Future Global Leadership Program
Bachelor of Agriculture

TOHOKU UNIVERSITY

Tohoku University, Sendai, because ...

Applied Marine Biology Course

Undergraduate Course

- Full undergraduate program entirely in English
- Government- and industry-funded biological research
- Molecular, organismal and ecological approaches
- Contributing to practical applications in fisheries science & marine aquaculture
- Proven support for international students

Tohoku University Faculty of Agriculture
AMB
Future Global Leadership
From 2011
Applied Marine Biology Course

... the AMB course is unique in Japan ...

Outline of the Applied Marine Biology Course

Applied Marine Biology (AMB) is a marine science course with an emphasis on research applications to all aspects connected with harvesting food from natural and aqua-cultured marine animals and plants. Grounded in basic sciences in the first year, AMB students receive instruction and training in a broad range of techniques and subject areas, including ecology, physiology, biochemistry and molecular biology. The plants and animals that students will become familiar with include seaweeds, plankton, various kinds of fishes, shellfish, and other interesting organisms such as sea urchins. Opportunities are also available for working at the biochemical level on novel substances of potential use as medicines. In short, training is available in all aspects of the Faculty of Agriculture themes of "Food, Health and Environment."

Entry Flow Chart and Course Progression

1) English and basic academic abilities test
2) Application to the AMB course
3) Entrance examination

Enrollment



Undergraduate course

October
AMB
Applied Marine Biology Course
1
2
3
4

Graduate course

Bachelor degree

October
Graduate School of Agricultural Science
5
6

Master degree

October
7
8
9

Doctoral degree

Industry, Academic career

Curriculum

General Science	**Fundamental Education** including	
Specific Science	• *Biology* • *Mathematics* • *Physics* • *Chemistry*	• *Statistics* • *Social Science* • *Cultural Science* • *Japanese*
Specific Marine Biology	**Advanced Education** including	
Research	• *Marine Ecology* • *Fish & Shellfish Physiology* • *Shellfish Endocrinology* • *Fish Genomics*	• *Marine Biotechnology* • *Marine Biochemistry* • *Food Processing* • *Fish & Shellfish Breeding* • *Conservation Biology* • *Informatics*

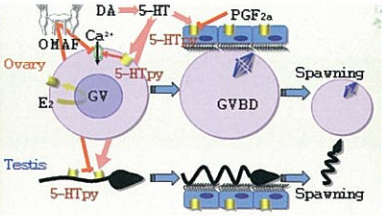
After graduation from the AMB course with a bachelor degree, you can enroll in the **Graduate School of Agricultural Science** for a master's degree, and then a doctoral degree.

Admission to the AMB Program

The admission process is based on the overall performance of each candidate in tests of basic academic ability, such as high grade passes in examinations of Secondary Education, an official high school transcript, the Examination for Japanese Universities (EJU), English proficiency test for non-native English speakers (such as TOEFL), and success at interview in fulfillment of the Tohoku University entrance examination procedures.

Accommodation and Financial Aid

Accommodation is available in the university dormitory facilities. Tohoku University scholarships are available for students with outstanding scores in their academic performance. For the latest information, and information about scholarships provided by public organizations and private agencies, visit our web site: www.agri.tohoku.ac.jp/amb/



Examples of what you can Learn...

- Tissue culture techniques
- Handling and culturing of micro-organisms
- Molecular biology, gene function, comparative genomics
- Practical training in genetic resources and genetic engineering
- Bioassays
- Field survey techniques
- Growth and rearing experiments
- Life cycle studies
- Nutrition and marine grazing studies
- Breeding experiments (model organisms: guppy, medaka, zebrafish)
- Control of invasive species

Career Perspectives

Many students graduating with a Bachelor of Agriculture decide to enroll in the graduate programs to study for a Master's degree, and some move on to take their doctorate. Students suitably qualified often continue on to a successful career in Industry, typically food-related, and many move on to work at marine research institutions both in Japan and abroad. AMB students will be encouraged to take prominent leadership roles in marine-related research, either here in Japan or upon returning to their own country.

Voices from International Students

Nicholas Treen

graduate student

UNITED KINGDOM

I first heard of Tohoku University from an article describing the city of Sendai in the journal Nature in 2006. Then I received a scholarship from the Japanese government to do postgraduate research and I was interested in studying at the laboratory of Aquacultural biology that has a long and respected history of research. I feel this university has a good atmosphere for intellectual thought to be nurtured.

The areas near Sendai are famous for their scallops and oysters. I research the mechanisms of reproduction in these shellfish. Understanding shellfish reproductive biology is vital to improving strategies for their cultivation.

I would like to establish myself as a scientist researching marine animals. Both the United Kingdom and Japan have a strong culture of academic research and I would like to position myself to take advantage of opportunity for collaboration between these two countries. The wealth of opportunities that studying in Japan has given me makes me grateful I chose to come here.

Huang Yong Qiang

graduate student

CHINA

The first time that I heard of Sendai was in the prose of the famous Chinese writer Lu Xun when I was in elementary school. Lu Xun attended Sendai Medical Academy (now Tohoku University School of Medicine) from 1904 and is now recognized as the first foreign student of the college. So, ever since my elementary school days, I made up my mind to go on to study in Japan one day.

Since Japan is a nation of islands, it is a marine nation and it is known well for its distinctive contributions to all areas of Aquaculture. Although not well publicized, Japan has made many significant contributions to aquaculture, and this history of practical and academic achievements is why it keeps its world leading position in aquaculture research. The areas of research that I am interested in include Aquatic Biology, Water Environmental Chemistry and Aquatic Genetics and Breeding.

The stimulating academic atmosphere and research environment also trigger me to go on with further study in Japan. Now, my dream came true and I am proud to be a member of one of the Marine Biology laboratories in Tohoku University. For these reasons, I cherish this valuable opportunity to continue to research on my major here, and I believe it will bring me significant experience that will be valuable for the rest of my life.

Life in Sendai

Sendai is the political and economic center of the Tohoku (northeast) Region, one of eight major regions in Japan. The city has a population of around 1 million and is located approximately 300 km north from Tokyo, within about 1 hour and 40 minutes by bullet train. The temperatures in Sendai vary between a maximum of around 28°C in summer and around freezing (0°C) in winter (the coldest month is January). Housing prices in Sendai are more affordable compared with other metropolitan areas of Japan.

Sendai is called the "City of Trees" in Japan, due to the abundance of tree-lined streets and parks in the center of the city. People living here enjoy many annual events, including the Sendai Tanabata Festival, one of the most famous summer festivals in Japan, and the Jazz Festival, where people perform live under the trees in Jozenji Street. Close to Sendai, there are a number of pleasure resorts, including surfing and sunbathing beaches, mountain ski resorts and hot springs. To experience traditional and modern Japanese culture, students can join one or more of the 60 or so sports, music and cultural clubs at Tohoku University.

... we are contributing to research into the effects of Global Warming

Effect of cold shock and cortisol on heat shock protein levels in rainbow trout. *Fisheries Science* 68S, 1037-1040.

A novel oocyte maturation arresting factor in the central nervous system of scallops inhibits serotonin-induced oocyte maturation and spawning of bivalve mollusks. *General and Comparative Endocrinology* 147, 352-361.

Northward extension of geographic range of the sea urchin *Hemicentrotus pulcherrimius* in Hokkaido, Japan. *Journal of Shellfish Research* 26, 629-635.

Spatial variation in the abundance and condition of the bivalve *Nuttallia olivacea* in relation to environmental factors and sublethal predation. *Marine Ecology Progress Series* 406, 185-196.

Euphausiid distribution, abundance and succession in North Atlantic warm-core ring 82B. *Journal of Plankton Research* 27, 175-188.

Genetic diversity in farmed Asian Nile and red hybrid tilapia stocks evaluated from microsatellite and mitochondrial DNA analysis. *Aquaculture* 236, 131-150.

Estimation of the mode of inheritance on thermal tolerance in the guppy *Poecilia reticulata*. *Fisheries Science* 75, 683-687.

TOHOKU UNIVERSITY

Applied Marine Biology (AMB) Course

Address

Tohoku University Faculty of Agriculture,
Amamiya, Sendai 981-8555, Japan

E-mail

kokusai@bios.tohoku.ac.jp

Telephone

+81-22-717-8956

Fax

+81-22-717-8607

Website

Tohoku University:
www.tohoku.ac.jp/

AMB course:
www.agri.tohoku.ac.jp/amb/