



JAPAN WOMEN'S  
UNIVERSITY

Faculty  
of  
Science



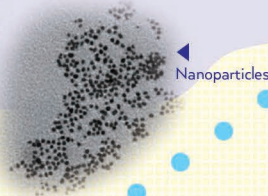
The Power of **Dreaming**  
**Wings** for Tomorrow



Bloom  
as SINCE 1901  
a leader.  
Japan Women's University

## Utilizing Chemistry's Strengths to Clean the Environment

The forest serves to purify the city's polluted air. We use the entire forest on the Nishi-Ikuta campus as a laboratory, and analyze traces of harmful substances contained in plants to determine how much the forest purified the air. We also develop metallic nanoparticle catalysts to purify polluted water.



Nanoparticles

## Introduction to Our Research

What kind of research do you want to do?



## Creating a Smooth Information Network

It is easy to use smartphone applications because of the "information network" that freely links many servers and terminals. Social network services (SNS) and video streaming have become incredibly popular, and the flow of data processing is truly diversified depending on its control, popularity, and user behavior.

Our research analyzes the data flow, with the goal of creating smooth networks that optimize compatibility with the characteristics of the flow.



## The Mysterious Life of the Sea Slug

Sea slugs are sometimes called "the jewelry of the sea." Their colors and patterns are beautiful and incredibly diverse. How did all these shades and patterns evolve?

Some sea slugs perform photosynthesis. They take chloroplasts from seaweed and perform photosynthesis inside their bodies, so if light is available, they don't need food. Let's unlock the mystery of these enigmatic creatures.



## Programming a Block Robot

You probably remember playing with blocks as a child. Now you can put blocks together to build a robot and program it in one of our applied physics seminars. By programming optical sensors, ultrasonic sensors, and other such devices, you can make the robot move in a straight line and turn around without bumping into the wall.



## Applying Mathematics to Our Daily Lives

Did you know there is a winning strategy for choosing a husband? It depends on mathematics!

First, reject unconditionally the first one-third of men you meet at a matchmaking party and then choose the first man who is better than all of the previous men. In this way, you can maximize the probability of getting married to the best possible man.



Winning Strategy for Finding a Spouse!

## The Science of Romance



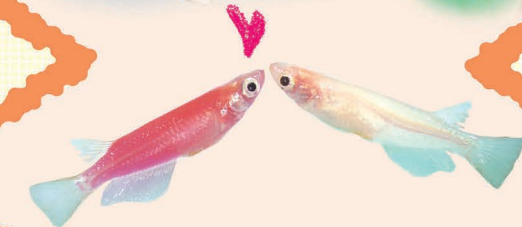
## Coffee Break

Which type of person are you, a killifish person, a parakeet person, or a closterium person?

When a female killifish changes her body color, the male killifish will know she is ready to mate. Female and male parakeets deepen their mutual relationship by crying to each other. There are female and male closteriums, and they communicate with each other by releasing substances called pheromones.

That means killifish fall in love by "appearance," parakeets by "voice," and closteriums by "smell."

Now, which type of person are you?



# Messages from Alumnae 'Past, Present, Future. We are Brilliant.'

We Made Our Dreams Come True!

This spread introduces alumnae who play active roles in their chosen fields.



I realized my dream from my high-school days.

**Name: Yuka Marukawa**  
**Place of employment: Euglena Corporation**

I do research aimed at producing a bio-based jet fuel from microalgae called euglena at the Research and Development Department's Bio Fuel Development Section. I couldn't imagine that my acquaintance with algae, which began in the university laboratory, would take me so far. This isn't the kind of research that produces immediate results, but every day, I do my best to move steadily toward making this dream come true.



I'm doing my best to move toward making my dream come true.

**Name: Akiko Matsudaira**  
**Place of employment: Ajinomoto Co., Inc.**

Ajinomoto is the world's largest manufacturer of amino acids, which are indispensable for life, and does a lot of research and development related to their production. I'm involved in R&D aimed at more effectively creating amino acids through the process of fermentation. My four years at Japan Women's University provided the foundation of my life as an adult, and I realized my dream from my high-school days: working in biological research.



I develop products based on my own ideas. I love the challenge.

**Name: Erina Saito**  
**Place of employment: Fuji Xerox Co., Ltd.**

My job is development of high-performance fine coloring particles and toners, creating technology that will realize faster and more beautiful printing. I studied in the Inorganic Environmental Chemistry Laboratory at JWU, and now I face new challenges in a completely different field. I work in operations, looking forward to the day when the technologies I'm working on are utilized in a broad range of fields and are useful for many people.



Monozukuri is useful for many people.

**Name: Mariko Nomura**  
**Place of employment: Nihon L'Oréal K.K.**

I work in the research center of the world's largest cosmetics maker, L'Oréal Group, which has its headquarters in France. I am responsible for assessing popular brand products such as Kerastase and L'Oréal Paris. Assessment results are used in product development and advertising. I am also working on the development of a new device that evaluates the condition of the hair and scalp. It's always a fun challenge.



Thriving on experiences during my university days.

**Name: Akiko Mitani**  
**Place of employment: Nippon Hoso Kyokai (NHK) Shizuoka Station**

I work at the NHK station in Shizuoka, mainly filming for various programs. I shot film on a ship for a program about canoeing along the Izu Peninsula, and carried all my equipment over my shoulder for hours while filming a soccer game from the sidelines. Since graduating from the university, I often get together with the members of my laboratory and talk about our jobs. I believe our strong ties are unique to the Faculty of Science, and the experience I gained during my university days has helped me thrive in the workplace.



I want to offer customers a higher level of service.

**Name: Ayana Miura**  
**Place of employment: East Japan Railway Company**

I am assigned to the JR East - Tokyo Electrical Construction and System Integration Office in Shinjuku, supervising the construction of power substations for electric railroads, mainly in the Kanto region. As one of the members responsible for JR East Japan's construction project, I make safety and security our top priorities, and work hard every day to offer our customers a higher level of service.

**Name: Tamaki Wakutsu**  
**Place of employment: Hitachi, Ltd.**

I work as a systems engineer in the Hitachi, Ltd. Public System Business Division. My main jobs include proposing large-scale systems for public services and configuration, development, operation, and maintenance of the system environment. I think the experiences I gained in my student days are always useful, since my major at Japan Women's University was mathematical statistics.



Experiences I gained during my student days are always useful.

**Name: Reina Ishimoto**  
**Place of employment: Toshiba Corporation**

I develop software in Toshiba's Social Infrastructure Division. We do 24/7 monitoring of buildings, airports, seaports, schools, and other facilities, so you can enjoy a safe, secure life. Every day, I enjoy life to the fullest while always addressing new tasks, to create a more earth-friendly, more comfortable environment.



Every day, I enjoy life to the fullest while always addressing new tasks.

# From Atom to Universe From Micro to Macro

Atoms/molecules

Life

Environment

Network

Universe

$$e^{i\theta} = \cos \theta + i \sin \theta$$

Observation data from the Tokyo University Kiso Observatory Kihei Project was processed at the Hamabe Laboratory.

Come check  
us out!



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▼For details, visit us online at:

URL [http://www.jwu.ac.jp/unv/faculty\\_department/science/about/](http://www.jwu.ac.jp/unv/faculty_department/science/about/)

For more information on entrance exam guidelines,  
send in the card on the last page of the faculty guide (Guide 2017).