[9]	Certificate of approval for taking examination	For a person who is enrolled in the Ph.D. program of another university or a person working in a public office or company, please attach a certificate of approval for taking an examination issued by the head of the education school (graduate course) of that university or head of division to which the applicant belongs. (Please choose a form.)

[10]	Copy of the certificate of residence (Only Foreigner)	For a foreigner who now lives in Japan, please attach a copy of the certificate of residence issued by the head of municipal government.
[11]	Physical disability certificate (copy), etc.	For special admission for those with disabilities, a person with physical disability must attach a copy of a physical disability certificate, and a person with developmental disability must attach a doctor's certificate.
[12]	Envelop for return	This is used for sending an admission ticket for examination. Please clearly state the postal code, address and name on the No. 3 long-format envelop (23.5cm x 12cm) and attach a 374-yen stamp to the envelop.
[13]	Address card (for mailing a notification of acceptance)	Please use the form designated by the University and fill out a postal code, address, name and its furigana in the form.

※Documents written in a foreign language other than English must be accompanied by documents translated into Japanese or English.

(3) Method of payment for examination fee

Please pay the examination fee of 30,000 yen within the following period.

However, if a person corresponds to any of the followings, he or she does not need to pay the examination fee.

- When a person who is expected to complete the master degree of the graduate school of our university in March 2020 applies for admission in April 2020

Payment Period: January 14 (Tuesday) to February 13 (Thursday), 2020 (by 3:00 p.m.)

Please pay the examination fee into the teller's account of a nearby bank, credit union, JA (Japan Agricultural Cooperatives), etc. that handles "electronic transfer" using the form designated by the University.

Please do not transfer the examination fee by ATM (automated teller machine). The transfer from the Post Bank is not accepted.

The examination fee shall not be returned to the applicant for any reason except in the following cases.

- [1] The applicant paid the examination fee, but did not apply for admission to the University of Toyama (did not submit the application documents or the application documents were not accepted)
- [2] The applicant paid the examination fee twice
- [3] The applicant paid more than the designated examination amount

(Note) If you need to claim for return of the examination fee, please be sure to attach the "Certificate of Transferred Amount (Examination Fee)" to the attached "Claim Form for Return of Examination Fee" and send it to the University of Toyama by mail.

Send to: Accounting Division of Financial Affairs Department, University of Toyama
3190 Gofuku, Toyama City, Toyama 930-8555
Tel: (076) 445-6053

(4) Filing for certification of eligibility for application

A person who applies based on the "Qualification for Application (7) and (8)" ("Qualification for Application (2)" in the case of special admission for international students and special admission for those with disabilities) is subject to preliminary review for qualification. Please gather the following documents and submit them to Admission office (Educational Affairs Division) of the Faculty of Engineering by **December 6 (Friday), 2019**.

- Certification Record of Eligibility for Admission Exam Application (a form designed by the University)
- Certificate of grade report of graduate school and a file diploma of the latest school
- Record of research and business achievement
- List of research paper (including conference presentation) (a form designed by the University)

Result of the review of the certification of eligibility for application will be informed to the student by December 13 (Friday), 2019.

(5) Preliminary consultation for a physically-handicapped applicant (Excluding special admission applicants with disabilities)

Because a physically-handicapped applicant may need special consideration when taking an examination or attending the university, please consult Admission office (Educational Affairs Division) of the Faculty of Engineering of the university prior to the application.

During the consultation, we may ask the submission of a document describing the following matters and a doctor's certificate.

- Type and severity of disability
- Matters for which the applicant requests special consideration when taking an exam
- Matters for which the applicant requests special consideration when attending the university
- Situation of daily living and other matters that can be referred to

[1] Deadline for consultation: **December 6 (Friday), 2019**

[2] Contact to: Admission office (Educational Affairs Division) of the Faculty of Engineering.

University of Toyama
3190 Gofuku, Toyama City, Toyama 930-8555
Tel: 076-445-6399

2. Announcement of successful applicants

The identification numbers of successful applicants shall be posted in front of the gate of the Faculty of Engineering (Gofuku Campus) and in front of the research buildings of the Faculty of Medicine and the Faculty of Pharmacy and Pharmaceutical Sciences (Sugitani Campus), University of Toyama, **at 10:00 a.m. on March 10 (Tuesday), 2020**, and successful applicants shall be notified separately.

The University will not respond to any inquiry about the passing status by phone, fax, etc.

3. Admission procedures

The admission procedures shall be taken as follows, but the details will be notified separately to successful applicants.

(1) Day of admission procedures: **(Admission in April 2020) In the end of March, 2020 (scheduled)**

(2) Location of admission procedures: Gofuku Campus, University of Toyama

(3) Documents, etc. necessary for admission procedures

Notification of acceptance, applicant's photo (4 cm H × 3 cm W in color), written pledge of school enrollment (a form designated by the University), etc.

(4) Expenses required for admission procedures

a. Admission fee: **282,000 Japanese yen (scheduled amount)**

(Note) [1] The above admission fee is the scheduled amount. If the admission fee is revised at the time of admission, a new admission fee will be applicable from the time of revision.

[2] The paid admission fee shall not be returned for any reason.

b. Others

[1] If the payment of the admission fee and tuition is acknowledged to be difficult, the successful applicant may be exempted or payment postponed upon selection.

[2] The tuition shall be **paid after admission**. The amount of payment and method of payment shall be explained at the time of the admission procedures

<Reference> Tuition for 2019 (academic year) : 535,800 Japanese yen

[3] A scholarship program of the Japan Student Services Organization is available.

[4] The payment for Disaster and Accident Insurance for Students Engaged in Education and Research, etc. is required separately.

(5) Cautions

A person who does not complete the admission procedures on the day of the admission procedures, he or she shall be handled as a person who wishes to withdraw from admission.

4. Protection of personal information of an applicant for admission

The personal information possessed by the University shall be handled based on the "Act on the Protection of Personal Information Held by Independent Administrative Agencies, etc." and "University of Toyama Rules for Protection of Personal Information."

(1) The names, addresses and other personal information of applicants learned at the time of application shall be used for [1] selection of students to be enrolled (application processing, implementation of selection), [2] announcement of successful applicants, [3] admission procedures, [4] survey/study in the selection method of enrolled students, and [5] operations associated with these purposes.

(2) Among the personal information learned at the time of application, only the information of those who completed the procedures for admission to our university shall be used for preparatory education and post-admission operations related to [1] educational instruction (school registry, attending instruction, etc.), [2] student support (health management, application for tuition waiver/scholarship, career support, etc.), [3] collection of tuition, and [4] statistical survey and data analysis.

(3) Only the applicant ID numbers, names and addresses of successful applicants may be used for contact from the student activity groups, organizations associated with the university, alumni association, support group and co-op.

(Note) If a successful applicant does not wish to receive any contact from the above organizations, please inform Admission Office (Educational Affairs Division) of the Faculty of Engineering to that effect.

(4) In the use of personal information for various types of operations, some of the operations may be conducted by a vendor contracted with the relevant operations from our university (hereinafter referred to as "contractor"). When contracting the operations, all or part of the personal information learned shall be provided to the contractor within the limit necessary to perform the contracted operations. We supervise the use of information to ensure compliance with confidentiality.

5. Cautions

- (1) If there is any defect in the application documents, the application may not be accepted.
- (2) The application documents, etc. once accepted shall not be returned for any reason.
- (3) If any fact that is different from the description in the submitted documents is found even after acceptance of admission, the admission of a successful applicant may be cancelled.
- (4) Please forward any inquiry about the application or other matters to the following address.

Admission Office (Educational Affairs Division) of the Faculty of Engineering.

University of Toyama

3190 Gofuku, Toyama City, Toyama 930-8555

Tel: 076-445-6399

Outline of the Ph.D. program of the University of Toyama Graduate School of Innovative Life Science

1. Purpose

Currently, the development of technologies and equipment in important areas such as medical care, drug discovery, and welfare centering on medicine and pharmaceutical sciences, which are closely related to human life itself, is fast evolving everyday. In fact, such development in medical and pharmaceutical areas alone is limited to the expansion of biotechnology essential for medical care, development of advanced biotechnology-based medical devices such as new drugs, protein chips and cellular chips, computational chemistry and synthetic technology necessary for drug discovery, and progress of manufacturing technology of drugs. There is a growing need for scientific education in cognitive information science, biotechnology, electronic information, and device engineering, new technology such as nano technology in the areas of science and technology, and explanation of life phenomena.

We have established the “**Graduate School of Innovative Life Science**” that combines the field of developing electronic measuring systems and precision instruments, which are necessary for medical care, the area of simulating information transmission and processing methods in the brain and nervous system and applying the advantages, the field of analyzing structures and actions of chemical compounds for drug discovery, computerizing/predicting, and synthesizing them, and the area of developing new functional materials necessary for assisting biological functions by making full use of nano technology with the medical and pharmaceutical areas based on the latest life sciences. We are aiming to develop human resources who can respond to various social needs by providing cutting-edge interdisciplinary education and research on basic studies of human life system, maintenance of health, and support through the coordination of related teachers in the faculty activities of medical science, pharmaceutical science, basic science, and engineering.

2. Structure and Credit Standard

(1) Majors and course terms

[1] There are three majors in this Graduate School of Innovative Life Science (Ph.D. program): Cognitive and Emotional Neuroscience, Biological Information Systems, and Advanced Nanosciences and Biosciences.

[2] The course term for Cognitive and Emotional Neuroscience is 4 years as a standard and the course terms for Biological Information Systems and Advanced Nanosciences and Biosciences are 3 years as a standard.

(2) Credit standard

The following table shows the credit standard of this Graduate School of Innovative Life Science (Ph.D. program).

Class subject Major	Optional subject			Mandatory subject		Total
	Lecture			Exercise	Special research	
	Open subject of own major	Common subject (selective/mandatory)	Open subject of other schools of education*			
Biological Information Systems	2 credits or more	2 credits or more	2 credits or more	4 credits	10 credits	20 credits or more
Advanced Nanosciences and Biosciences						

*Graduate School of Medicine and Pharmaceutical Sciences for Education, Graduate School of Science and Engineering for Education.

3. Outlines of Majors

Major	Contents of major	Educational area
Major of Biological Information Systems	<p>To clarify the mechanisms of biological systems in the “post-genome age,” the need for multilateral observation and understanding of concurrently ongoing phenomena in living organisms has been increasing. In addition, the development of a methodology to obtain, analyze, and understand an enormous amount of information efficiently is required even in future standard medical care system represented by gene diagnosis and personalized medicine. Moreover, in accordance with the rapid development of life science, development is sought of a new biological system science, intellectual information engineering, and medical engineering, which will enable a rapid response to aging welfare societies and health enhancement societies.</p> <p>Under these circumstances, this department is to cultivate leading life scientists who will research and reveal the processes and mechanisms of complicated life phenomena, which keep changing, and unresolved gene information and its expression/regulation mechanisms mainly at the level from molecules and cells to tissues. Furthermore, based on the latest findings on microbiological information-processing mechanisms, leading researchers and advanced engineers who can design and develop devices for body function measurement, medical measurement, and environmental measurement, as well as advanced engineers and pharmacists who can understand and use advanced medical devices and leading-edge information engineering are to be cultivated. We also aim to develop human resources who acquire recent findings and cross-sectoral analysis methods on the brain nerve network as a biological information system in collaboration with departments of cognitive and emotional neuroscience and who contribute to the design and development of next-generation intellectual information engineering, brain-type computers, and human interfaces.</p> <p>In this department, we resolve the biological information system at such micro levels in collaboration with staff in medical (concurrent) departments, pharmacological departments, biological departments, bioengineering departments, and information engineering departments.</p>	<ul style="list-style-type: none"> • Structural Biology • Molecular Genetics • Consilienceology for Wakan-yaku • Biological Information Engineering • Bioelectronics • Biosensing Engineering • Brain and Neural Systems Engineering • Brain • Nerve Information Engineering • Tissue and Organ Engineering • Comparative Neuroendocrinology • Mathematical Biology • Pharmacology • Protein Science
Major of Advanced Nanosciences and Biosciences	<p>With a background of advances in genome and post-genome researches and the boom in nanoscience, the achievements of researches in the life science area based on genome and post-genome information and the advances in drug discovery science in collaboration with molecular design technologies have been important social requests propelling the creation of new innovative drugs and bioactive substances. In response to the global trend of sophistication in the medical field, it is essential to integrate leading researches including nanotechnology and biotechnology in an interdisciplinary manner and to develop human resources who can collaborate among industry, academia, and government more than ever before. Moreover, it is also an urgent mission for universities of the new era to develop human resources who can play a leadership role in the new integrated area with extremely high sociality. In addition, expression of homeostatic processes, diseases, and pharmacological activities in living organisms is caused by the complicated association of structures, physical properties, and reaction mechanisms of molecular assemblies and polymers in the body at the nano scale. Therefore, molecular researches are essential in the nano-scale area to resolve physiological actions and to develop drugs with effective pharmacological effects.</p> <p>Thus, in this department, we provide education and research guidance with the aim of cultivating leading researchers who can play a major role in the nanobiotechnology science area, which is connected with the medical/pharmacological fields and life science/material science fields mainly for the following subjects that will certainly be needed in the future: establishment of a highly functional nano-bio interface and the development of its new functions, development of new functions of nano-scale molecular assemblies and polymers, which make up tissues of living organisms, reasonable synthesis of natural and artificial bioactive substances, resolution of physiological activity, the action mechanism of enzymes/catalysts in which trace metal ions are involved, the development of new activities, and chemical biology.</p>	<ul style="list-style-type: none"> • Synthetic Medicine Chemistry • Nano-size Functional Molecule Design Chemistry • Nano-Biomolecular Design Chemistry

4. List of courses

As attached in Appendix I

5. List of responsible teachers and research contents

As attached in Appendix II

6. Special exceptions of educational method

A person who receives special-exception education can not only take courses during the day but can also take courses and research guidance at night if he or she submits a course plan after consulting with his or her responsible teacher. The time slot for night courses and research guidance is scheduled from 18:10 to 21:20 from Mondays through Fridays in principle. However, a person eligible for special exception can take courses on Saturdays or during the summer vacation, etc. depending on the class subject.

The time slots for classes are scheduled as follows.

First period: 08:45 – 10:15	Second period: 10:30 – 12:00	Third period: 13:00-14:30
Fourth period: 14:45 – 16:15	Fifth period: 16:30 – 18:00	
Sixth period: 18:10 – 19:40	Seventh period: 19:50 – 21:20	

7. Conferral of academic degree

○Major of Biological Information Systems, Major of Advanced Nanosciences and Biosciences

- (1) Depending on the contents of the courses and dissertation, a Doctor's degree of pharmaceutical sciences, science, or engineering shall be given.
- (2) An academic degree shall be given to a person who has been enrolled in the Graduate School for more than 3 years, acquired 20 credits or more according to "(2) Credit standard" of "2. Structure and Credit Standard," and passed the review for a doctoral dissertation and the final examination after receiving necessary research guidance. However, an academic degree may be given even if his or her enrollment period is less than 3 years, if a student who has been enrolled in the Graduate School for more than 2 years has shown outstanding research achievements and met the designated requirements.

If a student presents his or her plan to take and complete the program systematically over a certain period beyond the standard course term (3 years) due to special circumstances such as working outside the campus, the systematic course curriculum may be accepted.

8. Structure of responsible teachers, etc.

- (1) One responsible teacher and two assistant teachers shall be assigned.
- (2) Each student shall decide on a special research theme after consulting with a responsible teacher and/or an assistant teacher at the time of admission and shall carry out the research in parallel with special exercise courses until completion of the program.
- (3) One of the assistant teachers shall be selected from among teachers who belong to different faculty activities from the faculty activity (medical science, pharmaceutical science, basic science, and engineering) of the student and shall give advice beyond the conventional boundaries of the research departments of medical science, pharmaceutical science, basic science, or engineering.

Appendix I

List of Class Subjects

Major of Biological Information Systems

	Name of class subject	No. of credits		
		Mandatory	Optional	Free
Common subject	Bioethics		2	
	Advanced Life Science		2	
	Entrepreneurship		2	
	Medical Design		2	
Specialized subject	Structural Biology		2	
	Mathematical Biology		2	
	Biological Signaling and Engineering		2	
	Protein Engineering		2	
	Advanced Biometabolical Engineering		2	
	Design of Bio-information Devices		2	
	Neural Systems Engineering		2	
	Advanced Biosensing Chip Technologies		2	
	Information Engineering in Nervous System		2	
	Tissue and Organ Engineering		2	
	Advanced Biochemistry for Organic Molecules		2	
	Wakan-yaku Theory-Based Functional Neo-Pharmacology		2	
	Pharmacology and Genetic Engineering		2	
	Cell Stress Biology		2	
	Protein Metabolism		2	
	The Scientific Writing and Presentation in English			2
	Japanese Language & Culture			2
	Special Practice of Biological Information System Science	4		
	Special Research for Biological Information System Science	10		

Major of Advanced Nanosciences and Biosciences

	Name of class subject	No. of credits		
		Mandatory	Optional	Free
Common subject	Bioethics		2	
	Advanced Life Science		2	
	Entrepreneurship		2	
	Medical Design		2	
Specialized subject	Synthetic Methods for Advanced Organic Molecules		2	
	Advanced Synthetic Chemistry for Functional Molecules		2	
	Chemistry of Functional Metal Complexes		2	
	Bio-environmental Analytical Chemistry		2	
	Design of Biocatalyst and Bioprocess		2	
	Biointerface Science		2	
	Molecular System Science of Nucleic Acids		2	
	Evolutionary Molecular Engineering		2	
	Biomolecular Simulation		2	
	Biofunctional Engineering		2	
	Nano-Biomaterial Design		2	
	The Scientific Writing and Presentation in English			2
	Japanese Language & Culture			2
	Special Practice of Advanced Nanosciences and Biosciences	4		
	Special Research for Advanced Nanosciences and Biosciences	10		

Appendix II

List of Responsible Teachers and Research Contents

Major of Biological Information Systems

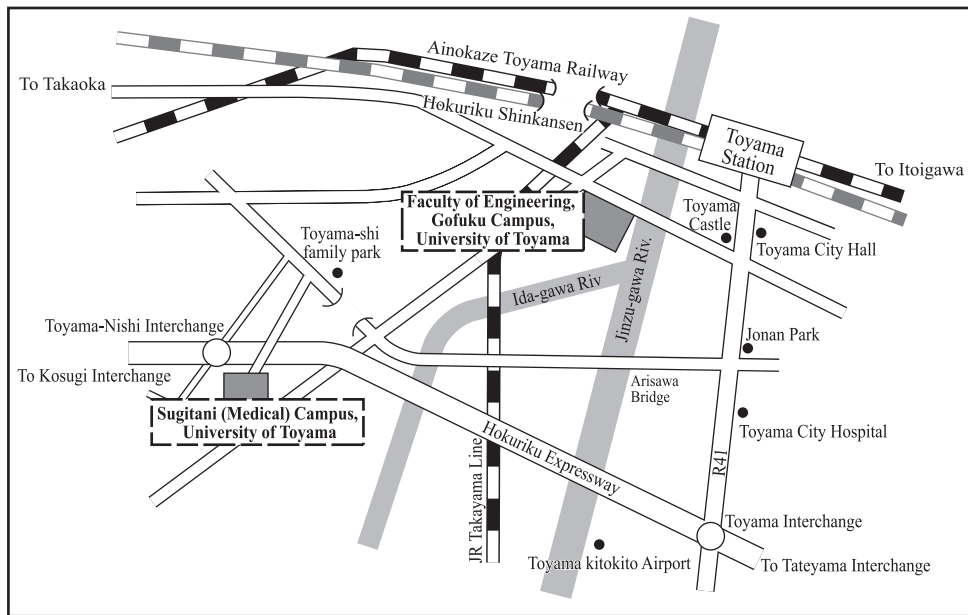
Educational area	Responsible teacher	Research contents
Structural Biology	Professor Mineyuki Mizuguchi	We determine protein conformation by NMR and X-ray crystallography to analyze functions and conduct researches on the relation between changes in protein structures and diseases by examination of abnormal structures such as amyloid fibril.
Molecular Genetics	Professor Yoshiaki Tabuchi	<ul style="list-style-type: none"> • Mechanical control of cell differentiation • Elucidation of molecular mechanism of cellular stress response
Consilienceology for Wakan-yaku	Associate Professor Michihisa Tohda	The following studies based on the classical scientific theory systems for Wakan-yaku and Kampo medicine; [Targetted diseases] functional mental diseases (depression, schizophrenia, developmental disability), heart failure; [Academic bases for studies] Jin Gui Yao Lue, the traditional Japanese medicine, the traditional medicine originated in China, physiology, biochemistry and pharmacology; [Strategy and purpose] 1) Diagnosis for functional mental diseases based on the Wakan-yaku response (=Sho), clarification of the molecular mechanisms for diseases, and development of novel Wakan-yaku prescriptions. 2) development of novel Wakan-yaku prescriptions to prevent lethal recurrence of heart failure
Biological Information Engineering	Professor Masaharu Isobe	Based on genetic information, which is a design plan of life, we conduct genetic analysis to approach the cause of onset of diseases such as dementia and cancer, and research on the development of therapeutic methods applying immunological techniques.
	Professor Nobuyuki Kurosawa	We are studying to identify causative genes of adult T cell leukemia by analyzing genetical and epigenetical changes of genes on chromosome 14 in leukemic cells, and have tried to understand the molecular mechanism underlying the leukemogenesis. We also have been tried to build up a high-throughput system for analyzing gene expression level from small amount of samples, like single cells by applying genetic engineering technologies.
Bioelectronics	Professor Hiroaki Shinohara	We provide education and conduct researches concerning the design of interfaces that connect biological systems and electronic systems, including synthesis of artificial bio-molecules with information transduction function, design/development of sensitive and rapid biosensing systems with the use of new measurement devices, and design/development of bioelectronics systems comprising modified biological molecules and cells and electronic devices in combination.
Biosensing Engineering	Professor Masayasu Suzuki	We focus on miniaturization and integration of biosensors. We are developing immunosensors and enzyme sensors for clinical diagnosis, bioscience and environmental science. Especially, the biosensing technology for single cell analysis is our recent major target.
Brain and Neural Systems Engineering	Professor Shigenori Kawahara	By using a relatively simple associative learning task, eyeblink conditioning, we conduct researches on cross-domain interaction in the brain and the hierarchical regulation mechanism from the viewpoint of system theory.

Educational area	Responsible teacher	Research contents
Tissue and Organ Engineering	Professor Makoto Nakamura	We are aiming at creating new age, by developing innovative principles and next generation technologies in tissue/organ engineering and regenerative medicine. To make this come true, it is required to develop multi-scale, multi-phase and multi-disciplinary technologies including bio-nano-materials, biofabrication, bio-processing and related medical technologies from research to clinical therapies. And industrialization is also indispensable. We are going to advance towards the realization of this concept steadily.
Comparative Neuroendocrinology	Professor Kouhei Matsuda	The aims of my research are to understand the evolutionary background of the neuropeptide-regulated system of feeding and emotional behaviors in lower vertebrates.
Pharmacology	Associate Professor Ichiro Takasaki	Our subject of research is a "pain," especially chronic pain such as neuropathic pain. Our aims are to clarify the mechanisms in which the pain becomes chronic and to develop a new drug for the pain.

Major of Advanced Nanosciences and Biosciences

Educational area	Responsible teacher	Research contents
Synthetic Medical Chemistry	Professor Naoki Toyooka	<ul style="list-style-type: none"> · Drug discovery researches oriented to the development of therapeutic medicines for central neurological diseases · Drug discovery researches oriented to the development of new therapeutic medicines for diabetes mellitus and its complications · Drug discovery researches oriented to the development of new therapeutic medicines for Alzheimer's disease · Drug discovery researches oriented to the development of anticancer drugs
	Professor Hitoshi Abe	Conduct educational research on creation of functional molecules such as biologically active compounds, based on organic synthesis of natural molecules which possess complex structure.
Nano-size Functional Molecule Design Chemistry	Professor Sen-ichi Aizawa	We design new metal complexes, estimating their functions such as physiological/pharmacological and catalytic activities. In the next stage, we make a plan for the synthesis and put it into practice. The structure and reactivity of the synthesized metal complexes will be determined using various analysis methods. The new functions of the obtained metal complexes will be validated by resolving their reaction mechanisms.
	Professor Koji Tohda	Conduct the educational research on the design and synthesis of highly functional optical sensor molecules for the sensing of metabolites such as glucose or lactate and ions such as potassium or sodium in the human body, and their application in novel optical sensing system for minimally invasive monitoring of vital ions and metabolites as a tool of biochemical and clinical analyses.
	Professor Yoshiya Ikawa	Elucidation of the molecular bases of naturally occurring RNAs acting as enzymes and receptors. Generation of novel structures and functions of artificial RNA molecules and their applications.
Nano-Biomolecular Design Chemistry	Associate Professor Tatsuya Ishiyama	Biomolecular structure and its dynamics are analyzed by computer simulation technique based on interaction models among biomolecules according to the principles of quantum chemistry. Static and dynamic variables of biomolecules are calculated from molecular trajectories obtained by molecular simulations based on theory of statistical mechanics, and thereby biomolecular phenomena are solved in a microscopic point of view.

University of Toyama Campus Locations



Locations for receipt of application/examination

Faculty of Engineering, Gofuku Campus, University of Toyama

Transportation to the Faculty of Engineering, Gofuku Campus, University of Toyama

- ◎By Toyama Chiho Railway Tram Lines
 - About 20 minutes from Toyama Station

- ◎By Bus
 - About a 20-minute ride on Toyama Chitetsu Bus “Via the University of Toyama” departing in front of Toyama Station and about a 10-minute by walk from the bus stop “Toyama Daigaku-mae”

- ◎Others
 - About 20 minutes by car from “Toyama kitokito Airport”
 - About 10 minutes from “Toyama Nishi IC” or about 20 minutes from “Toyama IC” on Hokuriku Expressway



Inquiries about the Guidelines for Recruitment of Students, admission exam,
and preliminary consultation for applicants with physical disabilities

* The applicant should make inquiries on his or her own unless absolutely necessary.

Admission Office (Educational Affairs Division) of the Faculty of Engineering, University of Toyama
3190 Gofuku, Toyama City, Japan 930-8555
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