GRADUATE COURSE
IN
EARTH SCIENCE AND GEOENVIRONMENTAL SCIENCE
SPECIAL PROGRAM FOR INTERNATIONAL STUDENTS

APPLICATION GUIDEBOOK
FOR THE 2010 ACADEMIC YEAR

SHIMANE UNIVERSITY
INTERDISCIPLINARY GRADUATE SCHOOL OF
SCIENCE AND ENGINEERING
MATSUE, JAPAN
2010
GUIDELINES FOR APPLICANTS FOR THE 2010 ACADEMIC YEAR
(INTERDISCIPLINARY GRADUATE SCHOOL OF SCIENCE AND ENGINEERING)

General aims of the program

The special program for international students accepts students of excellence from all over the world, especially from Asia and the Pacific rim regions. Japanese students can also be accepted into the program. Research and education in the graduate program is based on geology and earth science, to solve worldwide problems and to enhance sustainable development of the human world. The aims of the graduate program are to:

- encourage a systematic understanding of earth materials and earth resources;
- to promote better understanding of the mutual relationships among humanity, living things, and the earth from historical and geoenvironmental viewpoints; and
- to establish effective prevention engineering against natural hazards and disasters, based on a wide knowledge of geological processes and environmental changes.

The special program is aimed at producing international-level researchers and technical specialists in the earth sciences, geoenvironmental science, and related fields.

Term of the programs

For international students the academic year begins in October and ends in September, whereas for Japanese students the year starts in April and ends in March. The terms of the Master's and doctoral course programs are two years and three years, respectively. Early graduation (after one year or one and half years for the Master's course, and one to two and half years for the doctoral course) is available for exceptional students should they complete the requirements for their course ahead of time.

Degrees awarded

Master of Science and Engineering, Science or Engineering;
Doctor of Science, Engineering, or Philosophy

The above degrees will be granted in recognition of successful thesis research.

Outline of the courses

The Master's and doctoral programs are both grouped into three courses, namely Advanced Earth Science, Earth Resource Science and Technology, and Geoenvironment and Natural Hazards. All courses are conducted in English.

Advanced Earth Science

Advanced and international-level research in solid earth science, including geology, paleontology, igneous and metamorphic petrology, mineralogy, inorganic and organic geochemistry, geochronology, structural geology, and geodynamics.

Research of large-scale material circulation and geodynamics from the core-mantle boundary to the surface of the earth, and spanning the period from the birth of the earth to the present day. This includes the evolution of the biosphere, which it is closely related to material circulation and to geodynamics.

Earth Resource Science and Technology

Research on metallic mineral resources such as gold, silver, copper, lead and zinc; non-metallic mineral resources including zeolites, silica sands, feldspars, and clays; and fossil fuel sources such as petroleum, coal, natural gas, and methane hydrate. Research on soils, groundwater, the land and forests from the viewpoint of material circulation at the earth’s surface. The occurrence and origin of the above resources, and their evaluation and development.

Geoenvironment and Natural Hazards

Research on natural processes at the earth's surface and their products, including paleo-environments, Quaternary geology; environmental geology and geochemistry, and earth history. Research in natural hazard engineering, including volcanology and volcanic hazards, engineering geology and natural hazards such as slope failures, geotechnical engineering and soil mechanics and their practical application, and subsurface fluid engineering..
FOREIGN STUDENT APPLICATION FOR THE MASTER’S COURSE

1. Number of students to be admitted
   (1) Fields of Study: Advanced Earth Science, Earth Resource Science and Technology, Geoenvironment and Natural Hazards.
   (2) Number of Students: A total of three students per year.

2. Qualifications
   Applicants must be foreign nationals (i.e. not Japanese citizens), meet one of the following requirements, and be eligible to enter the Graduate School from October 2010. They must:
   (1) Have completed 16 years formal school education outside Japan, or
   (2) Have undertaken a university equivalency examination given by the Graduate School of Science and Engineering, Shimane University, and have been recognized to have scholastic performance equivalent or superior to university graduates.
   Applicants in this category must take a university equivalency examination. The procedure for that examination is described below.

3. Application procedure
   (1) Period of application
       Monday, June 28 through Friday, July 2, 2010. The office to which applications are made is open from 9:00 a.m. to 5:00 p.m. each day. If submitted by mail; the completed application must arrive no later than 5:00 p.m. Friday, July 2, 2010.
       Applicants are strongly advised to contact a prospective supervisor from those listed in the guidebook, and discuss their study program in Japan and the application and selection procedures before preparing an application.
       The application must be sent by registered express mail. The words “Application for Admission to the Graduate School of Science and Engineering (Master's Course)” must be written in red ink on the front of the envelope.
   (2) Documents to be submitted
       All the documents listed below must be sent by registered air mail.
       1) Applications must be made on the prescribed forms, which are available as pdf files at http://www.geo.shimane-u.ac.jp/spfs/front.html
          If the applicant wishes to request a prospective supervisor from the guidebook, he/she can nominate them in the Annex.
          Please note that only applications made on the approved forms will be accepted. These must be accompanied by an Academic transcript that proves that the applicant is among the highest rank in the university that they last attended. The transcript must indicate the type of the grading scale used (e.g. grade point average, the classification system for grades, or the ranking of the applicant).
       2) Certified academic record (certificate of graduation or a copy of diploma) of the university attended (to be issued by the university authorities).
       3) Official Academic Transcript from the university last attended.
       4) Documents certifying the applicant’s nationality, citizenship, or proof of residence in the applicant’s home country such as a copy of birth certificate or passport.
       5) Letter(s) of recommendation from professors and/or supervisors who have personal knowledge of the applicant.
       6) Summaries or abstracts of any papers, books or theses the applicant has written (see the appropriate section on the Application Form).
       7) An English summary of your undergraduate or graduate thesis or any other research program you have carried out must be provided (about 2000 words).
       8) Documentation that certifies the English proficiency of the applicant (e.g. TOEFL or TOEIC scores, or a record of formal English education). The English proficiency of those who have not submitted TOEFL or TOEIC scores will be judged based on their academic record in regular school education.
9) Entrance Examination Fee Certificate of Payment

(a) For applicants living in Japan

Fill in the necessary information on the invoice, and pay the entrance examination fee of 30,000 yen at the desk of your bank between Wednesday, June 23, 2010 and Friday, July 2, 2010. Do not attempt to make payment through an ATM. Please also note that payment cannot be made at Post Offices.

Please enclose bank form III (Certificate of payment) with your application documents after payment has been made.

Refund Policy

Entrance examination fees cannot be refunded except in the following circumstances:

1. If application forms cannot be accepted due to errors.
2. If cancellation is made after payment of the entrance examination fee.
3. If the entrance examination fee is paid twice by mistake.

In cases 2 and 3, applicants can request refund of the entrance examination fee.

For further inquiries, please contact the Admissions Division by Friday, July 16, 2010.

Fax: 0852-26-0811 (+81-852-26-0811)
Email: nyu-nyushi@jn.shimane-u.ac.jp

Please retain Bank Form II (Receipt) and Bank Form III (Certificate of payment).

These forms are needed in the case of refunds.

(b) For applicants living overseas

Applicants living outside Japan must send 30,000 yen in cash by registered mail from their nearest post office, and it must be arrived at Shimane University between June 23 and July 2, 2010. In this case, the entrance examination fee cannot be refunded.

Other Remarks

a: All documents must be written (preferably typewritten) in either English or Japanese.
b: No application will be accepted unless all the documents specified above are fully and correctly completed.
c: Information for document (1) must be written on the forms provided, with the remainder in A4 format (29.5 cm × 21 cm). Only original documents are acceptable, as a rule.
d: Applicants who require government permission to study abroad (e.g. Indonesia, the People’s Republic of China and the Republic of Korea) should contact their appropriate government organization before submission of the application forms.

All applications are to be mailed to the office specified below. Any inquiries are also dealt with by this office:

Admissions Division, Shimane University
1060 Nishikawatsu-cho, Matsue, Shimane 690-8504 JAPAN
Fax: 0852-26-0811 (+81-852-26-0811)
Email: nyu-nyushi@jn.shimane-u.ac.jp

To avoid the possibility of our mistaking your e-mail as SPAM-mail, and so that we can reply to you promptly, please write the text “Special Program for International Students, Shimane University” in the Subject Line of your message.

University equivalency examination (for applicants seeking entry under qualification (2))

1. Period of application

Monday, June 14 through Friday, June 18, 2010. Applicants in this category should contact their prospective supervisor (as listed in the guidebook) and discuss their study program in Japan and the application and selection procedures before preparing an application.

2. Documents to be submitted for a university equivalency examination

All of the documents required for an ordinary application (items 1-8, excepting 9) must be sent by registered mail.
Results and Entrance Examination Fee Certificate of Payment

Announcement of the results of the university equivalency examination

Results of the university equivalency examination will be sent to applicants by e-mail or facsimile before Monday, June 21, 2010. Those who pass the examination should contact their prospective supervisor immediately to discuss the procedure for payment of the entrance examination fee. Applicants who pass the university equivalency examination must pay an entrance examination fee of 30,000 yen at the desk of their bank between Wednesday, June 23, 2010 and Friday, July 2, 2010.

4. Selection procedure

(1) Selection will be made based on (a) document evaluation and (b) interview.
(a) Field of research, study program in Japan, academic record (including English ability) and scholarly achievements of the applicants will be evaluated based on the documents submitted. The proposed Field of Study and the detailed Study Program given in the application Annex will be important factors in the decision.
Successful applicants must score at least 60 points of a possible 100.
(b) An Interview (oral examination) is required. Interviews have a duration of about 30 minutes, and will be held between 13:00 and 17:00 on Friday, July 16, 2010.
Place of interview (oral examination)
Interdisciplinary Faculty of Science and Engineering, Shimane University
(1060 Nishikawatsu-cho, Matsue city, Shimane Prefecture)
Matsue City and Ichibata bus services are available between Matsue railway station and the university.
The “Daigaku-Kawatsu” bus stops at the main entrance of the university after about 20 minutes’ ride from the station.

Note: Applicants must take their examination admission slip with them on the day of the interview (oral examination).

If an oral interview is not practical, the applicant must undertake an Internet Interview conducted in English with three academic staff, with no less than two interviews with each staff member. The interviews will focus on the applicant's graduate thesis, the proposed field of research, and their English communication ability. If required, the Internet Interviews will be held between Monday, July 12 and Friday, July 16, 2010. Applicants must therefore be at a place where Shimane University can contact them during that time.
If an applicant cannot undertake an Internet interview, an interview by facsimile is required (with three interviewers, and with no less than two interviews by each).
Successful applicants must score at least 60 points of a possible 100.

(2) The Interdisciplinary Graduate School of Science and Engineering of Shimane University will make the final selection of successful candidates according to the scores of the document evaluation and the interview.

(3) Announcement of the successful applicants
Announcement of the successful applicants will be placed on the bulletin board of Building I of the Interdisciplinary Faculty of Science and Engineering, Shimane University, at 11:00 a.m. on Friday, July 23, 2010. Applicants living abroad will be informed by e-mail or facsimile. Official notification will also be sent to successful applicants or their nominees by mail.

5. Costs of study and financial aid for the entrance and tuition fees

(1) Costs of study
Tuition fees for the graduate course are 267,900 yen per semester (i.e., every six months). These fees can be paid annually, or semester by semester. In addition to these fees, first year students are also required to pay an entrance fee of 282,000 yen at the beginning of the course.
If tuition fees are revised during your term of study, the revised fees must be paid in any years in which the changes take effect.
(2)  Financial aid for the entrance and tuition fees

The Japanese government offers financial support to overseas students by exempting them from either half or all the entrance fee. Eligibility for financial aid is based upon financial need and academic achievement.

This financial aid is available only to students whose eligibility has been approved. Students seeking such aid must consult the Financial Aid and Scholarships Section of the Student Affairs Department in advance.

The Japanese government also offers financial support to overseas students by exempting them from either half or all of their tuition fees. Eligibility for financial aid is based upon financial need and academic achievement. In particular, those who have financial difficulties are encouraged to apply.

Students from universities that have exchange agreements with Shimane University may also be exempted all tuition fees in their first year of study.

All correspondence concerning this program and requests for more detailed information should be addressed to:
Admissions Division, Shimane University
1060 Nishikawatsu-cho, Matsue, Shimane 690-8504 JAPAN
Fax : 0852-26-0811  (+81-852-26-0811)
Email : nyu-nyushi@jn.shimane-u.ac.jp

Some information on the program is also available on the web, at:
http://www.geo.shimane-u.ac.jp/spfs/front.html

This includes profiles of most of the staff associated with the course, and summaries of the projects of present and past students.
FOREIGN STUDENT APPLICATION FOR THE DOCTORAL COURSE

1. Number of students to be admitted
   (1) Fields of Study: Advanced Earth Science, Earth Resource Science and Technology, Geoenvironment and Natural Hazards.
   (2) Number of Students: A total of two students per year.

2. Qualifications
   Applicants must be foreign nationals (i.e. not Japanese citizens), meet one of the following requirements, and be eligible to enter the Graduate School from October 2010. They must:
   (1) Have completed 18 years formal school education outside Japan, or;
   (2) Have undertaken a master’s course equivalency examination given by the Graduate School of Science and Engineering, Shimane University, and have been recognized to have scholastic performance equivalent or superior to Master’s graduates.
   Applicants in this category are required to take a Master’s degree equivalency examination. The procedure is described below.

3. Application procedure
   (1) Period of application
      Monday, June 28 through Friday, July 2, 2010. The office to which applications are made is open from 9:00 a.m. to 5:00 p.m. each day. If submitted by mail; the completed application must arrive no later than 5:00 p.m. Friday, July 2, 2010.
      Applicants are strongly advised to contact a prospective supervisor from those listed in the guidebook, and discuss their study program in Japan and the application and selection procedures before preparing an application.
      The application must be sent by registered express mail. The words “Application for Admission to the Graduate School of Science and Engineering (Doctoral Course)” must be written in red ink on the front of the envelope.
   (2) Documents to be submitted
      All the documents listed below must be sent by registered air mail.
      1) Applications must be made on the prescribed forms, which are available as pdf files at http://www.geo.shimane-u.ac.jp/spfs/front.html
         If the applicant wishes to request a prospective supervisor from the guidebook, he/she can nominate them in the Annex.
         Please note that only applications made on the approved forms will be accepted. These must be accompanied by an Academic transcript that proves that the applicant is among the highest rank in the university that they last attended. The transcript must indicate the type of the grading scale used (e.g. grade point average, the classification system for grades, or the ranking of the applicant).
      2) Certified academic record (certificate of graduation or a copy of diploma) of the university attended (to be issued by the university authorities).
      3) Official Academic Transcript from the university last attended.
      4) Documents certifying the applicant’s nationality, citizenship, or proof of residence in the applicant’s home country, such as a copy of birth certificate or passport.
      5) Letter(s) of recommendation from professors and/or supervisors who have personal knowledge of the applicant.
      6) Summaries or abstracts of any papers, books or theses the applicant has written (see the appropriate section on the Application Form).
      7) Current graduate course students must provide an English summary of their present Master’s course study, and any other research program they have carried out (up to 2000 words). Copies of any published papers and/or books must also be supplied.
         Applicants already holding a Master’s degree must supply a copy of their graduation thesis, and copies of any published papers and/or books they have written, along with a summary of their achievements in their postgraduate period (up to 2000 words).
8) Documentation that certifies the English proficiency of the applicant (e.g. TOEFL or TOEIC scores, or a record of formal English education). The English proficiency of those who have not submitted TOEFL or TOEIC scores will be judged based on their academic record in regular school education.

9) Entrance Examination Fee Certificate of Payment
(a) For applicants living in Japan

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① If application forms cannot be accepted due to errors.
② If cancellation is made after payment of the entrance examination fee.
③ If the entrance examination fee is paid twice by mistake.

In the above cases ② and ③, applicants can request refund of the entrance examination fee.

For further inquiries, please contact the Admissions Division by Friday, July 16, 2010.
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Email : nyu-nyushi@jn.shimane-u.ac.jp

Please retain Bank Form II (Receipt) and Bank Form III (Certificate of payment).
These forms are needed in the case of refunds.

Note: Current Master's course students who have been granted extension of their Monbukagakusho scholarship to proceed to the doctoral course of Shimane University are not required to pay the entrance examination fee.

(a) For applicants living overseas

Applicants living outside Japan must send 30,000 yen in cash by registered mail from their nearest post office, and it must be arrived at Shimane University between June 23 and July 2 2010. In this case, the entrance examination fee cannot be refunded.

Other Remarks
a: All documents must be written (preferably typewritten) in either English or Japanese.
b: No application will be accepted unless all the documents specified above are fully and correctly completed.
c: Information for document (1) must be written on the forms provided, with the remainder in A4 format (29.5 cm × 21 cm). Only original documents are acceptable, as a rule.
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To avoid the possibility of our mistaking your e-mail as SPAM-mail, and so that we can reply to you promptly, please write the text “Special Program for International Students, Shimane University” in the Subject Line of your message.
Master’s degree equivalency examination (for applicants seeking entry under qualification (2))

① Period of application
Monday, June 14 through Friday, June 18, 2010. Applicants in this category should contact their prospective supervisor (as listed in the guidebook) and discuss their study program in Japan and the application and selection procedures before preparing an application.

② Documents to be submitted for a Master’s degree equivalency examination
All of the documents required for an ordinary application (1-8, excepting 9) must be sent by registered mail.

Results and Entrance Examination Fee Certificate of Payment

③ Announcement of the result of the Master’s degree equivalency examination for applicants
Results of the Master’s degree equivalency examination will be sent to applicants by e-mail or facsimile before Monday, June 21, 2010. Those who pass the examination should contact their prospective supervisor immediately to discuss the procedure for payment of the entrance examination fee. Applicants who pass the Master's degree equivalency examination must pay an entrance examination fee of 30,000 yen at the desk of their bank between Wednesday, June 23, 2010 and Friday, July 2, 2010.

4. Selection procedure

(1) Selection will be made based on (a) document evaluation and (b) interview.

(a) Field of research, study program in Japan, academic record (including English ability) and scholarly achievements of the applicants will be evaluated based on the documents submitted. The proposed Field of Study and the detailed Study Program given in the application Annex will be important factors in the decision.

Successful applicants must score at least 60 points of a possible 100.

(b) An Interview (oral examination) is required. Interviews have a duration of about 30 minutes, and will be held between 13:00 and 17:00 on Friday, July 16, 2010.

Place of interview (oral examination)
Interdisciplinary Faculty of Science and Engineering, Shimane University
(1060 Nishikawatsu-cho, Matsue city, Shimane Prefecture)
Matsue City and Ichibata bus services are available between Matsue railway station and the university.
The “Daigaku-Kawatsu” bus stops at the main entrance of the university after about 20 minutes’ ride from the station.

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5. Costs of study and financial aid for the entrance and tuition fees

(1) Costs of study

Tuition fees for the graduate course are 267,900 yen per semester (i.e., every six months). These fees can be paid annually, or semester by semester. In addition to these fees, first year students are also required to pay an entrance fee of 282,000 yen at the beginning of the course.

If tuition fees are revised during your term of study, the revised fees must be paid in any years in which the changes take effect.

(2) Financial aid for the entrance and tuition fees

The Japanese government offers financial support to overseas students by exempting them from either half or all the entrance fee. Eligibility for financial aid is based upon financial need and academic achievement.

This financial aid is available only to students whose eligibility has been approved. Students seeking such aid must consult the Financial Aid and Scholarships Section of the Student Affairs Department in advance.

The Japanese government also offers financial support to overseas students by exempting them from either half or all of their tuition fees. Eligibility for financial aid is based upon financial need and academic achievement. In particular, those who have financial difficulties are encouraged to apply.

Students from universities that have exchange agreements with Shimane University may also be exempted all tuition fees in their first year of study.

All correspondence concerning this program and requests for more detailed information should be addressed to:

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Fax : 0852-26-0811 (+81-852-26-0811)
Email : nyu-nyushi@jn.shimane-u.ac.jp

Some information on the program is also available on the web, at:
http://www.geo.shimane-u.ac.jp/spfs/front.html
This includes profiles of most of the staff associated with the course, and summaries of the projects of present and past students.
Staff Associated with the Graduate Course in Earth and Geoenvironmental Science, and Their Areas of Interest.

(1) Advanced Earth Science

Hiroki HAYASHI Associate Professor Ph. D. (Department of Geoscience)
Planktonic foraminiferal biostratigraphy of Neogene sequences in the northwest Pacific realm. Basement structure of the Kanto Plain using deep drilling data for estimating earthquake strong motion. Faunal analysis of planktonic foraminifera for paleoceanographic reconstruction.
TEL: 81-852-32-6463  E-mail: hayashi@riko.shimane-u.ac.jp

Toshiaki IRIZUKI Associate Professor Dr. Sci. (Department of Geoscience)
Micropaleontology and stratigraphy; reconstruction of temporal changes of paleoenvironments using statistical analysis of microfossils and sedimentary facies. Paleobiological study of speciation and migration of Ostracoda (Crustacea) with relation to geological events in Eastern Asia.
TEL: 81-852-32-6457  E-mail: irizuki@riko.shimane-u.ac.jp

Atsushi KAMEI Associate Professor Ph. D. (Department of Geoscience)
Petrology; plutonism in and around subduction zones. Petrology, geochemistry and isotope geology of plutonic rocks. Geology and petrology for geological disposal of radioactive wastes and natural analogs.
TEL: 81-852-32-6454  E-mail: kamei-a@riko.shimane-u.ac.jp

Hiroaki KOMURO Professor Dr. Sci. (Department of Geoscience)
Geodynamics; mechanisms of formation of cauldrons, rifts, and faulted basins, Diapirism and gravity effects on tectonic processes aided by centrifuge experiments and computer simulations.
TEL: 81-852-32-6456  E-mail: komuro@riko.shimane-u.ac.jp

Barry ROSER Associate Professor Ph. D. (Department of Geoscience)
Whole-rock geochemistry of clastic sediments and low-to medium-grade metasediments, particularly in relation to provenance, development of accretionary margins, and relationships of tectonostratigraphic terranes.
TEL: 81-852-32-6452  E-mail: roser@riko.shimane-u.ac.jp

Tetsuya SAKAI Associate Professor Ph. D. (Department of Geoscience)
Stratigraphy and sedimentology; Sequence stratigraphy of tectonically active basins and sedimentology of siliciclastic sediments.
TEL: 81-852-32-6464  E-mail: sake@riko.shimane-u.ac.jp
(2) Earth Resource Science and Technology

**Akira TAKASU** Professor Dr. Sci. (Department of Geoscience)
Petrology; metamorphic geology and petrology of regional metamorphic belts. Petrology and mineralogy of high–P metamorphic rocks such as eclogites and glaucophane schists. Geochronology of metamorphic rocks. Tectonics of subduction and collision zones.
TEL: 81–852–32–6461  E-mail: takasu @ riko.shimane-u.ac.jp

**Masahide AKASAKA** Professor Dr. Sci. (Department of Geoscience)
Mineralogy; mineralogy of rock-forming and ore minerals, crystal chemistry by spectroscopic methods, X-ray structure refinement, experimental petrology and ore geology.
TEL: 81–852–32–6455  E-mail: akasaka @ riko.shimane-u.ac.jp

**Sadanobu KATOH** Associate Professor Dr. Agr. (Department of Natural Resources Process Engineering)
Woody plant biological chemistry and molecular biology; Chemotypic variations of conifer monoterpenes, DNA analysis of conifers based on monoterpene chemotypes, Tissue cultures of conifers.
TEL: 81-852–32–6484  E-mail: sadanobu @ riko.shimane-u.ac.jp

**Kiyoshi MASUMOTO** Associate Professor Dr. Eng. (Department of Geoscience)
Subsurface fluid dynamics and engineering; Study of fluid flow behaviour in rock mass of reservoirs. Numerical inversion of hydraulic properties of rock mass.
TEL: 81–852–32–6446  E-mail: masu @ riko.shimane-u.ac.jp

**Tetsuya NAKAO** Professor Dr. Agr. (Department of Natural Resources Process Engineering)
TEL: 81–852–32–6564  E-mail: nakaote @ riko.shimane-u.ac.jp

**Hiroto OHIRA** Assistant Professor Dr. Sci. (Department of Geoscience)
Geological exploration and evaluation of thermal history of hydrothermal systems, based on fluid inclusions, hydrothermal alteration and fission-track dating. Thermochronology of sedimentary basins and other tectonic fields.
TEL: 81–852–32–6465  E-mail: ohira @ riko.shimane-u.ac.jp
Yoshikazu SAMPEI  Professor Dr. Sci. (Department of Geoscience)
Petroleum geology and organic geochemistry; geochemical evaluation of petroleum source rocks. Diagenetic pathway from organisms to geochemical fossils and kerogens. Distribution of organic materials in surface sediments.
TEL: 81−852−32−6453  E-mail: sampei@riko.shimane-u.ac.jp

Tohru UEHARA  Professor Dr. Agr. (Department of Natural Resources Process Engineering)
Plasma polymerization on plastics, papers, and wood at atmospheric pressure. Improvement of adhesion by corona discharge treatment. Effect of wood vinegar and charcoal on quality of their aqueous solutions.
TEL&FAX: 81−852−32−6565  E-mail: uehara@riko.shimane-u.ac.jp

Hiroshi USUKI  Professor Dr. Eng. (Department of Natural Resources Process Engineering)
Environmental friendly machining of various materials and machining of biomaterials, such as dry machining, minimum quantity lubrication machining and atmosphere control machining. Elucidation of mechanisms of tool wear and improvement of tool life, development of machining processes, development of tool materials, and evaluation of the properties of machined surfaces.
TEL: 81−852−32−6559  E-mail: usuki@riko.shimane-u.ac.jp

Masahiro YOSHINOBU  Associate Professor Dr. Agr. (Department of Natural Resources Process Engineering)
Bio−mass conversion with enzymatic saccharification technique; Recycling of woody wastes by chemical modification; Production of auto−adhered boards without glues; High efficient graft copolymerization on cellulosics and lignocellulosics; Synthesis and swelling mechanism of super water absorbents from natural polymers
TEL: 81−852−32−6561  E-mail: yosinobu@riko.shimane-u.ac.jp
(3) Geoenvironment and Natural Hazards

**Hiroaki ISHIGA** Professor Dr. Sci. (Department of Geoscience)

Environmental geology, 1) geological and geochemical research on arsenic contamination of ground water in Asia, 2) evaluation of the environmental changes in the intertidal flat of the Ariake Sea, Japan and the western coast of Korean Peninsula. Study of bioevents and mass extinctions in geologic time.

TEL: 81–852–32–6459  E-mail: ishiga @ riko.shimane-u.ac.jp

**Toshiaki KOZU** Professor Dr. Eng. (Department of Electronic and Control Systems Engineering)

Microwave radar remote sensing of Earth environments including rain, wind and water. Combined use of microwave and optical sensors for monitoring coastal lagoons. Design study of various radars for environmental studies.

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**Kengo KURATA** Associate Professor Dr. Sci. (Research Center for Coastal Lagoon Environments)

Near shore landscape changes and food webs in Lakes Shinji and Nakaumi. Marine ecology such as ecological function of marine ecosystems, including estuarine coastal and lagoon environments, tidal flats and salt marshes, and brackish water systems.

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**Minoru OKUMURA** Professor Dr. Sci. (Department of Material Science)


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**Yasushi SEIKE** Associate Professor Dr. Agr. (Department of Material Science)

Development of simplified in situ analytical methods for trace element analysis in environmental waters. Analytical and geochemical studies on trace elements related to water quality in brackish lakes.

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**Koji SETO** Associate Professor Dr. Sci. (Research Center for Coastal Lagoon Environments)

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Toshihide SHIBI Assistant Professor Dr. Eng. (Department of Geoscience)
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Fawu WANG Associate Professor Dr. Sci. (Department of Geoscience)
Disaster Prevention; Rapid and long runout landslides, mechanism of initiation and motion, time prediction and motion area simulation, marine landslides, landslides triggered by earthquake, rainfall and water impoundment in water reservoir.
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Shuichiro YOKOTA Professor Dr. Sci. (Department of Geoscience)
Engineering Geology; Characteristics of rock mass and its changes under geological process. Geological approach to prediction and prevention of natural disaster including slope failures. Urban subsurface geology and its engineering characteristics.
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EQUIPMENT

A wide variety of advanced analytical and research equipment is operated by the departments supporting the Special Course, and is available to students. This equipment includes:

- an automatic X-ray powder diffractometer (RIGAKU RAD-X), a Weissenberg camera (RIGAKU) and DTA–TG (SHIMAZU DT 640)
- a laser diffraction particle size analyzer (range: 0.08–3000 µm) (SHIMAZU SALD–3000 S)
- a quenching furnace (SILICONIT), and cold seal vessels (HIGH PRESSURE CHEMICAL CO)
- a large centrifuge for geodynamic modeling
- gas and liquid chromatography instruments for the analysis of organic compounds (SHIMAZU QP 2010, PY 2020 D-QP 5050 A, GC–14 A•17 A and LC–9 A)
- a CHNS elemental analyzer (YANACO MT–3 and FIONS EA 1108*)
- an X-ray fluorescence spectrometer (RIGAKU RIX 2000)
- a scanning electron microscope (NIHONDENSHI S–1)
- a thermal ionization mass spectrometer (MAT 262)
- atomic absorption spectrometers (HITACHI 508 A** and SHIMAZU AA 606)
- electron probe analyzers (JEOL JXA-8530 F and JEOL JXA–8800 M)
- a low background liquid scintillation counter system* for the quantitative analysis of $^{14}$C (Wallac Quantulus 1220)
- a supersoft X-ray apparatus (SOFTEX)
- an isotope ratio mass spectrometer (FINNINGAN MAT DELTA–S*)
- an automatic water quality analyzer (AACS–1*)
- a satellite image data processing system*, composed of a data processing unit with “VISTA” software, communication unit, data output unit and a “Sun 4” workstation
- an echo-sounding instruments (SENDONDENKI SH–20 and SC–101)*
- UV–visible recording spectrometers (SHIMAZU UV–160**) 
- an ion chromatograph (SHIMAZU HIC–6 A**) and a gas chromatograph (HITACHI 163)
- an automatic thin section maker (DISCOPLAN–TS)

Equipment marked with an aster* is maintained in the Research Center for Coastal Lagoon Environments, and that with two asters** in the Dept. of Material Science (Chemistry). The remaining equipment (unmarked) is housed in the Dept. of Geoscience.
A Profile of Shimane University

Shimane University was founded in 1949 as a national university with two faculties: the Faculty of Literature and Science which was made up of Matsue Higher School (originally founded in 1920), and the Faculty of Education which was made up of Shimane General School (originally founded in 1875), Shimane General School for Youth (originally founded in 1933).

Shimane and Shimane Medical Universities amalgamated on October 1st, 2003. The new Shimane University has two main campuses, and consists of five faculties. Law and Literature, Education, Life and Environmental Science, and the Interdisciplinary Faculty of Science and Engineering are housed at the Matsue campus, and the Faculty of Medicine is based at the Izumo campus. The combined Shimane University now has 1595 staff and 6127 students, including some 150 international students as of May 1st, 2006.

Shimane University now has five graduate schools (Humanities and Social Science, Education, Medicine, Science and Engineering, and Life and Environmental Science), and three doctorate graduate schools (Medicine, the Interdisciplinary Faculty of Science and Engineering, and the United Graduate School of Agricultural Science). In addition, the university also operates several other research centers, facilities and hospitals.

A doctorate graduate school in Earth and Geoenvironmental Science was established in the Special Course for International Students in 2004. Exceptional students who graduate from the M. Sc. Eng. course of the special program can proceed to the doctorate graduate school, based on strict selection (2 students per year). Candidates must be younger than 35 years at entry.

In addition to undergraduate, graduate, and postgraduate students, there are several other categories of students comprising auditors, special auditors, and research students.

Since its establishment, Shimane University has endeavoured to cultivate persons of ability who will contribute to the development of society. With this in mind and its historical background, the university aspires to be an international university open to the South–East Asia and Pacific Rim regions. Shimane University has Academic Exchange Agreements with thirty one universities in nine countries.
MATSUE CITY – A BRIEF INTRODUCTION

Matsue City, with a population of about 190,000, lies some 800 kilometers to the west of Tokyo, from where it can be reached in one and a half hours by plane, and six and a half hours by train. Located in the eastern part of Shimane Prefecture, the city is the seat of the prefectural government, and is the political, economic and cultural center of the region.

It is a beautiful city, well-known from ancient times as the “town of water”, with the large lakes of “Nakaumi” and “Shinjiko” on the eastern and the western borders of the city respectively. This region, which is traditionally called the “Province of Izumo,” was one of the most prosperous cultural centers in ancient Japan, with local government established in Matsue as far back as the sixth century. A considerable number of the old town’s relics are still found in and around the city.

Since Matsue Castle was built in 1611, Matsue has enjoyed prosperity as a castle town and developed as the political, economic and cultural center of the province. Even today, original structures, such as Matsue Castle, the Samurai House, and the waterways running through the city, are still in original condition.

Lafcadio Hearn (1850–1904), an Irish-born journalist and writer, was sent to Matsue by Harper’s in 1890. He was so enchanted by this old castle town during his 15 month stay that he married into an old samurai family. In 1896 he was naturalized as a Japanese citizen and took the Japanese name “Koizumi Yakumo”. Famous among his writings are *Glimpses of Unfamiliar Japan*, *Kwaïdan*, and *Japan: An Attempt at Interpretation*. Matsue City keeps his old residence as it used to be, and next to it stands the Lafcadio Hearn Memorial Museum which was rebuilt in 1984 in Japanese style. Even today citizens of Matsue still have a strong attachment to Lafcadio Hearn.

In 1951, Matsue was designated an “International Cultural and Sightseeing City”, one of three such cities in Japan, together with Kyoto and Nara. Matsue, known as an international town which has maintained its time-honored traditions, attracts a great many tourists from abroad as well as from various parts of Japan. In recent years the city has seen rapid urbanization, and the streets, still rich in the atmosphere characteristic of a castle town, are changing their appearance. Urbanization represents a new start for the central city of the San-in district and promises a bright future.

The climate of the Matsue area is rather mild throughout the year, with an average yearly temperature around 14°C. In the summer the temperature averages around 26°C, with some very hot days over 30°C in the middle or latter part of the season. In the winter the temperature, on the average, is somewhere around 4°C. During the winter the weather tends to be rainy with strong north-westerly winds, but only light snowfalls.