First, we must broaden our views and learn the fundamentals in order to investigate the questions posed by nature.

The pursuit of knowledge often seems to stem from everyday questions or ideas such as “it would be easier if this were possible,” or “why doesn’t this work this way?” Here at the Faculty of Science at Kanagawa University, we have created a high level of education and a research environment to investigate the principles behind such questions and ideas. We do not simply commit scientific and technical equations to memory, rather our faculty probes into their origins in order to continue to cultivate the basic building blocks of science. If you also think about these types of questions, we encourage you to pursue them and find out how to solve them here together.

The thrill of learning science is encountering one of nature’s “mysteries” and uncovering an answer by yourself.

Prof. Terumi Saito, Dean of Faculty of Science

This university offers the Faculty of Science and the Faculty of Engineering. The study of engineering considers the method of solving technical problems that exist in society today. The science behind this begins from the question of “why is this true?” as it relates to problems that exist in nature. That is, the study of science starts from “finding the problem” first. The sense of satisfaction is tremendous when you discover something on your own that arouses your curiosity, or when you come up with an explanation for some phenomenon. The happiness from uncovering the unknown is the instinctive nature of humans and what I believe to be the essence of the Faculty of Science. I hope that all young minds get a chance to know and discover this happiness. Although the advantages of studying science may be hard to see at first glance, but the development of new technologies comes from solving various phenomena and unexplained questions that exist in science. In addition, this study is also referred to as the building blocks or the foundation for today’s cutting edge technology. Here you can enjoy a campus set in a rich, natural environment and learn a lot from our dedicated and enthusiastic faculty. This setting can help you uncover and solve by yourself the unknown “mystery” that awaits you.
The science and engineering departments at Kanagawa University look to a new future in 2012.

The Faculties of Science and Engineering have expanded and now include new departments and programs.

To all future students in the Faculties of Science & Engineering at Kanagawa University,

We are now experiencing structural changes in industry, new trends in an information oriented society and the effects of internationalization. As a result, the type and quality of scientists and engineers required are beginning to change. For example, while specialty fields are a given, knowledge and skills that cross over into multiple fields is also becoming the new standard. Therefore, we offer a wide variety of disciplines to tackle the current problems which include cultural, economic and environmental aspects intertwined. In addition, students must also acquire presentation and communication skills so they can successfully and accurately convey their ideas. Furthermore, English and Chinese continue to be used on a global scale and emphasize the importance for such language ability.

As we observe these trends in society, Kanagawa University continues to adapt and has restructured the Faculties of Science and Engineering to include a more interdisciplinary approach in order to improve the quality of each department even more. We seek to create members of society that will lead us into a new age and fly ahead. The Faculty of Science and the Faculty of Engineering will certainly support you in your endeavors.

The educational sphere of the Faculties of Science & Engineering continues expanding

<table>
<thead>
<tr>
<th>Faculty of Science</th>
<th>Integrated Science Program</th>
<th>Department of Information Sciences</th>
<th>Department of Chemistry</th>
<th>Department of Biological Sciences</th>
<th>Department of Mathematics and Physics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Until 2011</td>
<td>Integrated Science Program</td>
<td>Department of Information Sciences</td>
<td>Department of Chemistry</td>
<td>Department of Biological Sciences</td>
<td>Department of Mathematics and Physics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Biological Sciences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrated Science Program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Information Sciences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Biological Sciences</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty of Engineering</th>
<th>Coordinated Engineering Program</th>
<th>Department of Mechanical Engineering</th>
<th>Department of Electrical, Electronics, and Information Engineering</th>
<th>Department of Material and Life Chemistry</th>
<th>Department of Information Systems Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW</td>
<td>(New establishment scheduled)</td>
<td>(New department name change scheduled)</td>
<td>(New establishment scheduled)</td>
<td>(New establishment scheduled)</td>
<td>(New establishment scheduled)</td>
</tr>
<tr>
<td>Department of Architecture</td>
<td>Department of Mechanical Engineering</td>
<td>Department of Electrical, Electronics, and Information Engineering</td>
<td>Department of Material and Life Chemistry</td>
<td>Department of Information Systems Creation</td>
<td>Department of Architecture</td>
</tr>
<tr>
<td>Department of Mechanical Engineering</td>
<td>Department of Electrical, Electronics, and Information Engineering</td>
<td>Department of Material and Life Chemistry</td>
<td>Department of Information Systems Creation</td>
<td>Department of Architecture</td>
<td>Department of Architecture</td>
</tr>
<tr>
<td>Department of Material and Life Chemistry</td>
<td>Department of Information Systems Creation</td>
<td>Department of Architecture</td>
<td>Department of Architecture</td>
<td>Department of Architecture</td>
<td>Department of Architecture</td>
</tr>
</tbody>
</table>

You can certainly find a department that will support your endeavors.

Faculties of Science & Engineering at Kanagawa University
I made it here because of what I learned in the Faculty of Science at KU. Reflections from our Alumni.

If you figure out what you want to do and actively pursue it, you can really maximize your learning environment.

President of Media Flats Co., Ltd.
Graduated March 2000 from the Department of Information Sciences

Yoshifumi Nakamura

I entered university in 1996 before the PC had become common in the general public, and I first learned how to use it upon entering university. As a result, just using a PC during my time at university was an exciting and now experience for me. If something piqued my interest, I would actively seek out my instructors and ask them all types of questions. My instructors also went beyond the standard classroom lecture and helped me in my studies. The knowledge and experience I got from going beyond classroom instruction helped me acquire homepage building skills and learn web programming. KU was a place where you could take full advantage of everything as long as you had a desire to learn. Many alumni from the Department of Information Sciences went on to work as software engineers or programmers. However, I was different and preferred to create something that I thought of myself, rather than make something following the instructions of others. As a result, I teamed up with 3 friends and fellow post-graduate students in 2001. We became involved in the ad distribution and media business within the field of mobile devices, and we launched our current company. I remember this time of my life like it was yesterday. I was still young and was actually content not knowing things, and I did not really think about the negative. Rather, I was driven by the excitement from the possibilities in developing a business during the dawn of mobile internet systems and networks. Right now, reflecting back on my time I made it now because of the time spent in the Faculty of Science at KU."

While I had been completing my graduation thesis and getting involved with activities in my faculty, I was able to develop my presentation skills and learned how to persevere until the end.

University life is your "only opportunity" to do this.

Employed at Opencom Biotechnologies
Graduated March 1996 from the Department of Applied Biological Sciences (now Department of Biological Sciences)
Completed doctoral program March 2001 in Biological Sciences in the Graduate School of Science

Masahiro Matsumoto

My current work involves chemically related DNA replication, where we provide research material for researchers working in national and public organizations as well as in the corporate and university sector. What initially drew me down this path of study and work was an interest I had in the "Mendel's Principle of Hereditary and Mendelian inheritance" which I learned in class during high school. I wanted to do more advanced and specialized study as I looked for a school. At that time, there were only a few universities that offered biology majors or focus, so I decided to take the entrance exam for Kanagawa University because it had the Department of Applied Biological Sciences. After graduating, I completed the master's and doctoral programs, and then worked as a research assistant in the research laboratory. I learned a great deal after spending approximately 11 years on the Shonan-Hiratsuka Campus. My research topic was "The evolution of bivalves" and was assigned to the research laboratory of Prof. Hanyo (now retired). Shells in is an organism that is far older than dinosaurs, and I was absolutely fascinated with my work which traced their evolution. Thanks to my experience and training here, I was able to learn how to write a report, summarize and present data well. Those presentation skills proved extremely useful once I got out in the real world. I wanted to strengthen my presence so I also joined the Taekwondo club and got involved in a martial art activity, which was completely unrelated to research. People often say it, but the 4 years spent at university is over before you know it. I encourage all of you to take advantage of the opportunity and always be active so you can get the most out of your time as a university student.
Enjoy the rich, natural surroundings, an ideal research environment, and master the latest equipment and technology.

The Faculty of Science’s Shonan-Hiratsuka Campus is set in the rich, natural surroundings of Shonan and Hiratsuka. The numerous experiment and research laboratories and the High-Tech Research Center throughout campus are equipped with state-of-the-art research equipment and resources, offering you the best environment to “investigate principles and theories.”

Because you are learning at a 4 year university, you can do it at Shonan-Hiratsuka.

The Shonan-Hiratsuka Campus is not only home to the Faculty of Science but also the Faculty of Business Administration as well as graduate schools. You can learn among diversity alongside students pursuing various diverse with aspiring future.

Explore the opportunities in this irreplaceable campus life through club activities and school events.

**The advantages of studying at the Faculty of Science**

- **Enhanced study with small group instruction**
  - The exercises, seminars, and graduation thesis courses are designed to be “small group instruction” and are arranged so each student can steadily achieve their potential.

- **Full support for basic courses**
  - In order to support the science skills and knowledge required for steady progress, it is important to master the basic science fields such as mathematics, physics, chemistry, biology, and information processing. In the Faculty of Science, each faculty member integrates and covers all basic fields that are related.

- **General sense of unity in the Faculty of Science**
  - All departments are related and provide a general feeling of unity. This unity is a feature that separates this university’s Faculty of Science from other universities, and it proves useful when creating your curriculum and conducting joint research projects, etc. This feature and its success as a system was inspired by our Integrated Science Program.

- **High level research**
  - We are proud of our high level of research. The research facilities as represented by the High-Tech Research Center is a testament to the high praise we receive for the high level of research. The new building was completed in July 2009. This multi-purpose hall can hold 550 people, and it includes PC lecture rooms and PC lounges.

**SHONAN-HIRATSUKA CAMPUS**

- **Building 1**
  - The main experiment and research facilities in the Faculty of Science are located here, where most of the investigations research is conducted.

- **Building 2**
  - The main experiment and research facilities in the Faculty of Science are located here, where most of the investigations research is conducted.

- **Building 6**
  - This multi-purpose hall can hold 550 people, and it includes PC lecture rooms and PC lounges.

**What is a “graduation thesis?”**

Based on your interest and focus of study, you are assigned to a specific research laboratory in your fourth year, where you focus on your “graduation thesis” that represents the culmination of all that you have learned. The faculty member in your research lab acts as an advisor and provides close support through all stages of your research.

**What is a “research laboratory?”**

University is a place for learning and for research as well. University professors or instructors are not only educators but researchers as well. The “research laboratory” is the place where each professor conducts his or her research in their field of specialty. All students in the Faculty of Science are assigned to a research laboratory in their fourth year.

**The Faculty of Science at Kanagawa University offers 4 general departments:**

- **Department of Information Sciences**
- **Department of Chemistry**
- **Department of Biological Sciences**
- **Department of Mathematics and Physics**

**Learning at the Faculty of Science**

The Faculty of Science at Kanagawa University offers 4 general departments: the Department of Information Sciences, the Department of Chemistry, the Department of Biological Sciences and the Department of Mathematics and Physics. In addition, we also offer a unique program tailored to your needs, the Integrated Science Program. In your first two years, you can build a general foundation studying basic sciences from each department, crossing over into multiple fields. Then, in your third year, you can select the department you want to pursue for further study and discover your potential and own direction.

**1st year**
- Basic science courses
- Science major courses
- Humanities

**2nd year**
- Graduation Thesis

**3rd year**
- Integrated Science Seminar
- First Year Seminar in Mathematics and Physics
- Science I
- Graduation Thesis

**4th year**
- Select department (research laboratory)
- Integrated Science Research I & II
- Seminar I & II
- Seminar in Mathematics and Physics
- Graduation Thesis I & II

*There are other courses such as seminars or experiments courses assigned other than those noted above.*
Integrated Science Program

This program expands your basic knowledge covering a broad range of science disciplines, supported with a liberal arts education, creating modern-day renaissance men and women in science and technology.

We provide full support for students seeking to expand their fundamental knowledge in various science fields, and also for students still hesitating to decide on one specialty or focus.

Director of the Integrated Science Program

Prof. Akiya Hino

The Integrated Science Program has 3 main features. First, students who “mainly studied liberal arts courses in high school but are interested in studying in a science related department at university” can also take the subject of entrance exam for this program. Next, during their first and second years in this program, the students study the basics of natural science in a comprehensive manner. They strive to develop a high understanding correctly to society, science-based education and liberal arts background are essential. As the current demands in society increase, graduates from our “Integrated Science Program” will continue to gain more and more attention, with a myriad of career paths and opportunities unfolding.

Educational goals

There are many fields in science, such as mathematic, physics, chemistry, biology and information science, and huge range of studies have been pursued in each field. However, the border of these disciplines has been obscured recently, and many problems that require a multi-disciplinary approach and solution have been emerging. As a result, it has become more necessary to explain this kind of complex science and technology to people in an understandable way. In our Integrated Science Program, we respond to this need and demand in society. That is, students acquire a wide range of knowledge of natural science and liberal arts to give them the necessary skills to explain and present their ideas to people in a simple, understandable way. Our program aims to develop professionals who can also be active in a coordinating or communicative role in technical fields.

Course of study overview

Students study the basics of natural science in a comprehensive manner. They strive to develop a high understanding correctly to society, science-based education and liberal arts background are essential. As the current demands in society increase, graduates from our “Integrated Science Program” will continue to gain more and more attention, with a myriad of career paths and opportunities unfolding.

Course of study overview

Our “Integrated Science Program” is a platform of learning that corresponds to new discipline and research fields that just one department of our faculty of science is not able to cover. The students not only cover basic subjects and related subjects in the four established departments, but also can freely choose from courses in liberal arts, like “Global Environment” and “Corporate Strategy”, or courses that also straddle both science and liberal arts, such as the “History of Science”. The students select their major and focus in the third year. Students then join the department of their choice and pursue more in depth study and research in their major and focus.

Integrated Science Program Features

A new style of science learning is available for a new generation. Students in this program first cover basic subjects in the four established departments and liberal arts. Thereafter in their third year, students split up and enter the department of their choice and dedicate themselves to their major and focus.

Takashi Kimura - Research laboratory

Students acquire a wide range of knowledge of natural science and liberal arts to give them the necessary skills to explain and present their ideas to people in a simple, understandable way. In our Integrated Science Program, we respond to this need and demand in society. That is, students acquire a wide range of knowledge of natural science and liberal arts to give them the necessary skills to explain and present their ideas to people in a simple, understandable way. Our program aims to develop professionals who can also be active in a coordinating or communicative role in technical fields.

Integrated Science Program

Career path

In order to understand the current sophistication found in science and technology and to apply that understanding correctly to society, science-based knowledge and liberal arts background are essential. As the current demands in society increase, graduates from our “Integrated Science Program” will continue to gain more and more attention, with a myriad of career paths and opportunities unfolding.
This is why we chose the Integrated Science Program.

I could not decide on what science field I should work at university. In addition, I was aiming to become a researcher at that time, so I wanted to study liberal arts as well as a specialty field. Though the Integrated Science Program was very attractive, I decided I could not only study general science and computers, but because there was also a lot of courses that would be useful after. After I decided to study, I came to think that I wanted to get involved in the government rather than to become a teacher. The course was most different from my qualifications. For the qualification I wanted to obtain, I would also need to understand the field of computer science to do so and I was able to graduate.

Since I can dedicate myself to anything, I would like to see him apply his knowledge of science and remain active after graduation.

Assoc. Prof. Takashi Kimura

Natsuko Sato is not only excellent at his studies but also demonstrates leadership and a popular student. He keeps active as the chairman of the Hiyosaki Student Committee. Right now, as a member of the research laboratory, he is also working as a research assistant with the help of teachers and is continuing his research on the latest line.

After graduation, I believe that he can utilize the knowledge and the research experiences that he acquired in science to the fullest, even in the pursuit of a career in government.

Yuki Yamamoto
Department of Chemistry, 4th year

His interdisciplinary way of thinking, which stems from studying a broad range of fields, also shows in his graduation thesis, which we shall be introducing at the seminar.

Prof. Yoshihori Hirata

Yuki Yamamoto had difficulties progressing with his graduation thesis in the beginning. However, his unique perspective of incorporating ideas from liberal arts and his orthodox approach enabled him to ultimately produce good results. This is a testament to the main goal of the Integrated Science Program, and we hope high expectations for him in the future.

Yutaka Kurazono
A senior student, Department of Biological Sciences

In addition to acquiring general knowledge in natural science and liberal arts, I was able to discover a field of study that I want to devote myself to: chemistry.

I thought about doing physics and chemistry at university, but I did not know what major to choose. Then, I discovered the Integrated Science Program where a student can learn from a variety of fields in the natural sciences, and I decided to enter the program. When I entered the university, I was not able to study only the sciences, but also the arts. I discovered various fields that interested me. In particular, what I learned in “Expansions in Japanese Language” became really useful in writing exams. From what I learned in my first year, I found that chemistry paid my interest and came to see me, I chose to enter the Department of Chemistry. In my graduation work, I am currently studying the liquid-gas transition in argon. Research is hard work and difficult, but since I discovered a field of study that I want to devote myself to, it is worth it.

Assoc. Prof. Takashi Kimura

His strength lies in his ability to integrate all kinds of experiences and insights, obtained through a series of his creative experiences. He is known for his inquisitive and perceptive mind. Prof. Taro Yamasaka

Our research laboratory is equipped with many test beds, where the students conduct experiments, surrounded by fish. The major theme for Mr. Kusumoto is to color the fish from the island to light blue. From, he creates his own fish tank. Creating a new work sometimes gives the student a chance to obtain a whole new world of data. You need to integrate all kinds of factors to get to work.

Prof. Taro Yamasaka

I am able to apply the basic knowledge from various fields, which I studied in my first two years, to the current research for my major and focus.

“Biology” has always attracted me since high school because it explores the wonder of human beings as well as other living organisms, and of their spatial body structures. I decided to get into the Integrated Science Program because I thought it would be more interesting to study biology after studying a broad range of scientific fields. As for my major, I chose to study in the Department of Biological Sciences as I planned, through the field of the Information Sciences, as this was the major I was hoping to learn from a variety of fields, and so I decided to enter the program. I discovered the Integrated Science Program where a field of study that I want to devote myself to, it is worth it. This is a testament to the main goal of the Integrated Science Program, and we hope high expectations for him in the future.
Department of Information Sciences

Learn essential skills to become a leading engineer or creative researcher, to help support highly sophisticated information in society.

Information Sciences is a field of study that is expected to contribute even more to society in the future. Our educational system ensures that you will acquire a firm foundation in basic knowledge and application skills.

Director of the Department of Information Sciences

Prof. Tomonori Gotoh

The success and the discoveries in Information Sciences will continue to spread and be used in various fields now and in the future. It will continue to change industry systems and the lifestyles of people. As a result of these changes, the demand and need will continue to increase for people with specialized knowledge and a background in information sciences to help lead society. This department offers courses (Discrete Mathematics, Architecture of Computer, all types of Programming, Operating Systems, Computer Network, Database Systems, etc.) that probe the depths and breadth of the basics and related principles, in order to graduate students with fundamental knowledge and application skills in Information Sciences. In addition, a small group interaction system has been developed creating exercises, experiments and seminars. Therefore, students high performance to a higher level. After understanding the basics and related principles, this system will help students to apply these skills to real operating environments.

Laptop lending system (Free of charge)

This department lends all students high performance laptops free of charge. Students are provided with an ideal IT environment, with laptops that are equipped with the required systems used for specialized work and training in Information Sciences.

Information Sciences Features

Information Sciences is a field of study that takes the features of information and data to create new possibilities with the computer. In this department, students are able to acquire a deep and wide understanding in the basics of Information Sciences, and in the same time, they learn solid application skills through an array of exercises, experiments and seminars.

Curriculum

Study basic courses in Information Sciences. Student acquires a thorough understanding of the basic theory in Information Sciences. In addition, a small group instruction system has been developed creating exercises, experiments and seminars. Therefore, students high performance to a higher level. After understanding the basics and related principles, this system will help students to apply these skills to real operating environments.

Core of Information Sciences

This department offers courses (Discrete Mathematics, Architecture of Computer, all types of Programming, Operating Systems, Computer Network, Database Systems, etc.) that probe the depths and breadth of the basics and related principles, in order to graduate students with fundamental knowledge and application skills in Information Sciences. In addition, a small group interaction system has been developed creating exercises, experiments and seminars. Therefore, students high performance to a higher level. After understanding the basics and related principles, this system will help students to apply these skills to real operating environments.

The curriculum above is the schedule for academic year 2012. Other basic courses are available (Lirical arts, foreign language, career development, etc.).
For my graduation thesis, I had to review and refresh my programming and mathematics skills which was not my forte, but it strengthened my will and perseverance.

During high school, I always enjoyed our time spent using computers, and I wanted to study the same field at university so I attended this department. At that time, I had absolutely no specialized knowledge and did not even know what I should specifically study. Then, I started taking basic courses and worked my way up to more specialized courses. I realized on my own that I liked the theory side more than the practical side of the field, such as programming. This is when I really started to enjoy “thinking.”

After taking Associate Professor Tanaka’s course in my second year, I felt like I discovered a field that peaked my interest and I decided to join that same research laboratory. My motivation stemmed from his “DDoS protective methods” which was a fairly unique topic in the research laboratory. So, I had to review and refresh my programming and mathematics skills which was not my forte, and my work was difficult when I was confronted with enormous amounts of data. However, this inspired me to rise to the challenge and strengthened my will and perseverance. Even though I did not have a clear goal when I entered university, because I was exposed to an environment where I was able to complete my studies in a field I liked, I was able to discover what I was good at and my own path.

Even though I had no specialized knowledge, I wanted to study the same field at university so I attended this department. At that time, I had absolutely no specialized knowledge and did not even know what I should specifically study. Then, I started taking basic courses and worked my way up to more specialized courses. I realized on my own that I liked the theory side more than the practical side of the field, such as programming. This is when I really started to enjoy “thinking.”

After taking Associate Professor Tanaka’s course in my second year, I felt like I discovered a field that peaked my interest and I decided to join that same research laboratory. My motivation stemmed from his “DDoS protective methods” which was a fairly unique topic in the research laboratory. So, I had to review and refresh my programming and mathematics skills which was not my forte, and my work was difficult when I was confronted with enormous amounts of data. However, this inspired me to rise to the challenge and strengthened my will and perseverance. Even though I did not have a clear goal when I entered university, because I was exposed to an environment where I was able to complete my studies in a field I liked, I was able to discover what I was good at and my own path.

Using lab activities, I want to develop students’ “ability to confront questions and problems head on, to foster independent thinking.”

Assoc. Prof. Ken Tanaka

When we use computers and cellular phones, there is a technology called “filtering” which prevents and defends against malware and other communication risks. This research laboratory considers the problem and challenges of how to construct a more efficient filter for safer and more secure communication. The words “information” and “computer” have flooded our lives in society, so I think students are having difficulty selecting the right department to focus on. However, this department is ideal because it does not just offer computer studies but also understanding the principles and systems behind them. Yuko Maeda is a student investigating the topic of “DDoS attacks.” She has managed to analyze communication packets and come up with a proposal for a new preventive method against these attacks on her own. In order to think independently on your own, you need to confront questions and problems head on, and she is a student who has this ability. I hope to continue to develop this ability with students through research lab activities.
Laboratories

Systems that are ideal for both the user and the maintenance management side

Prof. Leo Nagamatsu
Research Field: Information systems, Dynamic reconfiguration, Structured document
Research Description: Nowadays, among the information systems that are heavily involved with many of our activities in society, the user-information system must operate without a break. The newest services ideally can be used right away. From the maintenance and management side, they must respond to problem areas quickly and any new functions also require functional architecture so that the user can access them without feeling any inconveniences. My research aims to establish a configuration method to improve user-friendly information systems for both sides.

Basic technology that makes computers operate faster and efficiently

Assoc. Prof. Shogo Matsui
Research Field: Programming language, Symbol processing, Garbage collection
Research Description: My field of research is dedicated to programming language. I mostly research functional and object-oriented language processing systems. I am aiming to establish a basic technology, such as parallel technology and memory management technology, that makes interpreter and compiler (software that executes written commands in both programming languages) operation faster and more efficient. Other research projects include and focus on garbage collection (memory garbage collection).

Research and development of a dialogue system that converses with a human in Japanese

Prof. Takashi Nakayama
Research Field: Natural language understanding, Dialogue systems, Bioinformatics
Research Description: We are studying on natural language understanding and developing a dialogue system that converses with a human in Japanese. Specifically, we have been implementing common sense and domain knowledge in the form of a frame network. Question-answering system is one of the typical applications of natural language understanding. For instance, the user could quickly access things on the web, and complicated questions or inquiries could be responded correctly. The key is enabling the dialogue system to learn on its own. We are trying to achieve a flexible dialogue system that can acquire knowledge through web-information and conversations.

KU Alumni

You can discover what you want to do and learn at your own pace.

Employed at NEC Sof., Ltd.,
Graduated March 2007 from the Department of Information Sciences
Takahiko Yoshimi

The first computer I bought after saving money doing part time work during high school was because I became interested in Information Sciences. After being exposed to a learning environment that covered all basic IT knowledge, such as software, hardware, databases, and networks, I decided to enter this department. My graduation thesis focused on the design and development of systems that prevent answering roll call during class using cellular phones. I am currently in charge of building a system that shares information internally at the company, which we call groupware. Since I was able to create my own curriculum at the Faculty of Science at KU, I was always able to figure out what I wanted to do. They say it is difficult to find a job these days, but all companies seek and require people who have a clear understanding of what they want to do and can make it happen. This university allows you to study what you want to do and at your own pace, and I think it has a good environment that fosters and develops those qualities in people.

Laboratory Work in Information Science

Master the basics of circuit design through experiments and further your understanding every time you submit a report.

This course is made up of two parts: “Experiments in hardware” and “Experiments in software.” The goal of “Experiments in hardware” is for students to gain an understanding in the basic operations of computers and learn about logic circuit function, part of the structures building blocks. Generally speaking, students work in pairs using logic circuit training and testing equipment, and they actually perform the wiring for the logic circuits, following the topics presented. In these experiments, students check the function of the logic circuits which are essential to all type of electronic information devices, and acquire the basic skills for circuit design. At the end of every class, students submit a report to check and further their understanding. The goal of “Experiments in software” is for students to study basic algorithm implementing techniques regarding general data processing and summary data.
First learn the structure and properties of matter, and push the envelope in unknown fields and topics. When you learn chemistry, you learn about your own evolution.

Director of the Department of Chemistry
Prof. Yoshio Kabe

The word for chemistry in Japanese also can be read as Bakegaku. Chemistry is the field of study that deals with the phenomenon of substances taking or changing form (= Bakeru). Chemistry is the field of study that deals with the phenomenon of substances taking or changing form (= Bakeru). The word for chemistry in Japanese also can be read as Bakegaku. Chemistry is the field of study that deals with the phenomenon of substances taking or changing form (= Bakeru).

Dedicate your studies in the field of chemistry using leading research facilities and a substantial learning environment, and contribute yourself to society at large.

Masakatsu Matsumoto - Research laboratory

Learn the basics from lectures and experiments. Beginning students spend the first two years studying the basics in Chemistry I, II, and a substantial learning environment, and contribute yourself to society at large.

Develop ideas for a focus in chemistry, and acquire the necessary skills for your own research. Starting from the fall of the third year, each student chooses a specific field such as Chemistry of Materials or Environmental Chemistry. Course for "Bakegaku Chemistry I", "II", "Bakegaku Chemistry Experiments" and "Experiments on Inorganic Chemistry I", "II" and "III" helps you learn how to search and prepare your graduation thesis, with a method to make you the research student in sophisticated research.

After mastering basic skills in courses like mathematics and physics, students develop the knowledge and skills to explain and analyze the structures and properties of matter and different materials. We offer courses designed to stimulate and maintain students enthusiasm toward chemistry through experimentation and exercises. This approach has resulted in students discovering and “creating new materials.”

What is “Inorganic Chemistry II (Major-group Element Chemistry)?” Inorganic Chemistry II is mainly concerned with understanding the periodic system and the chemistry of the elements. Students learn the periodic system and the chemistry of the elements through lectures and experiments. This is an advanced course designed to determine and maintain students enthusiasm toward chemistry through experimentation and exercises. This approach has resulted in students discovering and “creating new materials.”

What is "Environmental Chemistry”? This course covers the current conditions of the global environment, its characteristics, and recent research results. In this course, students learn about the environment and its characteristics through lectures and experiments. This approach has resulted in students discovering and “creating new materials.”

Time for your graduation thesis. Learning from the full of the third year, each student chooses a specific field such as Chemistry of Materials or Environmental Chemistry. Course for "Bakegaku Chemistry I", "II", "Bakegaku Chemistry Experiments" and "Experiments on Inorganic Chemistry I", "II" and "III" helps you learn how to search and prepare your graduation thesis, with a method to make you the research student in sophisticated research.

What is "Inorganic Chemistry II (Major-group Element Chemistry)?” Inorganic Chemistry II is mainly concerned with understanding the periodic system and the chemistry of the elements. Students learn the periodic system and the chemistry of the elements through lectures and experiments. This approach has resulted in students discovering and “creating new materials.”

What is "Environmental Chemistry”? This course covers the current conditions of the global environment, its characteristics, and recent research results. In this course, students learn about the environment and its characteristics through lectures and experiments. This approach has resulted in students discovering and “creating new materials.”

Time for your graduation thesis. Learning from the full of the third year, each student chooses a specific field such as Chemistry of Materials or Environmental Chemistry. Course for "Bakegaku Chemistry I", "II", "Bakegaku Chemistry Experiments" and "Experiments on Inorganic Chemistry I", "II" and "III" helps you learn how to search and prepare your graduation thesis, with a method to make you the research student in sophisticated research.

What is "Inorganic Chemistry II (Major-group Element Chemistry)?” Inorganic Chemistry II is mainly concerned with understanding the periodic system and the chemistry of the elements. Students learn the periodic system and the chemistry of the elements through lectures and experiments. This approach has resulted in students discovering and “creating new materials.”

What is "Environmental Chemistry”? This course covers the current conditions of the global environment, its characteristics, and recent research results. In this course, students learn about the environment and its characteristics through lectures and experiments. This approach has resulted in students discovering and “creating new materials.”

Time for your graduation thesis. Learning from the full of the third year, each student chooses a specific field such as Chemistry of Materials or Environmental Chemistry. Course for "Bakegaku Chemistry I", "II", "Bakegaku Chemistry Experiments" and "Experiments on Inorganic Chemistry I", "II" and "III" helps you learn how to search and prepare your graduation thesis, with a method to make you the research student in sophisticated research.
Megumi Nago
Research laboratory: Prof. Tatsuya Kawamoto

I found myself “enthusiastic about learning” and “excited about reaching our goal,” from getting involved in every day discussions in the research laboratory.

Since I was a kid, I always liked things related to science, such as biological encyclopedias or growing plants. I would also go fishing and see all the garbage in the sea, which is where I first noticed and developed an interest in global problems. This inspired me to study chemistry, which is essential to solving and improving these issues. When I entered university, I took a lot of courses, and I realized the importance of chemistry again. Specifically, I learned how important it would be to create a new energy system that is environmentally-friendly.

In professor Kawamoto’s research laboratory, I found out that they were researching complexes that would be helpful to developing new energy systems. Professor Kawamoto himself was also fascinating and very open to discussion or advice on issues and problems. As a result, I decided to join this research laboratory. My research topic focused on synthesizing ruthenium complexes with sulfur-containing Schiff base ligands and clarifying their structures. There are many times when the results do not pan out the way you thought. However, it is quite exciting when you discover something that you didn’t know, or when you get closer to your own goal. I plan on joining a company after graduation, but in the future, I would like to work at a job where I can use my knowledge and experience from university.

When you work hard conducting research every day, without interruption, and finally achieve your target, you can experience a wonderful excitement and surprise at the same time.

Prof. Tatsuya Kawamoto
Most my research topics focus on the “synthesis of metal complexes.” A metal complex is a compound which is surrounded by several ions and molecules. A familiar example would be chlorophyll and hemoglobin. In our research laboratory, I am targeting the development of new complexes rich with functionality such as conductivity and luminescence. My motto is “Let’s at least try and use.” The mission of a chemist is to create new compounds and challenging myself to that end is my job. I hope for the students to know that they can focus on their research every day without interruption. This type of environment produces questions and problems, and progress is only made by thinking about a way to solve these problems and trying it out. If you achieve your target, you not only experience a wonderful excitement, but you can also become surprised by an unexpected result. Megumi Nago is a student who, by focusing on her research every day, has developed her own synthesis conditions. I am optimistic that she will discover something new very soon.
Prof. Kenji Nomiya

Researching the creation of new complex catalysts and antimicrobial active complexes

**Research Field**
- Inorganic chemistry

**Research Description**
In an effort to design "new complex-based catalysts and antimicrobial active complexes that are environmentally-friendly," my research field is involved in the synthesis of inorganic chemistry, especially in targeting inorganic compounds and metal complexes. In particular, my research focuses on one project (HPA project) where I perform the "synthesis of molecular inorganic compounds called polyoxometalates, structure analysis and design of catalyst," and on another project (RENE project) where I propose the "synthesis of antimicrobial active complexes" as a new research topic. "Antimicrobial control using sulfur and gold metal complexes and its structure-activity relationship."

---

Prof. Toshiaki Matsubara

Analyzing various chemical phenomena on a molecular level

**Research Field**
- Molecular structures
- Chemical reactions
- Computational chemistry
- Theoretical chemistry

**Research Description**
By the development of the computer, we are able to easily stimulate molecular structures and chemical reactions, by means of theoretical calculations based on basic theories from physics. This is why we are able to understand, on the molecular level, chemical phenomena that are difficult to break down into experimental analysis. In my research laboratory, we examine various natural phenomena, which arise from simple molecules to complex ones, such as biological materials, using theoretical calculations.

---

Prof. Yoshinori Hirata

Elucidation of the mechanisms of chemical reactions in the solution phase

**Research Field**
- Physical chemistry
- Photochemistry

**Research Description**
In order to elucidate the mechanisms of chemical reactions in the solution phase, my research focuses on the micro-dynamics of the substance around the reacting molecules, and on the interaction between the solute and solvent molecules. Specifically, by using picosecond laser spectroscopy, I investigate photoionization and photo-induced reactions of aromatic molecules in solution. Furthermore, in order to obtain microscopic models of liquid dynamics that are seemingly difficult to analyze, I conduct molecular dynamics simulations to investigate various liquid dynamics.

---

Prof. Masakatsu Matsumoto

Synthesis and applications of substances from the living world

**Research Field**
- Organic chemistry
- Organic photochemistry

**Research Description**
In the living world, various organic substances conduct a myriad of functions in order to maintain species and populations. Until now, humans have used them and have made materials such as pharmaceuticals. In our research laboratory, we take the point of view of learning from these organisms. Among the substances that we learn from organisms, for certain functions, we are trying to create materials and substances that are superior to the organisms. In one research example, we synthesized a functional material that was modeled after the chemiluminescent substance from a firefly and the activity of a plant.

---

Prof. Hisao Hori

Developing technology that detoxifies organic substances, enabling resources to be recycled

**Research Field**
- Environmental remediation
- Desorption & Destabilization
- Recycling
- Organofluorine compound

**Research Description**
My research is focused on the decomposition and desorption, and on the technology of recycling for chemical substances that may have negative impacts on the environment, while they have high functionality and thus important not only in industry but also in our lives. Specifically, I am developing new reaction technologies (chemical and nonchemical water reactions and photochemical reactions) to decompose organofluorine compounds (including fluoropolymers as well) that consist of strong carbon-fluorine bonds, enabling it to be used as a resource again.

---

Prof. Kazuo Yamaguchi

Investigating highly functional materials that can be used in IT and bio fields

**Research Field**
- Synthesis and functions of supermolecules

**Research Description**
My research laboratory synthesizes organic compounds considering the applications for electronics and biology in next generation. A wide variety of compounds including, ionic, rare molecular to macromolecular, and also nanoparticles, are used in my investigation of highly functional materials. For example, light-sensitive material was developed that changes the properties only in the location where it is exposed to light. This material can be applied for biosensors that arrange cells and for thin film transistors used in displays.

---

Kazuki Yamaguchi

Since high school I have enjoyed “chemistry experiments” and I have always wanted to study chemistry. My graduation thesis focused on the “dual ability of ionic-permissive polymers,” and this research project was sponsored and contracted by a company. As a result of the interaction with the contracting company, I was able to gain a lot of experience very similar to my current work. In addition, the skills I learned from my graduation thesis, prioritizing what I need to do, planning and carrying things, have all been helpful even now. The faculty I graduated from even looked for a company where I could do development work. I am currently involved with the development of materials used in touch panels for smartphones, etc., working in the Conductive Materials Division of Pelnox, Ltd. Even though I had my hands full with experiments in front of me during university, these are a lot of times now when I think “I am glad I got to do that experiments.” KU has high-tech measuring instruments and equipment available that aren’t regular companies don’t have, so I encourage you to take advantage of their resources and conduct lots of experiments.

---

Students learn titration, part of the basics in chemistry experiments.
Department of Biological Sciences

Resolving the current problems and issues by a perspective based on biological sciences, and pursuing a new age of “coexistence.”

Ryuji Toyozumi - Research laboratory

Biological sciences are received remarkable attention from various fields, and students not only study the basics but also conduct investigations in frontier of this field. Let’s challenge the biological science that makes remarkable advancement.

Director of the Department of Biological Sciences

Prof. Kazuhiro Inoue

Today, the biological sciences advance remarkably such as “post-genome,” “regenerative medicine” and “biodiversity.” Our society is not able to exist without it and we are entering the age of “Biological Sciences.” I imagine that there are quite a lot of students who would like to learn at the forefront of biological sciences; a field which is expanding and developing every day. However, in order to truly understand this field, students must first master the basics. There are two fundamental perspectives in biology: unity or what organisms have in common, and diversity, that is, the multitude of types in or among organisms. These perspectives or ideas weave through the biological sciences depicting relationships similar to the way horizontal and vertical weaves form fabric, and both are essential in the student’s understanding. To that end, this department offers a full breadth of courses, from basic ones to specialized fields of study.

DEPARTMENT OF BIOLOGICAL SCIENCES

makes remarkable advancement. Let’s challenge the biological science that not only study the basics but also conduct attention from various fields, and students Biological sciences are received great from basic ones to specialized fields of study.

To improve the students’ learning curve and encourage them to think for themselves, the department offers a wide variety of courses that make it possible for students to engage in research from early in their college careers. The course “Fundamentals of Biology” aims to introduce students to the basic concepts of cell biology, while the course “Introductions to Biomedical Research” explores the latest research methods and their applications. These courses are designed to foster a deeper understanding of biological sciences.

Director of the Department of Biological Sciences

In this department, you learn knowledge in the field of biological sciences indispensable for applying the idea of “coexisting with nature” to current reality issues for mankind. Starting in your first year, you can choose one from 3 different courses of study, and then you can pursue further study in your field of choice.

DEPARTMENT OF BIOLOGICAL SCIENCES FEATURES

In this department, you learn knowledge in the field of biological sciences indispensable for applying the idea of “coexisting with nature” to current reality issues for mankind. Starting in your first year, you can choose one from 3 different courses of study, and then you can pursue further study in your field of choice.

Curriculum

Select your course of study from 3 options. In addition to the field of biological sciences, this department offers a wide variety of courses that make it possible for students to engage in research from early in their college careers.

Graduation thesis? This students plan and execute their projects, guiding each step of their thesis as required across the real world.

Faculty of Science 25

Select your course of study from 3 options. In addition to the field of biological sciences, this department offers a wide variety of courses that make it possible for students to engage in research from early in their college careers.

Graduation thesis? This students plan and execute their projects, guiding each step of their thesis as required across the real world.

Faculty of Science 26
Investigating an androgenic gland hormone in crustaceans as well as many other hormones

Tsuyoshi Ohira - Research laboratory

My lab experience has made my knowledge what I learned in class much clearer and even furthered it.

In my high school science classes, I became particularly fascinated by biology and technology, and so I researched which universities had biology programs. When I looked into KU, there was a wide variety of possible fields offered by the professors at KU, and the university also had the necessary equipment and resources for conducting biological experiments. In addition, departments of biological sciences offered 3 different courses in my third year, and so I decided on the university. During my first year, Ired DNA replication and transcription as well as a protein synthesis. I discovered that these were basic molecular mechanisms of life. I also wanted to change my career and become a researcher. My main research topic involves the “androgenic gland hormone” that regulates the sex differentiation of the pill bug. In order to induce sex reversal from male to female, I inject a substance that suppresses sexual hormones in the pill bug. I inject a substance that suppresses sexual hormones in the pill bug. My research experience has made my knowledge what I learned in class much clearer and even furthered it.

To all high school students

You can use the lab equipment that is available to look up any questions you might have, or investigate something that you are interested in. Furthermore, you can also expand your knowledge from the support provided by the many professors and staff who are experts in their fields.

Breaking down the photosynthesis system and integrating it into new technology

Prof. Kazuhito Iinose

My research laboratory

My research laboratory

There are 11 undergraduate and 3 graduate students currently researching research in my research laboratory. My professors or the professors’ students design the experiment to help us out if we don’t understand something. I would like to become closer to my fellow lab students because we go on overnight trips once a year or have events with everyone.

Investigating hormones related to growth and sex differentiation in crustaceans

Assoc. Prof. Tsuyoshi Ohira

Crustaceans such as shrimp and crab synthesize hormones that in these organisms. There is also unique and fascinating hormone (androgenic gland hormone), that if you inject it into young females, they change sexes and become males. In my research, I am investigating not only the androgenic gland hormone in crustaceans, but also various other hormones that regulate growth, reproduction and homeostasis by using biochemical and molecular biological techniques. My motto is “Continuous observing patients.” Study using living organisms is very tough, but if you don’t stick with it, you cannot produce results. I encourage the students to continue with their investigations, to try out different approaches, and to not be afraid of mistakes or failures. Naoya Saito is a student who continued with an experiment for about 6 months without producing any results and almost lost his faith and spirit. However, he overcome his problem and even made a new discovery. This was his reward for his dedication and effort.
I think that the perseverance to forge ahead toward my goal which was cultivated at the lab has been helpful in my job as a teacher.

Employed as a public junior high school in Sagamihara
Graduated March 2007 from the Department of Biological Sciences

Mayuko Kato

My dream was to become a science teacher, because I wanted to do work where I could pursue my interests and be involved with kids that have a lot of potential. I decided on this department that allowed me to learn the basics of biology while taking teacher-training classes because it was quite attractive to me. In professor Susumu Izumi’s research laboratory, I spent many hours investigating the “tooth and bone” mechanism in the experiments. When I encountered setbacks in the experiments, I was able to go through them with the help and moral support from fellow lab students. I look back fondly on my relationships with everyone from my lab, because we spent so much time together and developed a strong connection. In addition, the perseverance, I cultivated from setting a goal and never giving up until it was achieved, has also been helpful in my work as a teacher. Following the spirit of kendo which I love, I will continue to work hard in the future to be a teacher that can “look straight ahead” at the students, as a testament of our mutual respect and understanding. This department is blessed with a campus surrounded by nature, it often intersects with the students’ dreams and it provides state of the art resources and lab facilities. I encourage everyone to take full advantage of their time in university.
The Department of Mathematics and Physics was previously offered as a "course of study in Physics" under the Department of Information Sciences. However, after expanding the curriculum and reconstituting the course of study with more robust and faculty members, it became in its own independent department offering a new enriched atmosphere for students. The new department offers two courses of study. This new "course of study in Mathematics" builds up a strong foundation in basic mathematics so the students can apply it to actual problems, and thereby developing their problem-solving skills. The small group instruction enables the student to "learn the lesson thoroughly until the student is still doubtful about it". In this course, students develop skills in probability theory as it presents the universal properties in the structure. In this course, students develop skills in probability theory as it presents the universal properties in the structure.
My four years of study, working hard at everything and being stimulated by my friends was an invaluable experience I will always treasure.

I decided to enter the Department of Information Science because the Department of Mathematics and Physics seemed to be my future and I wanted to further my mathematical understanding. In my first year, I took mostly mathematics courses. From my second year on, I saw many unique research laboratories to choose from because I was interested in so many courses, such as physics experiments and social sciences. However, instead of following the advice of my first-year counselor, I decided to join Prof. Kino’s laboratory because I enjoyed his warm and stimulating atmosphere. As a result, each student is able to focus and work hard on their own topic or project. Prof. Kino is always there to provide critical instruction to help foster student growth.

To all high school students

This department is blessed with a campus surrounded by nature and it allows one to study whatever your heart desires. There is a system that lets high school students take a specialized computer science course throughout their four years and study hard. The sky is the limit to how much you can learn here.

Department of Mathematics and Physics
When micro elements are gathered, understanding macro properties is essential. In addition, I am also interested in the frustration that exists in a system composed of numerous microscopic elements that exist together and interact with each other. My main research topic deals with the methodology for explaining the macro properties (such as the properties of mass, or their collection of atoms, and so on) occurring in this field, I use both mathematical techniques and computer simulations which occurs in Maglev. While there are still a lot of things that are unclear and I have been researching on systems where many electrons and other components interact. I am currently developing a framework (class / library) for Java that can create complex system simulations and applications more easily.

I am especially interested in the beginning and evolution of the early universe, which has a deep connection to particle physics. I study theoretically and experimentally to understand the formation and evolution of the universe in greater detail. I am also investigating the general problem and questions that occur in the natural sciences, particularly astrophysics and astronomy. I am the president of this department. I am employing the fundamental concepts of quantum mechanics to create frameworks for large scale computing. I am currently studying the early universe and the laws of physics that rule the world where we live in, by studying our universe, as well as the laws of physics that governed the early universe, the universe after the big bang, and the universe before the big bang. I am especially interested in the beginning and evolution of the early universe, which has a deep connection to particle physics. I study theoretically and experimentally to understand the formation and evolution of the universe in greater detail. I am also investigating the general problem and questions that occur in the natural sciences, particularly astrophysics and astronomy. I am the president of this department. I am employing the fundamental concepts of quantum mechanics to create frameworks for large scale computing. I am currently studying the early universe and the laws of physics that rule the world where we live in, by studying our universe, as well as the laws of physics that governed the early universe, the universe after the big bang, and the universe before the big bang.

RESEARCH DESCRIPTION

I am working on understanding the fundamental concepts of quantum mechanics to conduct a broad range of research in systems where many electrons and other components interact. For example, one can break down or shed light on the phenomena that appear to be influenced by the interaction of microscopic elements in a solid, such as in a superconducting circuit which occurs in Maglev. While there are still a lot of things that are unclear in this field, I use both mathematical techniques and computer simulations to try to rationalize existing experiments and to predict new phenomena.

Understanding macro properties when micro elements are gathered

I am working on understanding the fundamental concepts of quantum mechanics to conduct a broad range of research in systems where many electrons and other components interact. For example, one can break down or shed light on the phenomena that appear to be influenced by the interaction of microscopic elements in a solid, such as in a superconducting circuit which occurs in Maglev. While there are still a lot of things that are unclear in this field, I use both mathematical techniques and computer simulations to try to rationalize existing experiments and to predict new phenomena.

Research in simulation and computational physics

I am working on understanding the fundamental concepts of quantum mechanics to conduct a broad range of research in systems where many electrons and other components interact. For example, one can break down or shed light on the phenomena that appear to be influenced by the interaction of microscopic elements in a solid, such as in a superconducting circuit which occurs in Maglev. While there are still a lot of things that are unclear in this field, I use both mathematical techniques and computer simulations to try to rationalize existing experiments and to predict new phenomena.

Systems where many electrons exist forming complex relationships

I am working on understanding the fundamental concepts of quantum mechanics to conduct a broad range of research in systems where many electrons and other components interact. For example, one can break down or shed light on the phenomena that appear to be influenced by the interaction of microscopic elements in a solid, such as in a superconducting circuit which occurs in Maglev. While there are still a lot of things that are unclear in this field, I use both mathematical techniques and computer simulations to try to rationalize existing experiments and to predict new phenomena.

Aiming to accelerate the LS1 switches / transistors

I am working on understanding the fundamental concepts of quantum mechanics to conduct a broad range of research in systems where many electrons and other components interact. For example, one can break down or shed light on the phenomena that appear to be influenced by the interaction of microscopic elements in a solid, such as in a superconducting circuit which occurs in Maglev. While there are still a lot of things that are unclear in this field, I use both mathematical techniques and computer simulations to try to rationalize existing experiments and to predict new phenomena.

Understanding macro properties when micro elements are gathered

I am working on understanding the fundamental concepts of quantum mechanics to conduct a broad range of research in systems where many electrons and other components interact. For example, one can break down or shed light on the phenomena that appear to be influenced by the interaction of microscopic elements in a solid, such as in a superconducting circuit which occurs in Maglev. While there are still a lot of things that are unclear in this field, I use both mathematical techniques and computer simulations to try to rationalize existing experiments and to predict new phenomena.
Expanding careers in various fields

The Faculty of Science at Kanagawa University supports a broad range of fields in the natural sciences that are closely connected to our everyday lives. As a result, the alumni who graduated from each department are active in a variety of fields and careers because they were able to master knowledge and skills that are in demand and useful in society.

*Data as of March 1, 2021.  
*The data for many places of employment is taken from the last 3 years, including those who completed their post-graduate research.

## Department of Information Sciences

### List of Alumni Employment (last 3 years)

- **NICT Corporation**
- **Fujitsu**
- **Hitachi Software Engineering**
- **Zektor**
- **Fujitsu AMS**
- **NICT Data Corporation**
- **Hitachi Barton Selection**
- **Hitachi Systems & Services**
- **Fujitsu Broad Solution & Consulting**

### Department of Chemistry

### List of Alumni Employment (last 3 years)

- **Chemical Pharmaceutical**
- **Mitsubishi Chemical**
- **Oxida Corporation**
- **Chemonene Cosmetics**
- **Chosai Pharmaceutical Manufacturing**
- **Morison Mill Industry**
- **Yokohama Ole & Fat Industry**
- **Mary Chocolate**
- **Ryoko Yuki**
- **Fukuda**
- **Kokuseki Research**

### Department of Biological Sciences

### List of Alumni Employment (last 3 years)

- **Kanagawa Prefecture public school**
- **Kanagawa City public school**
- **Earth Chemical**
- **Nippon Shiyaku**
- **Nippon Chiyokai**
- **Morioka**
- **Dole**
- **Bak**
- **Morison Mill Industry**
- **Fujita**
- **Nakamura**

---

### Graduate School

#### Course program and research system of our graduate school on the basis of three departments as well as integrated science program in the Faculty of Science to educate students pursuing a career as leaders in the variety of fields.

The Graduate School of Science is positioned on the top of the Faculty of Science, offering a platform for post-graduate students to pursue one of three course programs for advanced study and specialized research. The goal of our master's degree program (two years) is to cultivate researchers with in-depth knowledge and developable abilities, as well as industry experts who display highly specialized knowledge, ability and skills. Furthermore, our doctorate program (three years) aims to cultivate researchers, scientists and engineers who are autonomous, highly creative with excellent research and development abilities.

#### Course of Information Sciences

- **Master's degree program (pre-doctorate)**
  - 2 years
  - Compulsory program: General course
  - Optional course: Advanced course

#### Course of Chemistry

- **Doctoral dissertation review**
- **Main requirements**
  - Pass final examination

#### Course of Biological Sciences

- **Doctoral dissertation review**
- **Main requirements**
  - Pass final examination

---

### Post-Graduate Programs

#### Developing candidates who wish to focus on the field of information sciences

Acquire both basic and advanced knowledge of computer, and at the same time, obtain knowledge in mathematics and the laws of nature. This post-graduate program develops degree candidates who can discover and solve many issues that face our society and who can also push the envelope in creative research. Candidates acquire a flexible thinking approach and skills related to the basics and applications of information sciences. This program not only prepares their processing and judgment solving skills through actual problem-solving activities, but also teaches them the fundamental knowledge and skills related to the various fields through coursework and research. Candidates possess theoretical and specified knowledge, focusing their research in the area of computer science, mathematics and other fields.

#### Developing candidates who can lead and wish to explore the field of substances

Chemistry is the study and pursuit of substances and matter. It is the foundation of all our life sciences and engineering, but also pharmaceutical studies, agriculture and medicine, and a number of other natural sciences. This post-graduate program aims to develop degree candidates who are capable of facing the challenges in the study of substances and related fields through coursework and research. Candidates possess theoretical and specified knowledge, focusing their research in the area of fundamental research.

### Developing candidates who can advance the field of biology

Degree candidates acquire a critical-thinking approach and basic skills to develop into professional experts that help support society. In addition, our doctoral program seeks to develop degree candidates who can advance the field of biological sciences in Japan. These candidates develop education and pursue research in biological fields which help support the main fields of Biology and Molecular Biology, Oncology & Cell Biology and Animal Health & Ecological. Our post-graduate program is designed to develop degree candidates who can advance the field of substances and basic research, and who display both basic and advanced knowledge of biology.