2020
(令和2年度)

大学院医学系研究科生命医科学専攻
（修士課程）

Course of Biomedical Sciences in Graduate School of Medicine
（Master’s Program）

第2次学生募集要項
Secondary Admission Guidelines

群馬大学
Gunma University
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Admission Policy of Gunma University

We seek applicants who have academic skills and capabilities required by the graduate schools or institutes according to their programs or specialties. Applicants should be motivated to contribute to the development of society through research and practice.

Admission Policy for Course of Biomedical Sciences in Graduate School of Medicine, Gunma University (Master’s Program)

<Aims in Human Resources Development>
Our program aims to cultivate scientists who will pursue medical science, medical ethics, and medical skills. We hope our graduates will integrate these pursuits and contribute to the progress of medical research and education, and become leaders in health care and medical science.

<Attributes of Desired Candidate>
We will accept students who wish to gain knowledge and skills in biomedical sciences through our program, and become highly-skilled professionals or researchers. Specifically, we will accept those who:
1. strive to gain the ability to perform research independently based on high ethical values and profound academic knowledge.
2. strive to contribute to the society in medical science, health care and welfare filed as highly-skilled professionals by making use of the knowledge and skills they acquired.
3. strive to further develop the knowledge and skills they acquire, and continue to the PhD program to become researchers and/or educators in Biomedical Sciences field.

<Screening Process>
In order to enroll candidates consistent with our admission policy, we will comprehensively evaluate the results of the entrance examination (written test and interview) and undergraduate academic transcripts. We will take the variety in academic backgrounds of applicants into consideration, and allow applicants to select questions from either the biomedical field or the medical physics field for the written examination. We offer October admission in addition to the traditional April admission to increase educational opportunity.
### Admission Guidelines

#### 1 Number of Students to be Admitted

<table>
<thead>
<tr>
<th>Basic Medicine</th>
<th>Clinical Medicine</th>
<th>Cooperative Department and Joint Department</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anatomy</strong></td>
<td>(Internal Medicine)</td>
<td>Diagnostic Radiology and Nuclear Medicine</td>
</tr>
<tr>
<td>Anatomy and Cell Biology</td>
<td>Cardiovascular Medicine</td>
<td>Psychiatry and Neuroscience</td>
</tr>
<tr>
<td>Molecular and Cellular Neurobiology</td>
<td>Respiratory Medicine</td>
<td>Anesthesiology</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>Gastroenterology and Hepatology</td>
<td>Emergency Medicine</td>
</tr>
<tr>
<td>Integrative Physiology</td>
<td>Endocrinology and Metabolism</td>
<td>General Practice Medicine</td>
</tr>
<tr>
<td>Neurophysiology and Neural Repair</td>
<td>Nephrology and Rheumatology</td>
<td>Rehabilitation Medicine</td>
</tr>
<tr>
<td>Neurobiology and Behavior</td>
<td>Hematology</td>
<td>Clinical Laboratory Medicine</td>
</tr>
<tr>
<td>Genetic and Behavior Neuroscience</td>
<td>Neurology</td>
<td>Human Pathology</td>
</tr>
<tr>
<td>Bacteriology</td>
<td>(General Surgical Science)</td>
<td>Diagnostic Pathology</td>
</tr>
<tr>
<td>Infectious Diseases and Host Defense</td>
<td>Cardiovascular Surgery</td>
<td>Pediatrics</td>
</tr>
<tr>
<td>Public Health</td>
<td>General Thoracic Surgery</td>
<td>Obstetrics and Gynecology</td>
</tr>
<tr>
<td>Legal Medicine</td>
<td>Gastroenterological Surgery</td>
<td>Urology</td>
</tr>
<tr>
<td>Medical Philosophy and Ethics</td>
<td>Breast and Endocrine Surgery</td>
<td>Neurosurgery</td>
</tr>
<tr>
<td></td>
<td>Hepatobiliary and Pancreatic Surgery</td>
<td>Ophthalmology</td>
</tr>
<tr>
<td></td>
<td>Pediatric Surgery</td>
<td>Otolaryngology-Head and Neck Surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermatology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plastic Surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Orthopaedic Surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical Pharmacology and Therapeutics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oral and Maxillofacial Surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality and Safety in Healthcare</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Takasaki Advanced Radiation Research Institute, National Institutes for Quantum and Radiological Science and Technology) Quantum Biology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(University Hospital) Clinical Trials and Regulatory Science Medical Informatics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Institute for Molecular and Cellular Regulation) Molecular Traffic Molecular Membrane Biology</td>
</tr>
</tbody>
</table>

The number of students to be admitted is 13

Notes: 1. Inquiries about admission should be made directly to supervisors in desired Field of Study (from page 46 on) prior to the actual application process. Major Department can be changed at the end of the 1st semester of the 1st year.

<table>
<thead>
<tr>
<th>Special Course</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Physics Course</td>
<td></td>
</tr>
<tr>
<td>International Training Program for Experts in Medical Physics</td>
<td></td>
</tr>
<tr>
<td>Program for Cultivating Global Leaders in Heavy Ion Therapeutics and Engineering for Doctoral Course</td>
<td></td>
</tr>
<tr>
<td>Radiation Biomedical Science Course</td>
<td></td>
</tr>
<tr>
<td>Medicine and Engineering Collaborative Course</td>
<td></td>
</tr>
</tbody>
</table>
2 Qualifications for Application

A person who can apply shall be a person who falls under any of the following provisions.

(1) A person who has graduated or is expected to graduate from a university by March 2020.

(2) A person who has been conferred or is expected to be conferred by March 2020 a bachelor’s degree under the provisions of Article No. 104-4 of the School Education Act (Act No. 26 of 1947).

(3) A person who has completed or is expected to complete a 16-year course of school education in a foreign country by March 2020.

(4) A person who has completed or is expected to complete a 16-year course of foreign school education by taking class subjects in Japan through correspondence courses run by the foreign country concerned by March 2020.

(5) A person who has completed or is expected to complete a foreign country’s university course at an educational institution in Japan (limited to the person who has completed a 16-year course of the said foreign school education) which is designated as having a foreign university’s curriculum in the said foreign country’s education system and separately designated by the Minister of Education, Culture, Sports, Science and Technology by March 2020.

(6) A person who has completed three or more years of study at a foreign university, or foreign educational institution (including a person who, while residing in Japan, has completed the program of education provided by a foreign university or foreign educational institution through correspondence or distance education courses) and who received or is expected to be conferred by March 2020 a degree certificate that is recognized by the Japanese Ministry of Education, Culture, Sports, Science and Technology.

(7) A person who has completed or is expected to complete a specialized course separately designated by the Minister of Education, Culture, Sports, Science and Technology at a vocational school on or after the date specified by the Minister of Education, Culture, Sports, Science and Technology (limited to the vocational school with the school term of four years or more meeting the other standards specified by the Minister of Education, Culture, Sports, Science and Technology).

(8) A person designated by the Minister of Education, Culture, Sports, Science and Technology (Notification No.5 of the Ministry of Education, 1953).

(9) A person who entered a graduate school other than our Graduate School based on the provisions of Article 102-2 of the School Education Act (Act No. 26 of 1947) and who has been recognized by our Graduate School as having academic abilities appropriate for receiving graduate school education.

(10) A person who has been recognized by our Graduate School as having academic abilities equivalent or superior to a person who has graduated a university based on the results of individual screening of the applicant’s qualifications, and who will be 22 years of age by March 31, 2020.

(11) A person who has been enrolled at a university for 3 years or more by March 2020 (including an equivalent person specified by the Minister of Education, Culture, Sports and Technology), and who has been recognized by Gunma University as having acquired the required units with excellent results.

3 Screening etc. for “Qualifications for Application” (Only if applicable)

(1) A person who intends to apply under the provisions of Qualifications for Application (9) or (10) must undergo the screening of requirements for admission of our Graduate School before applying under the following conditions, and the only person who is proved that he/she has Qualifications for Application can apply.

The result of the qualification screening will be notified to each applicant by December 17 (Tue.),2019.

(a) Application period
December 2 (Mon.), 2019

(b) Application documents

① In the case of the screening concerning Qualifications for Application (9):
I Application for the screening of admission requirements (The form attached to our admission guidelines must be used. [Form-7])

— 31 —
II. Academic transcript (faculty results and the document showing the curriculum of the faculty (e.g. syllabus))

III. Certificate of student status (issued by the president of the university (graduate school) you are in and with the date of your entrance). If you completed or quit the graduate school, submit the document with the date of your entrance (e.g. the transcript from the graduate school).

IV. Published academic papers etc. on research achievements, if any.

(2) In the case of the screening concerning Qualifications for Application (10):

I. Application for the screening of admission requirements (The form attached to our admission guidelines must be used. [Form-7])

II. Certificate of Research Activities (The form attached to our admission guidelines must be used. [Form-8])

III. Published academic papers etc. on research achievements or other remarkable achievements, if any.

IV. Graduation Certificate or Completion Certificate issued by the final educational institution (including a junior college, an advanced vocational school or a vocational school, etc.) from which the applicant graduated.

V. Academic transcript issued by the final educational institution (including a junior college, an advanced vocational school or a vocational school, etc.) from which the applicant graduated.

(c) Mailing Address for Application documents:
Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University, 3-39-22 Showa-machi, Maebashi City, Gunma 371-8511, JAPAN
TEL. +81-27-220-7797

(2) A person who intends to apply under the provisions of Qualifications for Application (11) must inquire at the office described in (1)-(c) before applying.

4 Acceptance of Application

(1) Acceptance Period of Application
December 18 (Wed.) to December 24 (Tue.), 2019 (without fail)

(2) Submission Procedures of Application documents
Application documents must be submitted by delivering them in person or by mail within the application period.

① Application documents submitted in person will be accepted at Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University described in (3) from 9:00 a.m. to 4:00 p.m. except on Saturday, Sunday and public holiday.

② When mailing the documents, be sure to use registered mail and write “Application form for Graduate School of Medicine enclosed” in red on the front of the envelope and send it to Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University described in (3).

Notes:
1. Application documents will not be accepted after the designated application period. The documents should be sent early taking mailing conditions / mailing period into consideration. When special circumstances need to be taken into consideration, please contact “Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University described in (3) by December 18 (Wed.), 2019 at 4:00 p.m.”

2. If the application documents are sent by ordinary mail, Gunma University will not be responsible for it no matter what happens to the documents.

(3) Address and Reference for the submission of Application
Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University, 3-39-22 Showa-machi, Maebashi City, Gunma 371-8511, JAPAN
TEL. +81-27-220-7797
(4) Application Documents, etc. (The form is also available through the website of the Graduate School of Medicine and the Faculty of Medicine, Gunma University. (http://www.med.gunma-u.ac.jp/))

<table>
<thead>
<tr>
<th>Documents</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Form and Curriculum Vitae [Form-1]</td>
<td>Fill out the form attached to our admission guidelines or obtained from the website. Only the person who has graduated or will graduate from a school in foreign country must fill in his/her curriculum vitae.</td>
</tr>
<tr>
<td>Statement of Purpose [Form-3]</td>
<td>A statement written by the applicant describing reasons for applying. (The number of characters is not limited.)</td>
</tr>
</tbody>
</table>

1. Payment at a convenience store (make sure that you have a personal computer or cell phone nearby).
   - (1) Refer to the page 42 when you pay at a convenience store. Payment commissions must be borne by the person who pays the fees.
   - (2) After payment, receive the “Application Fee Statement”, detach the “Certificate of Payment” (receipt) portion from it, and paste it on the prescribed place in the “Sheet for Certificate of Transfer Receipt” [Form 4].
   - (3) Payment period: December 9 (Mon.) to 3:00 p.m. (Japan time) of December 24 (Tue.). 2019. When you make payment via the website, you have to pay 30 minutes before the end of the payment period.

2. Payment by credit card (make sure that you have a personal computer or cell phone connected to a printer with A4 nearby).
   - (1) Refer to the page 42 when you pay by credit card. Payment commissions must be borne by the person who pays the fees.
   - (2) After payment, print the “Application Fee Statement”, detach the “Certificate of Payment” (receipt) portion from it, and paste it on the prescribed place in the “Sheet for Certificate of Transfer Receipt” [Form 4].
   - (3) Payment period: December 9 (Mon.) to 3:00 p.m. (Japan time) of December 24 (Tue.). 2019

3. Remittance from abroad
   - (1) Please make a remittance on a yen basis from a bank teller’s window to the Following bank account (a bank transfer fee and an overseas remittance fee must be borne by an applicant in person).
   - (2) Paste the receipt (the copy of it is also valid) you receive from a bank on the prescribed place in the “Sheet for Certificate of Transfer Receipt [Form 4]”. In addition, if an excess or a deficiency arises in the amount of remittance, please note that it cannot be dealt with.
   - (3) When you make a remittance, please contact a person in charge of Gunma University as below. At which time, be sure to specify your name, the name of the nation from which you remit, and your planning to apply for our Master’s Program.
     (E-mail kk-ngakamus@jimu.gunma-u.ac.jp)
     - Bank Account
       Bank: The Towa Bank, LTD (Bank Code: 0516)
       Branch: Maebashi Kita Branch (Branch Code: 012)
       Address: 1-5-2 Kokuryo-cho, Maebashi City, Gunma, 371-0033, JAPAN
       TEL: +81-27-231-6789
       SWIFT Code: TOWAJPJT
     - Account number: 3169574 (Savings Account)
     - Name of account: GUNMA DAIGAKU
     - Address of Acct. holder: 4-2 Aramaki-machi, Maebashi City, Gunma, 371-8510, JAPAN
       TEL: +81-27-220-7062
   - (4) Transfer Payment period: December 9 (Mon.) to 3:00 p.m. (Japan time) of December 24 (Tue.). 2019
   - (5) Payment by using ATM (Automated Teller Machine), cell phone or personal computer should not be made.

**[Concerning the refund of the entrance examination fee (Common notes to both remittances)]**

(#In principle, the entrance examination fee will not be refunded, except for the following cases according to the designated procedures.

1. When an application is not made after paying the entrance examination fee.
2. When the entrance examination fee is paid twice, or more than the amount of fixed money accidentally.
3. When application documents are not accepted after submission.

Please send the declaration form in which the following 1 ~ 4 are described to admission section in Showa campus of Gunma University. We will refund the entrance examination fee later.)

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¥30,000 (Examination Fee: JPY 30,000)
Please select one of the following four payment methods.

---
<table>
<thead>
<tr>
<th>Documents</th>
<th>Outline</th>
</tr>
</thead>
</table>
| 3 Entrance Examination Fee | Declaration of claiming back the Entrance Examination Fee (Master’s Program)  
1. The reason why you want to claim back the fee.  
2. Name  
3. Postal Code, Present Address  
4. Phone Number or E-mail Address  
Address for sending the declaration form and inquiries regarding the refund  
Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University, 3-30-22 Showa-machi, Maebashi City, Gunma 371-8511, JAPAN  
TEL. +81-27-220-7797  
Any processing fees will be deducted from the amount to be refunded.  
If the applicant is receiving the Japanese Government (MEXT) Scholarship at the time of application, the examination fee payment is not required. Please submit the document certifying the recipient of the scholarship.  
**About the exemption of the entrance examination fee**  
- Applicants who suffered from the Great East Japan Earthquake and disaster from storm and flood will be exempted from the total amount of examination fee as special measures.  
- Eligible applicants for exemption from entrance examination fee  
1. Special measures for the Great East Japan Earthquake  
   1. The applicants who suffered in the areas where the Disaster Relief Act in the Great East Japan Earthquake has been applied, and who fall under any of the following categories.  
      ① Applicants whose houses, which are owned by payers of school expenses, were completely destroyed, largely half-destroyed, partially destroyed, or washed away.  
      ② Applicants whose payers of school expenses are dead or missing.  
   2. Applicants whose payers of school expenses are recognized that their domiciles were designated as warning areas, deliberate evacuation areas, areas where it is expected that the residents have difficulties in returning for a long time, areas in which the residents are not permitted to live, and areas to which evacuation orders are ready to be lifted due to the Fukushima Daiichi nuclear disaster.  
2. Special measures for the disaster from storm and flood  
   1. The applicants who suffered in the areas where the Disaster Relief Act in the disaster from storm and flood within one year before the application period has been applied, and who fall under any of the following categories.  
      ① Applicants whose houses, which are owned by payers of school expenses, were completely destroyed, largely half-destroyed, partially destroyed, or washed away.  
      ② Applicants whose payers of school expenses are dead or missing.  
- For further information, please contact the following.  
Inquiries:  
Admissions Office, Educational Division, Gunma University  
TEL. +81-27-220-7149 |
| 4 Sheet for Certificate of Transfer Receipt or Certificate of Payment [Form-4] | Paste the “Certificate of Transfer Receipt” or “Certificate of Payment” on the space designated on Form-4. |
| 5 Photograph Verification Card [Form-5] Examination Admission Card [Form-6] | Write your name on the back of the photograph (waist-up, full-face and uncovered head [L-A cm x W-3 cm]) taken within three months prior to the application and paste it on the prescribed column in the Photograph Verification Card.  
Photograph Verification Card and Examination Admission Card must be submitted while still attached (do not cut them apart). |
| 6 Certificate of Graduation (or expected graduation) | The certificate issued by the president of the university or the graduate school from which you graduated.  
However, those who have passed the screening of admission requirements by our Graduate School under Qualifications for Application (10), and who have graduated from the Faculty of Medicine of Gunma University are not required to submit it. |
| 7 Certificate of Bachelor’s Degree | The certificate proved by the institution which conferred the bachelor’s degree. Attach the academic record supporting conferment of the said degree.  
(Note) This item 7 applies only to a person who falls under “Qualifications for Application (2)”. |
| 8 Certificate of Bachelor’s Degree | Attach the diploma or other certificate of Bachelor’s Degree which is conferred from the university of educational establishment.  
This item 8 applies to a person who falls under “Qualifications for Application (6)” |
| 9 Academic transcript | The transcript issued by the presidents of the university and the graduate school from which you graduated and sealed.  
However, those who have passed the screening of admission requirements by our Graduate School under Qualifications for Application (9) or (10), and who have graduated from the Faculty of Medicine of Gunma University are not required to submit it. |
Sending of Examination Admission Card etc.

Examination Admission Card etc. will be sent to the applicant after paperwork following the acceptance of Application documents. If the Examination Admission Card etc. should not be sent by January 17 (Fri.), 2020, inquire to the Admissions Section, Educational Affairs Office, Administration Division, Showa Campus (TEL. +81-27-220-7797, E-mail: kk-mgakumu5@jimu.gunma-u.ac.jp).
5 Preliminary Consultation for Applicants with Disabilities etc.

Gunma University provides academic support to students with disabilities etc. When you have a disability and need consideration in examination and your study, prior to an application, please consult with our university beforehand.

(1) When to consult
As due date of consultation is December 2 (Mon.), 2019, please consult as soon as possible. Please note that we may not be able to accommodate the consultation after the deadline.

(2) How to consult
Please submit a consultation document (its format is optional) by attaching required documents including a doctor’s certificate.
When necessary, the interview with the persons concerned with the school from which an applicant graduated, or his/her family etc. who can speak for the applicant or his/her position is performed in our university.

(3) Mailing Address for Consultation document:
Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University, 3-39-22 Showa-machi, Maebashi City, Gunma 371-8511, Japan
TEL. +81-27-220-7797

6 Selection Method

Selection will be made by comprehensive ability of English, the oral examination score of the major field and the academic transcript issued by the president of the university etc. from which you graduated.

(1) About foreign language examination (English)

① An applicant who submits the score in TOEFL-iBT(Internet Based Test), TOEIC Listening & Reading Test (Open Test) or IELTS (Academic Module) at the time of application can convert the submitted score into the score on the foreign language examination (English) based on the following conversion table for the foreign language examination (English) instead of the written examination. The score in TOEFL-ITP(TOEFL Institutional Testing Program) will also be the subject of evaluation.

Furthermore, even the applicant who submits the score in TOEFL, TOEIC Listening & Reading Test (Open Test) or IELTS (Academic Module) at the time of application can take the foreign language examination (English) if he/she wishes. In that case, the better results will be used for the judgment.

② TOEFL, TOEIC Listening & Reading Test (Open Test) or IELTS (Academic Module) which has been issued in less than 2 years shall be valid. The submitted score report, score card or official score certificate of TOEFL, TOEIC Listening & Reading Test (Open Test) or IELTS shall be the original and a copy of it is unacceptable.
The original will be returned with the Examination Card.

(2) Oral examination

① For applicants with difficulty in coming to Japan for oral examination, we may use the results of the interview on the Internet for evaluation. However, the above shall be applied only in the case where the applicants have submitted any score of TOEFL-iBT (Internet-based test), TOEIC Listening & Reading Test (open test), or IELTS (academic module).

② In principal, the oral examination of the international student entrance examination is held in English. Subsequently, we may ask some questions about Japanese proficiency.

③ Date of examination
The examination is held on the same day with the general entrance examination. However, the schedule for the interview on the Internet is determined individually.
(3) Messages about the International applicants
Contact the supervisor you want to receive guidance (see pages 45-58) prior to the application and make sure to consult him/her on your research plan after admission.

(4) Conversion table for TOEFL, TOEIC Listening & Reading Test (Open Test) and IELTS (Academic Module)

<table>
<thead>
<tr>
<th>Conversion of English examination</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOEFL-ITP</td>
<td>475</td>
<td>487</td>
<td>500</td>
<td>525</td>
<td>550</td>
<td>600</td>
</tr>
<tr>
<td>TOEFL-IBT</td>
<td>52-53</td>
<td>57</td>
<td>61</td>
<td>70-71</td>
<td>79-80</td>
<td>100</td>
</tr>
<tr>
<td>TOEIC Listening &amp; Reading Test</td>
<td>514</td>
<td>549</td>
<td>586</td>
<td>658</td>
<td>730</td>
<td>874</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Conversion of English examination</th>
<th>37</th>
<th>51</th>
<th>70</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>IELTS (Academic Module)</td>
<td>5</td>
<td>5.5</td>
<td>6</td>
<td>6.5</td>
<td>7</td>
</tr>
</tbody>
</table>

7 Date and Locations for Examination

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Examination Subject</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 2 (Sun.), 2020</td>
<td>10:00-12:00</td>
<td>Foreign Language (English)</td>
<td>Graduate School of Medicine, Gunma University etc.</td>
</tr>
<tr>
<td></td>
<td>13:00-15:00</td>
<td>Oral Examination of Desired Major Field</td>
<td></td>
</tr>
</tbody>
</table>

8 The Aim of Each Examination Subject

Foreign language (English)……. The comprehension of English documents and English composition ability will be examined.

* The use of one dictionary, such as English-Japanese dictionary, English-English dictionary or similar dictionary, is allowed (technical dictionary and electronic dictionary, etc. not allowed).

Oral Examination of Desired Major Field……. Basic academic ability necessary for engaging in studies in major field and willingness to study will be examined.

* The oral examination will be held by supervisors of major field of your first choice.

** Applicant must contact the supervisor of his/her desired major field and get consent to apply for admission before deciding his/her desired major field. **

9 Exam Instructions

(1) Bring Examination Admission card with you on the examination day.
(2) Examinees must enter the prescribed examination room by 9:30 a.m. Late arrivals for the examination will be accepted to take the examination within 30 minutes after the start of the examination, but the test time shall not be extended.
(3) Examinees must take all tests on the examination subjects assigned, or he/she will be disqualified.
(4) When a delay occurs on the public transport on the examination day, please refer to:
Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University
(TEL. +81-27-220-7797)

(5) If unexpected incidents (a disaster, an accident, etc.) happen on the day of examination, visit our website (http://www.med.gunma-u.ac.jp/) for your reference. In principle, we will not conduct supplementary examinations.

10 Announcement of Selection Results

Letters of acceptance will be mailed to successful applicants on February 28 (Fri.), 2020. At the same time, successful applicants’ numbers will be posted on the website of "the Graduate School of Medicine and the Faculty of Medicine, Gunma University" after 10:00 a.m. to the date for admission procedures. Notice about the announcement of selection results will not be posted in Gunma University campus.

Additionally, any inquiries about selection results by telephone will not be accepted.

11 Admission Procedures

The successful applicant is required to read the “admissions guide” enclosed with “the letter of acceptance” carefully and must prepare (1) fees and documents for admission procedures, (3) during the period of the admission procedures, and submit them to the (4) place by “mail” or “in person”.

1) Fees and documents for admission procedures
   (a) Admission fee: ¥282,000 (JPY 282,000)
   Notes: (a) Any revisions to admission fee on admission during enrollment shall be applied.
   (b) Methods for payment of the admission fee will be informed separately.
   (c) Admission fee paid shall not be refunded under any circumstances.

2) Examination admission Card

3) Any additional documents instructed in the admissions guide.

2) Fees for after entrance.
   Tuition fee: (first-semester) ¥267,900 (JPY 267,900) (Annual tuition fee: ¥535,800 (JPY 535,800))
   Notes: (a) Any revisions to tuition fees during enrollment shall be applied.
   (b) Methods for payment of the tuition fee will be informed separately.
   (c) Tuition fee including the tuition fee second-semester can be paid at the time of paying the tuition fee for first-semester according to the successful applicant’s wishes.
   (d) If a person who completes the admission procedures declines the admission by March 31 (Tue.), 2020, the amount equivalent to the tuition fee paid shall be refunded based on his/her request by following the prescribed procedures.

3) Period of Admission Procedures
   (a) By mail: The necessary documents must arrive at the university no later than March 6 (Fri.), 2020.
   (b) In person: The necessary documents must be brought no later than March 6 (Fri.), 2020. (until 5:00 p.m.) except on Saturday, Sunday and public holiday.

   Note: Whether it is “By mail” or “In person”, he/she will be regarded as a person who declines the admission if the admission procedures have not been completed by the above deadline.

4) Places for the admission procedures
   Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University, 3-39-22 Showa-machi, Maebashi City, Gunma 371-8511, JAPAN
   (The third floor of Common Building)

12 Additional successful applicants

When the number of persons who complete the admission procedures by March 6 (Fri.), 2020 does not reach the number of students to be admitted, Gunma University may fill vacancies by accepting additional applicants.

Notification of acceptance will be made by telephoning the applicant at the contact details indicated in the
application form after 5:00 p.m. on March 6 (Fri.), 2020.

13 Exemption and Postponement of Admission Fee and Tuition Fee

The admission fee or the tuition fee may be exempted for admitted students who have difficulty paying due to special circumstances.

Also, the collection of admission fee or tuition fee can be postponed for a certain period for students who have difficulty paying by the specified deadline.

Inquiries:
Education and Student Support Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University  TEL. +81-27-220-7796

14 Scholarship

Student loan and scholarships are available by Japan Student Services Organization (JASSO) for a person who has difficulty in paying the tuition fee, and who has great academic performance and excellent character.

Inquiries:
Education and Student Support Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University  TEL. +81-27-220-7792

15 Disclosure of Admission Information

Admission Information will be disclosed in the following way:

1. Disclosed on the website of the Graduate School of Medicine and the Faculty of Medicine, Gunma University on and after May 1 (Fri.), 2020. (http://www.med.gunma-u.ac.jp/)

The above information contains number of applicants, number of examinees, number of successful applicants, number of newly enrolled students, the number of men and women in the newly enrolled students.

2. Disclosed by the examinee’s request in written form.

○ Period for acceptance of disclosure request

From May 1 (Fri.) to May 29 (Fri.), 2020

Admissions Section, Educational Affairs Office, Administration Division, Showa Campus of Gunma University  TEL. +81-27-220-7797

16 Protection of the Personal Information about the Applicants for Admission etc.

Gunma University will acquire the personal information about the applicants etc. through the application documents submitted and the personal information about the examinees by carrying out the entrance examination, but the personal information described above will be used only for the following operations based on “Act on the Protection of Personal Information Held by National University Corporation Gunma University”.

1. For the operations (including subordinate operation, such as statistical treatment) concerning the selection of newly enrolled students.

2. For the operations concerning the student advising, the student support, and the tuition fee collection after enrollment as the data on the newly enrolled student in the case of a person who completes the admission procedures.

3. For the operation concerning the surveys and research for the purpose of university management (This includes improvement of entrance examinations, survey and analysis of application trends, and preparation of various statistical data.)

Moreover, in the case of investigation, research presentation using the said personal information, it processes so that an individual cannot be specified.
Access to Admission Section

○ Address
Gunma University Course of Medical Sciences in Graduate School of Medicine
3-39-22 Showa-machi, Maebashi City, Gunma 371-8511, Japan
TEL. +81-27-220-7797 (Admissions Section, Educational Affairs Office)

○ Traffic Information

<table>
<thead>
<tr>
<th>Bus Stop (get on)</th>
<th>Distination</th>
<th>Bus Stop (get off)</th>
<th>Amount of time</th>
<th>Notes</th>
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</table>
| JR Ryomo Line     | · Bound for Gunma University Hospital  
| Maebashi station,| · Bound for Aramaki Campus via Gunma  
| North Exit       | · Bound for University Hospital (including via  
| Bus Stop 2        | · Bound for Shibukawa station (including  
|                   | · Bound for Shibukawa station  
|                   | · Bound for Gunma Children's Medical  
|                   | · Bound for Gunma Children's Medical  
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|                   | · Bound for Aramaki Campus  
|                   | · Bound for University Hospital (including via  
|                   | · Bound for Shibukawa station (including  
|                   | · Bound for Shibukawa station  
|                   | · Bound for Gunma Children's Medical  
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|                   | · Bound for Shibukawa station  
|                   | · Bound for Gunma Children's Medical  
|                   | · Bound for Gunma Children's Medical  
|                   | · Bound for Gunma University Hospital  
|                   | · Bound for Aramaki Campus  
|                   | · Bound for University Hospital (including via  

* There are not any transportations from JR Gunmasouja Station and JR Shinmaebashi Station.
* Please come to examination center with time to spare by 9:30, after checking the latest traffic information.
Application Forms available at
Admissions Section, Educational Affairs Office (3rd floor)
from December 18 (Wed.) to December 24 (Tue.), 2019
Office hours 9:00 a.m. to 4:00 p.m.
(except on Saturday, Sunday and public holiday)
GUNMA UNIVERSITY
How to make Payment of Examination Fee at Convenience Store or by Credit Card

Now you can transfer funds to pay for your entrance examination - 24 hours a day - from your nearest Lawson, Ministop, FamilyMart, Seven-Eleven or Credit Card.

1 Advance Web Application

Visit the payment site homepage from your computer or cell phone at:

https://e-shiharai.net/

※ You can not correct or cancel anything once your credit card payment has been made. Please check all your information carefully before you confirm the application.
※ If you input the wrong information when trying to obtain your application number, please start again from the beginning and make your payment.
If you are not able to make the required payment before the due date you will receive this deadline upon completing the online application, all the information you had input will be canceled automatically.

2 Convenience Store Payment

Tell the counter staff that you want to make an "internet shiharai." Then provide your Payment My Number. A multifunction copier can not be used to make payment.

● Make the payment at the register.
● Receive an Application Fee Statement. Detach the Certificate of Payment (receipt) portion.

3 Application

[Paying at Convenience Store]
Affix the receipt portion to "The Certificate of Payment" in the designated location.

[Paying by Credit Card]
After making your payment, please make sure you have access to a printer with paper/A4. Access "申込内容確認 (Inquiry)" at e-shiharai.net.
Please check "確認する". Then all of your application information is displayed. Click blue-button "願書等を発行する". Affix the cutting portion of "願書等を発行する (The Certificate of Payment)" in the designated location. Enclose in an envelope with all other necessary application documents.

● During payment periods and application periods mentioned in the application documents, you can make a payment anytime. Please confirm from application documents and complete payment in time for the application period.
● On the last date of the payment period, the web application will be closed at 11pm, and the final deadline for the information terminal at convenience stores (Lawson, Ministop, or K-Station) will be at 11:30pm.
● Your inquiry about the payment of "the entrance examination fee" is not able to be handled at the convenience store. For further information, please check our website.

● Please note that refund is not possible once you have made a payment of Entrance examination fee.
● A fee is added to Examination fee. For further info, please visit our website.
● Please directly contact the credit card company if your card is not accepted.
● It will be announced on our website if either the convenience stores which handle payments or the methods of payment are changed.
Outline of the in Biomedical Sciences Course (Master’s Program)

1 Purpose of setting up the course and specific educational aims

Recent advances in life sciences and information sciences have opened up abundant prospects for applying the achievements of basic research within bio-related industries and new medical services, including drug discovery and regenerative medicine. At the same time, there is a need to solve many challenges, such as medical ethics and information security that are associated with advanced medical technology, and community healthcare support in our aging society, which are opening up a wide range of potential roles for medical researchers and health professionals. Many doors are being opened to non-medical school graduates and trained researchers, educators, and/or highly skilled workers who can exercise leadership in the life sciences and medical fields. However, there is a looming shortage of researchers/educators able to respond to the needs of society and who can take an active role in Biomedical Sciences, this new interdisciplinary field between life sciences and medicine.

There is also a growing number of non-medicine, non-veterinary, and non-dentistry graduates who are hoping to pursue their interest in life science research or medical fields; however, before these graduates can enter a graduate school of medicine to take a PhD course, they either need to have obtained a Master’s Degree or must have more than two years’ research experience at a university or research institute. Gunma University Graduate School of Medicine has been shifting its focus of interest to new interdisciplinary fields. For example, in 2003, we re-organized our Medical Sciences Course (Doctoral Program) and our research and educational system into a basic plus clinical integrated style, and established a PhD program in health sciences, now being run by the Graduate School of Health Sciences. The implementation of a day/evening course system for both programs allowed us to offer the course to mature students not from only the medical and health science fields, but also from related fields. However, we were still unable to accept graduates from facilities other than medicine, veterinary, or dentistry directly to our medical sciences course.

In response to increasing demand, and to broaden our intake of graduates from other faculties, we have established a Biomedical Science Course (Master’s program) within the Graduate School of Medicine. This program aims to educate non-medical school graduates in the fundamental knowledge and skills needed to engage in the type of independent research that increasingly underpins medical and life sciences, and to foster leadership in medical-related fields on the part of health professional experts.

2 Academic discipline and research targets

Biomedical Sciences is a general term for the life sciences field, which overlaps medicine, life sciences, and other medical interdisciplinary fields. The Biomedical Sciences Course is designed to draw together life sciences and traditional basic medicine/clinical medicine (anatomy, physiology, biochemistry, cell biology, molecular biology, genetics, pharmacology, neuroscience, microbiology, parasitology, pathology, forensic medicine, hygiene, public health, medical ethics, medical informatics, internal medicine, surgical medicine, obstetrics and gynecology, otorhinology, rehabilitation medicine, clinical laboratory medicine, nuclear medicine, oncology, radiology, clinical pharmacology, pediatrics, psychiatry, etc.) as educational and research subjects to promote the elucidation of biological processes from a medical perspective and to establish Biomedical Sciences as a discipline that is aimed at the creation of new medical care: not only diagnosis and treatment, but also the promotion of health and improvement of quality of life.

We extended our research targets to medical physics, a field of growing importance, in academic year 2009, and will continue to promote broader biomedical science research.

3 Curriculum

1) Class subjects are divided into three subdivisions: basic subjects, practical subjects, and subjects suitable for research.

2) Of the basic subjects needed to be taken in the first year, fundamental knowledge of life sciences/medicine and basic techniques of the type required for biomedical science research will be acquired in the required subjects. This will place all students on the same footing. Basic factors within Biomedical Sciences that are needed in
multiple major field will be acquired in the elective subjects. Students who do not decide on a major field on beginning the course will be able to gain an understanding of current problems in medical-related fields, and make their decision based on their specialties, abilities and wishes by the end of the first semester of the 1st year while taking these basic subjects.

3 ) Of the practical subjects offered, elective subjects can be selected that are appropriate to the student’s research project or career options after earning their Master’s Degree. These subjects will advance the understanding of the applicable and practical knowledge required to pursue Biomedical Science research in research area and/or to further improve expertise.

4 ) Research subjects designed to promote the acquisition of knowledge needed to propose and implement a research project, and techniques for presentation of research results.

4 Others
Educational courses in Biomedical Sciences promote specialization in the following subjects.

Medical Physics Course
In this course, established in 2009, we train medical physics professionals who will be able to expand the development of highly-advanced medical technologies such as heavy particle radiotherapy using high-energy carbon ion beams and intensity-modulated radiation therapy using X-rays.

International Training Program for Experts in Medical Physics
This course is designed for prospective leaders in medical physics. The International Training Program for Co-operative Experts in Clinical Oncology, applied by the University of Tsukuba, was selected as a Promotion Plan for the Platform of Human Resource Development for Cancer, launched by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2012. In this course, we use unique teaching methods that employ e-learning strategies.

Program for Cultivating Global Leaders in Heavy Ion Therapeutics and Engineering for Doctoral Courses
The Program for Cultivating Global Leaders in Heavy Ion Therapeutics and Engineering, proposed by Gunma University and selected as a Leading Program in Doctoral Education, was launched by MEXT in 2011. Accordingly, after enrollment of PhD program at Graduate School of Medicine, graduates of Biomedical Sciences Course may register this program. If application is approved, it is possible to complete the Doctoral Course in three years.

Radiation Biomedical Science Course
It provides basic knowledge of radiation science by studying linkage subjects in cooperation with Gunma Prefectural College of Health Sciences.

Medicine and Engineering Collaborative Course
This course is open since April 2019 for students who have previously studied natural sciences, engineering, and related fields. The mission of this course is to foster persons who will be able to lead and initiate work combining aspects of medicine and engineering in various sectors of academia, industries, medical institutions, and governmental institutions. Students can engage a wide area of expertise and conduct biomedical research under collaboration with the Graduate Schools of Science and Engineering.
<table>
<thead>
<tr>
<th>Region</th>
<th>Major Field</th>
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<tr>
<td><strong>Basic Medicine</strong></td>
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<tr>
<td>Anatomy</td>
<td>Hirohide Iwasaki</td>
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<td>Anatomy and Cell Biology</td>
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<td>Motsumi Tashiro (Associate Professor)Medical Physics</td>
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<td>(Takasaki Advanced Radiation Research Institute, National Institutes for Quantum and Radiological Science and Technology)</td>
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<td>Quantum Biology</td>
<td>Yasuyuki Ishi</td>
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* Due to retire in March 2020
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<th>Main contents of research and key words</th>
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</table>
| Anatomy                |                                          | Hirohide Iwasaki             | Neurons are connected via synapses to form neuronal circuits in the brain. Our final goal is to understand how the brain works as a complex of neuronal network. Particularly, we are interested in the molecular mechanisms that govern synapse formation and elimination during development. We use state-of-the-art imaging methods using both electron and light microscopy for describing the whole wiring diagram of the brain (connectome). We also put efforts on the development of new imaging tools. We use these newly-invented tools not only for the analysis of the brain but also for other organs to shed light on a new aspects of biological phenomena.  
**[Keywords]**: Neuronal circuit, connectome, synapse remodeling, development, vesicle transport, imaging technology, light microscopy, electron microscopy |
| Anatomy and Cell Biology | Toshiyuki Matsuzaki                      | Ext. 7900                    | We are interested in membrane channel proteins and transporter proteins, especially in water channel proteins, to understand their physiological functions and relationships between these proteins and diseases. To understand the physiological functions of these proteins, we investigate their tissue distributions and cellular localizations as well as their changes by using bio-imaging techniques such as immunofluorescence microscopy and immunoelectron microscopy, as well as techniques in molecular biology.  
**[Keywords]**: membrane protein, water channel, transporter, immunofluorescence microscopy, immunoelectron microscopy, molecular biology |
| Basic Medicine         | Molecular and Cellular Neurobiology      | Yasuki Ishizaki             | We are studying the cells in the CNS from their birth to death. We aim to elucidate the molecular basis of the control of proliferation, differentiation, and survival of neural precursor cells, hoping that our results will contribute to the treatment of intractable CNS diseases in the near future. We are also studying the interaction between neural cells and vascular cells in the CNS.  
**[Keywords]**: neural stem cells, neuronal precursor cells, glial precursor cells, glial cells, vascular cells, regenerative medicine |
| Biochemistry           | Yoji Andrew Minamishima                  | Ext. 7940                    | Our research projects aim to clarify (1) the molecular mechanism of hypoxic response, (2) turnover of cell membrane phospholipids and production of bioactive lipids (lipid mediators) on various kinds of stimulus, (3) signal transduction through their receptors, (4) functions of these bioactive lipids, and (5) signal transduction after DNA damage. All of these are involved in various physiological/pathological conditions including metabolism, inflammation, allergy, cancer and neurological disorders. Our experimental strategy includes biochemistry, molecular biology, cellular biology and proteomics/metabolomics/lipidomics using mass spectrometry.  
**[Keywords]**: hypoxic response, lipid mediator, receptor, signal transduction, DNA damage, omics analysis |
| Integrative Physiology | Noriyuki Koibuchi                        | Ext. 7920                    | Small lipophilic hormones such as steroid and thyroid hormones play a crucial role in the development and functional maintenance of various organs including the central nervous system. On the other hand, there are drugs and environmental chemicals whose structures are similar to those of such hormones. Such chemicals may disrupt endogenous hormone actions as either an agonist or antagonist. We study the effect of small lipophilic hormones on organ development and plasticity, and modulation by environmental chemicals and drugs on such process, using various techniques including behavioral analysis with gene modified animals, and cellular and molecular biological techniques.  
**[Keywords]**: hormone, development, plasticity, regeneration, environmental factors, endocrine disruption |
| Neurophysiology and Neural Repair | Hirokazu Hirai                          | Ext. 7930                    | We are studying the mechanism underlying memory, learning and motor control as well as brain disorders and aging in terms of molecular, cellular, network and behavioral aspects. Our challenge includes development of novel therapies effective for the brain disorders. To pursue these aims, we are developing cutting-edge techniques such as novel viral vectors, genome editing technologies, and disease model non-human primates. Our laboratory has sufficient experimental setup to perform world top-level research.  
**[Keywords]**: memory, learning, motor control, regenerative medicine; viral vector; neurodegenerative disease; marmoset; non-human primate model; aging; stem cell therapy; gene therapy; patch clamp.
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| Neurobiology and Behavior                   | Tomoaki Shirao  *  Ext. 8050                      | tshirao@gunma-u.ac.jp                | To understand the regulatory mechanisms of synapse morphology and function, we have studied the actin cytoskeleton in postsynaptic sites. For this research, primary cultured neurons, human iPS-cells-derived neurons and knockout mice have been used with various experimental techniques including cell biology, biochemistry, molecular biology, neuronal cell culture, histochemistry, imaging and behavioral analysis. In addition, we have also studied about the effects of radiation on the synapses. These studies will shed light on the mechanisms of brain function and development of new diagnostic and therapeutic methods for neurological and psychiatric disorders.  
   [Keywords]  synaptic morphology and function, actin cytoskeleton, imaging techniques, human iPS cells-derived neurons, radiation damage, high-throughput put   |
| Genetic and Behavioral Neuroscience         | Yuchio Yanagawa  Ext. 8040                       | yuchio@gunma-u.ac.jp                | We are studying the role of neurotransmitter GABA in brain functions such as emotion and the properties of GABAergic neurons through the generation and analyses of genetically engineered rodents such as conditional knockout mice and transgenic rats. We are also interested in the relationship between the deficits in GABAergic neurons and neuropsychiatric disorders. We have established model mice for schizophrenia or epilepsy and are characterizing them to elucidate the pathogenesis and/or pathophysiology of these disorders.  
   [Keywords]  neurotransmitter, GABA, knockout mice, transgenic rats, neuropsychiatric disorders, model mouse   |
| Basic Medicine                              | Haruyoshi Tomita  Ext. 7990                       | tomita3ha@gunma-u.ac.jp             | Nosocomial infections caused by multi-drug resistant (MDR) bacteria have increased and become a worldwide social problem. Our research is focused on the major causative MDR bacteria including methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE), MDR Pseudomonas aeruginosa and MDR Acinetobacter baumanii . The drug resistances and pathogenicities of MDR bacteria are examined by molecular biological methodology. The molecular mechanisms of bacterial genetic exchange system which is a significant factor for the spread of drug resistance and virulence genes are also studied.  
   [Keywords]  multi-drug resistant bacteria, VRE, MDRP, enterococcus, bacteriocin, conjugative plasmid, transposon   |
| Infectious Diseases and Host Defense        | Wataru Kamitani  Ext. 8001                        | wakamita@gunma-u.ac.jp              | We are studying Virology and Parasitology and Immunology. In Virology, our research focuses on coronaviruses and studies the molecular biology and host cell-virus interaction of these coronaviruses. We also establish reverse genetics methods for coronaviruses and will extend our project to eradication of infectious diseases. In Parasitology and immunology, we are focusing about a host-parasite interaction, especially about the protective immune response against malaria parasites and about allergy, autoimmunity, and anti-tumor immunity upon parasite infection.  
   [Keywords]  Coronavirus, Reverse genetics, malaria, vaccine, host-parasite interaction, allergy, autoimmunity   |
| Public Health                               | Hiroshi Koyama  Ext. 8010                         | hkoyama@gunma-u.ac.jp               | Public Health is the art and science to delineate the environmental and social determinants of health, and to reduce the harmful factors and to promote the supportive factors for health through the organized community efforts. Our research topics include, the protective effect of trace elements on the development of cancer and metabolic syndrome, analytical studies of trace elements using HPLC-ICP-MS method, depression screening-test for the suicide prevention, and the epidemiology of the relationship between QOL and insurance system and community organization. We also examine health equity and public health ethics.  
   [Keywords]  trace element, selenium, cancer prevention, depression screening, and epidemiology, public health ethics   |

* Due to retire in March 2020
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<td>Legal Medicine</td>
<td>Yoshihiko Kominato Ext. 8030 <a href="mailto:kominato@gunma-u.ac.jp">kominato@gunma-u.ac.jp</a></td>
<td>Legal medicine is essentially the application of scientific methods and techniques to matters involving the public: that covers a lot of ground. Every science from chemistry to medicine, from biology to statistics, from dentistry to anthropology, can be a forensic science if it has some applications to the law or public matter. Especially, our group has been focusing on personal identification, which is one of the important matters of legal medicine in Japan. We have performed researches on ABO blood group, which is one of the important genetic markers in human identification. We have elucidated the ABO expression mechanism through identifying the constitutive promoter and cell-specific enhancers, followed by delineation of the molecular basis in variant blood types including Bm, leading to development of the genetic diagnosis of those variant blood types on practice. [Keywords] legal medicine, personal identification, ABO blood group, enhancer</td>
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<td>Medical Philosophy and Ethics</td>
<td>Kenji Hattori Ext. 4755 <a href="mailto:hattorik@gunma-u.ac.jp">hattorik@gunma-u.ac.jp</a></td>
<td>Medical practices in the clinical setting as one of existential situations are fraught with troublesome problems in terms of actual human ways of life. Clinical ethics is tackling them by, not applying some general principles or abstract doctrines mechanically to every case, but paying close attention to the individual circumstances of each case. We have been involved in the groundwork for the methodology of clinical ethics from the perspective of hermeneutics and philosophy of literature. Ethical problems in preventive medicine, the method of teaching medical ethics, meta-ethical approaches to medical ethics, and critically examining the fundamental concepts such as health and disease, are also of our core concern. [Key words] clinical ethics, medical ethics, philosophy of medicine, medical ethics education</td>
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<td>Cardiovascular Medicine</td>
<td>Masahiko Kurabayashi Ext. 8140 <a href="mailto:mkurabai@gunma-u.ac.jp">mkurabai@gunma-u.ac.jp</a></td>
<td>According to the change of life style and an increase in aged population, the prevalence of hypertension, diabetes, and metabolic syndrome is rapidly increasing. These changes lead to the increase in cardiovascular disease such as myocardial infarction, stroke and heart failure. This department has been interested in the pathogenesis of atherosclerosis and heart failure. In addition, this department aims to identify the molecular target to prevent or treat the fatal arrhythmia. Furthermore, we are interested in the molecular mechanism of pulmonary fibrosis. Since the completion of human genome sequence determination, life science enters into post-genome era that make possible development of tailor-made medicine, and advances in high-throughput genotyping herald a rapid expansion of genomic information in human disease. Recently, this department has been interested in the identification of biomarkers that have incremental value for prevention of cardiovascular and pulmonary disease, and key molecules that are targetable by drugs. With identification of putative risk alleles for heart failure or pulmonary fibrosis, the next step will be exploration of the function of the genes and prospective clinical trials evaluating the benefits of genotype-directed treatment of cardiovascular and pulmonary disease. [Keywords] vascular biology, atherosclerosis, heart failure, myocardial infarction, transcription factors</td>
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<td>Respiratory Medicine</td>
<td>Toshitaka Maeno (Associate Professor) Ext. 8000 <a href="mailto:mutoyo03@gunma-u.ac.jp">mutoyo03@gunma-u.ac.jp</a></td>
<td>Clinical and basic researches for allergy and respiratory diseases are needed more than ever in our aging society. We try to investigate the pathogenesis of these diseases to make them clear. Our oncology unit is focusing on the basic and clinical research for lung cancer. Using genetically modified mice, research for refractory respiratory diseases such as asthma, COPD and lung fibrosis have been investigated. [Keywords] lung cancer, allergic respiratory disease, COPD, lung fibrosis, infectious lung disease</td>
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<td>Gastroenterology and Hepatology</td>
<td>Toshio Uraoka Ext. 8148 <a href="mailto:uraoka@gunma-u.ac.jp">uraoka@gunma-u.ac.jp</a></td>
<td>In Gastroenterology Unit, we investigate the development of endoscopic diagnosis and therapy for gastrointestinal tumor and pathophysiology of gastroesophageal reflux disease, esophageal motility disorder, using high resolution manometry (HRM) and intraluminal impedance &amp; pH monitoring and “association between inflammatory bowel disease and cellular stress response”. In Hepatology Unit, we investigate the pathogenesis of viral hepatitis, hepatocarcinogenesis, liver fibrosis and non-alcoholic steatohepatitis, using animal models such as knockout mice, and analyzed clinical samples to establish new methods of the diagnosis and therapy. <strong>[Keywords]</strong> gastrointestinal tumor, endoscopy, esophageal motility disorder, inflammatory bowel disease, hepatocarcinogenesis, non-alcoholic steatohepatitis</td>
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<td>Endocrinology and Metabolism</td>
<td>Masanobu Yamada Ext. 8120 <a href="mailto:myamada@gunma-u.ac.jp">myamada@gunma-u.ac.jp</a></td>
<td>Cancer and ischemic disease account for most of the causes of death in Japan. Many of these diseases are caused by disruption of endocrine system and genetic abnormalities. Our laboratory aims to establish new diagnosis and therapies for these diseases. We currently deal with animal models and samples obtained from patients to investigate the disease mechanisms. We are also working on epidemiological research using a large amount of clinical data. <strong>[Keywords]</strong> lifestyle diseases, endocrine disorders, diabetes mellitus, molecular biology, gene mutation</td>
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<td>Nephrology and Rheumatology</td>
<td>Keiji Hiromura Ext. 8166 <a href="mailto:hiromura@gunma-u.ac.jp">hiromura@gunma-u.ac.jp</a></td>
<td>We are studying the molecular mechanisms of glomerular and tubulointerstitial injuries and renal tubular regeneration and trying to develop how to control renal injuries and regeneration. We are also examining the role of dendritic cells in renal diseases and autoimmune diseases. To investigate these research questions, we are using genetically modified animals and animal models of human diseases in vivo and several kinds of cultured cells in vitro. In addition, we are exploring and evaluating biomarkers for diagnosis or prognosis of renal and rheumatic diseases, using patients’ urine and tissue samples. <strong>[Keywords]</strong> nephrology, rheumatology, autoimmune disease, regeneration medicine, biomarkers</td>
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<td>Hematology</td>
<td>Hiroshi Handa (Associate Professor) Ext. 8166</td>
<td>We study genetic polymorphism and epigenome, comprehensive analysis of RNA, non-coding RNA, microRNA by Next Generation Sequencing (NGS), the carbohydrate metabolism to elucidate the mechanism of the development and the progression of hematologic malignancies. We also conduct study about genome wide analysis in congenital coagulation disorder in cooperation with other institutions. Student will learn NGS, gene introduction into tumor cells and methods of clinical statistics to search a factor associated with disease development, taking advantage of hematologic disorder to be easy to obtain a specimen from human. <strong>[Keywords]</strong> hematologic malignancy, genome, epigenome, coagulation disorder, next generation sequencer</td>
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<td>Neurology</td>
<td>Yoshi Ikeda Ext. 8060 <a href="mailto:ikeday006@gunma-u.ac.jp">ikeday006@gunma-u.ac.jp</a></td>
<td>To develop early diagnostic tools and establish useful biomarkers for Alzheimer disease, we are investigating the Aβ -amyloid imaging (PIB-PET) and CSF biomarkers. To unravel a pathogenesis of the biggest intractable neurological disease, amyotrophic lateral sclerosis (ALS), we are investigating the autopsy tissues of ALS subjects. Microsatellite-repeat expansions of CAG, CTG, or GGCCTG repeat units are common genetic mutations of the hereditary neurological disorders such as spinocerebellar ataxia (SCA). We are trying to establish cell culture or animal models which are affected by these mutations. We hope to develop a novel disease-modifying therapy for SCA by analyzing these models. <strong>[Keywords]</strong> Alzheimer disease, dementia, amyotrophic lateral sclerosis (ALS), spinocerebellar ataxia (SCA), microsatellite-repeat</td>
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<td>Cardiovascular Surgery</td>
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<td>Tomonobu Abe</td>
<td>According to an increase in aged population, the prevalence of arteriosclerotic diseases and heart failure are rapidly increasing, and part of such patients need surgical treatment. In cardiovascular surgery, organ ischemia occurs in almost all patients, and then the reduction of the ischemia-reperfusion injury is important to the surgical results. It is still controversial in the methods of myocardial protection and brain protection, and we study more effective methods for organ protection. [Keywords] surgery, heart, brain, ischemia, reperfusion injury, organ protection</td>
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<td>General Thoracic Surgery</td>
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<td>Ken Shirabe</td>
<td>The understanding of fundamental knowledge and concept of malignant diseases in thoracic surgical oncology, in particular, lung cancer, metastatic lung tumor, and thymic epithelial tumor is most important. The various factors related in each stage of carcinogenesis, proliferation, local invasion and also metastasis of tumor are reviewed with the latest knowledge. Furthermore, we make the students understands in the importance of the recent advances in the diagnosis and treatment to patients with thoracic malignant disease. After clarifying the clinical problems, the students will learn the basic experimental techniques necessary for development of new diagnostic method and therapy in surgical science of future. [Keywords] surgical oncology, mechanism of proliferation, invasion and metastasis, driver gene, diagnosis and treatment</td>
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<td>Gastroenterological Surgery</td>
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<td>Hiroshi Saeki</td>
<td>In Division of Gastroenterological Surgery, researches for whole digestive tract are included. A wide variety of research, which including mechanism of carcinogenesis, growth and invasion of tumor, metastasis of tumor, suppressive research of malignancy and gastrointestinal motility research with conscious dogs, it will read to new therapeutic treatment have been energetically performed. Moreover, several clinical researches including development of excellent diagnostic method and therapeutic method have been performed continuously for the future. [Keywords] gastrointestinal surgery, carcinogenesis, gastrointestinal motility, excellent diagnostic method, development of therapeutic method</td>
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<td>Breast and Endocrine Surgery</td>
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<td>Takaaki Fujii (Associate Professor)</td>
<td>Breast Cancer is the highest incidence disease among female malignant neoplasm. We review diagnosis and treatment of breast cancer and endocrine disorders. Basic research includes 1) mechanism of therapy resistance in breast cancer, 2) tumor angiogenesis, 3) biomarker of sensitivity for breast cancer treatment, 4) exhaustive analysis of breast cancer prognostic factors. In addition, clinical study includes 1) additional usefulness of FDG-PET in breast cancer, 2) Mechanism of lymph node metastasis, 3) analysis of navigation surgery for identification of parathyroid glands and sentinel lymph nodes. It is not necessary to focus on the specific research subject, which you belong to. We held a research conference every week and discuss everything to solve the research problems with our professor. [Keywords] breast cancer, biomarkers, lymph node metastasis, TILs, microRNA, PET</td>
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<td>Hepatobiliary and Pancreatic Surgery</td>
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<td>Ken Shirabe</td>
<td>In Department of Hepatobiliary and Pancreatic Surgery, main theme in basic research field, for overcoming refractory cancer, such as hepatobiliary and pancreatic cancer is microenvironment of cancer. In the clinical research field, important theme is new evaluation for liver function, sarcopenia, and laparoscopic surgery in hepatobiliary and pancreatic surgery in safe manner. For developing research, we will send young surgeons to outstanding research center. [Keywords] cancer microenvironment, hepatobiliary and pancreatic cancer, sarcopenia, and laparoscopic surgery for hepatobiliary and pancreatic disease.</td>
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<td>Pediatric Surgery</td>
<td>Makoto Suzuki Ext. 8224 <a href="mailto:suzuki-m@gunma-u.ac.jp">suzuki-m@gunma-u.ac.jp</a></td>
<td>We cooperate with other divisions of surgery and organize multidisciplinary research. Our main research subjects are development of new diagnostic and treatment methods with minimally invasive approach. In particular, we study the minimally invasive diagnosis using circulating tumor cells for childhood cancer, the development of new instruments in minimally invasive surgery, and the relation between gastro-intestinal motility and enterobacterial flora after total colectomy for ulcerative colitis. [Keywords] surgical oncology, circulating tumor cells, minimally invasive surgery, gastro-intestinal motility, enterobacterial flora</td>
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<td>Radiation Oncology</td>
<td>Tatsuya Ohno Ext. 8380 <a href="mailto:tohno@gunma-u.ac.jp">tohno@gunma-u.ac.jp</a></td>
<td>The aim of this course is to perform innovative clinical, basic and translational researches on radiation oncology in order to maximize the potential benefit of irradiation. Clinical research includes 1) New indication of intensity-modulated radiotherapy (IMRT), stereotactic body radiotherapy (SBRT), image-guided radiotherapy (IGRT) for various types of cancer 2) Optimization of biophysical parameters in image-guided adaptive brachytherapy for gynecologic cancers 3) New combination between X-rays/carbon ion beams and other cancer treatment such as surgery, chemotherapy, or immunotherapy 4) Next generation’s system of high precision carbon ion radiotherapy and clinical applications. For basic research, we study 1) cancer gene mutation profile, 2) DNA repair, 3) anti-tumor immunity to clarify the role of irradiation and lead to the future precision radiotherapy using photon or carbon ions. [Keywords] Precision medicine, DNA repair, anti-tumor immunity, high precision radiotherapy, image-guided brachytherapy, carbon ion radiotherapy, multidisciplinary cancer treatment</td>
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<td>Clinical Medicine</td>
<td>Yoshiito Tsushima Ext. 8400 <a href="mailto:yoshitosushima@gunma-u.ac.jp">yoshitosushima@gunma-u.ac.jp</a></td>
<td>After the discovery of X-ray CT, there have been incredible advances in diagnostic imaging and it is now indispensable to modern medical care. In addition to CT, MRI, Ultrasound, PET, and SPECT, and the image-guided, minimally invasive techniques of interventional radiology and radioisotope therapy contribute to patient quality of life, and are also hoped to advance medical care. This field researches and new techniques in combining morphological and functional imaging and developing “patient-friendly” treatment methods such as interventional radiology and radioisotope therapy. [Keywords] diagnostic radiology, nuclear medicine, CT, MRI, US, SPECT, PET, interventional radiology</td>
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<td>Diagnostic Radiology and Nuclear Medicine</td>
<td>Masato Fukuda Ext. 8180 <a href="mailto:fukuda-sy@gunma-u.ac.jp">fukuda-sy@gunma-u.ac.jp</a></td>
<td>Development in neurosciences and brain sciences is just revealing brain dysfunctions for etiology and pathophysiology of psychiatric disorders using neuroimaging and genetic studies. Department of Psychiatry and Neuroscience endeavors to clarify etiology and pathophysiology of “mental dysfunction” employing structural neuroimaging such as MRI, functional neuroimaging such as PET and fMRI, neurophysiology such as MEG, neuroendocrine stress responses such as DST, and animal model of psychiatric disorders. [Key words] psychiatric disorder, neuroimaging, stress, mental illness, brain function</td>
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<td>Psychiatry and Neuroscience</td>
<td>Shigeru Saito Ext. 8450 <a href="mailto:shigerus@gunma-u.ac.jp">shigerus@gunma-u.ac.jp</a></td>
<td>Development in neurosciences and brain sciences is just revealing consciousness, pain sensation, and brain dysfunctions objectively by using neuroimaging and/or genetic studies. Department of Anesthesiology endeavors to clarify origin of consciousness and pain perception, and to modify such neuronal functions pharmacologically. In addition to classical biochemical, physiological and anatomical strategies, modern genetic and fMRI methods are employed to investigate Anesthesiology topics. Pharmaceutical, pharmacodynamic and behavioral approaches are also adopted for both of clinical and basic pain researches. [Keywords] anesthesia, neuroimaging, consciousness, pain, brain function</td>
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| Emergency Medicine     | Kiyohiro Oshima       | Kiyohiro Oshima                           | **(Basic research)**  
Experimental study for the brain prevention following cardiopulmonary resuscitation (CPR)  
Experimental study to clarify the mechanism of ischemia-reperfusion injury following CPR and to reduce its injury  
Experimental study of dynamics and usefulness of vasopressors in cardiopulmonary arrest  
**(Clinical research)**  
Study of clinical factors to predict the prognosis in patients with cardiopulmonary arrest  
Study of clinical factors to predict the injury severity in patients with multiple traumas  
Study of clinical factors to predict the prognosis in elderly emergent patients  
Study of clinical factors to predict blood transfusion in patients with pelvic fracture  
**[Keywords]**  
cardiopulmonary arrest, cardiopulmonary resuscitation, severe trauma, reperfusion injury, coagulation |
| General Practice Medicine | Junichi Tamura        | Junichi Tamura                            | In our department, we are going to study about many problems in gerontology, especially methods of nutrition for old people. We are interested in the effects of the lack of trace elements on immune systems or protection to infectious disease.  
**[Keywords]**  
general medicine, gerontology, primary care, nutrition |
| Clinical Medicine      | Naoki Wada            | Naoki Wada                                | The aim of our study is to develop the rehabilitation technology by quantitatively evaluating the effects of rehabilitation treatment for disorders caused by various diseases using various methods such as motion analysis, electrophysiology, exercise physiology, and imaging diagnostics. We are focusing on clinical research using a three-dimensional motion analysis device, an autonomic nervous system inspection device, an exhalation gas analysis device, a constant-velocity muscle force measurement device, and an immersive VR technology.  
**[Keywords]**  
rehabilitation medicine, disability studies, motion analysis, autonomic nervous system, virtual reality |
| Clinical Laboratory Medicine | Masami Murakami       | Masami Murakami                           | Modern medicine and preventive medicine aim at the evidence based medicine (EBM). Clinical laboratory medicine plays a key role in EBM. Therefore the research field of clinical laboratory medicine extends to every field. We are investigating sports medicine and pathophysiology of diabetes, thyroid disease, atherosclerosis and infectious diseases using gene analysis and new methods.  
**[Keywords]**  
gene analysis, diabetes mellitus, thyroid disease, atherosclerosis, infectious diseases, sports medicine, clinical laboratory medicine, lifestyle-related disease |
| Human Pathology        | Hideaki Yokoo         | Hideaki Yokoo                             | Pathology has dual aspects, one is basic science that aims to investigate causes of diseases, and the other is pathological diagnosis and classification of diseases. We shed light on neuropathology for years, and investigate pathogenesis, pathological diagnosis, and novel therapy of various diseases of the nervous system. Especially, our research group consistently plays a central role of brain tumor pathology of Japan for decades. We chiefly handle human samples, and also possess original transgenic animals prone to brain tumors.  
**[Keywords]**  
neuropathology, brain tumor, molecular and cytogenetics of tumor, glial cells, translational research |
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|                         | Diagnostic Pathology            | Tetsunari Oyama Ext. 7980 oyama@gunma-u.ac.jp | Cancer is a “genetic disease” and oncogene and tumor suppressor genes have a great influence to carcinogenesis. Most cancers develop by multi-step accumulation of genetic mutation with environmental and morphological changes. The main purpose of the course is to clarify the genetic change from morphological change or gene-related protein expression during cancer development and feedback to the diagnostic tumor pathology.  
**[Keywords]** cancer morphology, multi-step carcinogenesis, oncogene, tumor suppressor gene, protein expression  |
|                         | Pediatrics                      | Takumi Takizawa  
(Associate Professor) Ext. 8479 takizawt@gunma-u.ac.jp | Various diseases in children are closely related to the growth and development of individuals. In addition, the diseases may be caused by breakdown of defense mechanism and homeostasis in response to ambient stimuli. Our aim is to reveal the mechanisms of mucosal immunity related to several infections, the role of autophagy needed to maintenance of intracellular homeostasis, and new genetic mutation and epigenetics related to development of diseases.  
**[Keywords]** allergic diseases, neurodegenerative disorder, acute leukemia, nephrosis, inflammatory bowel diseases  |
| Clinical Medicine       | Obstetrics and Gynecology       | Akira Iwase Ext. 8420 akiwase@gunma-u.ac.jp | Our research field includes reproductive medicine & biology, gynecology and obstetrics. Main research interests are hypothalamic-pituitary-ovarian axis and endometriosis in the field of reproductive medicine & biology, uterine and ovarian cancer in gynecology, and obstetrics complications. We adopt up-to-date techniques of molecular biology and epidemiology.  
**[Keywords]** reproductive endocrinology and biology, endometriosis, gynecologic malignancies and obstetrics complication  |
|                         | Urology                         | Kazuhiro Suzuki Ext. 8300 kazu@gunma-u.ac.jp | Our department has focused on understanding of the pathophysiology of prostate cancer. Basic studies cover genetic analysis, the role of lipids and intratumoral hormonal environments. Clinical studies cover the role of the tumor marker PSA and screening of prostate cancer.  
**[Keywords]** urological tumor, prostate cancer, androgen dependency, screening  |
|                         | Neurosurgery                    | Yuhei Yoshimoto Ext. 8510 yyoshimo@gunma-u.ac.jp | Neurosurgical science had been evolved remarkably for recent 10 years with the introduction of new devices, including an endovascular catheter, an endoscope, and intraoperative monitoring systems, etc. These technical innovations make it possible to approach neurological diseases with minimally invasive way. We will understand more deeply central nervous system, anatomically, pathologically, and biochemically, and develop pre, and intraoperative neurophysiological, and imaging studies. Then, we pursue the truly sophisticated treatment for neurosurgical diseases.  
**[Keywords]** micro-neurosurgery, interventional radiology, endoscopic neurosurgery, intraoperative imaging, intraoperative neurophysiology  |
|                         | Ophthalmology                   | Hideo Akiyama Ext. 8338 akiyamah47@gunma-u.ac.jp | We are investigating 1) the mechanisms of pathogenesis in fundus diseases with optical coherence tomography (OCT) and 2) the lifetime of phosphorescence from iridium complex to develop a new system which can measure oxygen partial pressure in retinal tissue. Furthermore, our concern is also 3) the molecular mechanisms of damages in photoreceptor after retinal detachment using animal models.  
**[Keywords]** hematologic malignancy, genome, epigenome, coagulation disorder, HIV, next generation sequencer  |
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|                         | Otolaryngology       | Kazuki Chikamatsu Phone: 0070-429-6835 | Antitumor immunity plays an important role in protection against the development of malignancy. However, with a developing tumor, tumor cells acquire various mechanisms to corrupt the host antitumor responses, escape from immunosurveillance system, and grow in the host. The followings are current studies being conducted. 1) Immunological analysis of T cells in patients with head and neck cancer 2) Analysis of interaction between tumor cells and stromal cells in head and neck cancer  
[Keywords] head and neck cancer, immunosuppression, cancer immunotherapy, tumor microenvironment                                                                                     |
|                         | Head and Neck Surgery| tikamatui@gunma-u.ac.jp              |                                                                                                                                                                                                                                                                                                                                                                    |
|                         | Dermatology          | Osamu Ishikawa Phone: 0070-429-6835 | Our research goal is "Bedside to Bench and Bench to Bedside” to cure and care patients suffering from diseases of unknown etiology or intractable diseases. Our experienced staff supervises and assists you to publish the high quality paper to the world. Our main research themes are as follows: systemic sclerosis, dermatomyositis, viral infection, wound healing, cutaneous malignant neoplasms, and hereditary disease.  
[Keywords] skin, autoimmune rheumatic disease, cutaneous malignant neoplasms, wound healing, hereditary diseases                                                                                                                               |
|                         | Dermatology          | Ext. 8280 osamuisi@gunma-u.ac.jp     |                                                                                                                                                                                                                                                                                                                                                                    |
|                         | Plastic Surgery      | Takaya Makiguchi Phone: 0070-429-6835 | We are investigating in collaboration with department of Oral and Maxillofacial Surgery and Dermatology. Present research theme are  
1) Clinical and experimental study wound healing.  
2) Clinical and experimental study of free flap reconstruction.  
3) Evaluation of breast, head and neck reconstruction with brain science using MRI images.  
[Keywords] reconstruction, free flap, wound healing, breast reconstruction                                                                                                                                                                                                                      |
|                         | Plastic Surgery      | Ext. 8484 tmakiguchi@gunma-u.ac.jp   |                                                                                                                                                                                                                                                                                                                                                                    |
|                         | Orthopaedic Surgery  | Hirotaka Chikuda Phone: 0070-429-6835 | Nowadays, it is important to facilitate the maintenance and improvement of bone and joint function. The aim of our department contributes further to the development of musculoskeletal medicine through research, maintenance of health, prevention of diseases, development of public health in both mind and body mainly through sports medicine, support for the handicapped, and extension of social welfare services for the aged.  
[Keywords] osteoarthritis, spondylotic deformans, joint arthroplasty, sports injury, musculo-skeletal tumor                                                                                                                                                |
|                         | Orthopaedic Surgery  | Ext. 8260 chikudali@gunma-u.ac.jp    |                                                                                                                                                                                                                                                                                                                                                                    |
|                         | Clinical Pharmacology and Therapeutics | Koujirou Yamamoto Phone: 0070-429-6835 | Recently, many new drugs with novel mechanisms have produced to improve the clinical efficacy of drug therapy, however, the development of new drugs also have produced a lot of new problems to be solved. In the pharmacotherapy, the choice of appropriate therapy or drugs for each individual patient is imperative. To establish safe and effective pharmacotherapy, we focus the variation factors for clinical efficacy of drug therapy for several diseases with gene analysis and pharmacokinetic approaches.  
[Keywords] clinical pharmacology, pharmacokinetics, genetic polymorphisms, individualization of drug therapy                                                                                                                        |
|                         | Clinical Pharmacology and Therapeutics | Ext. 8743 koujirou@gunma-u.ac.jp    |                                                                                                                                                                                                                                                                                                                                                                    |
|                         | Clzemical Medicine   | ** footnote: "Due to retire in March 2020"** |  
** footnote: "Due to retire in March 2020"**                                                                                                                                                                                                                                                              |

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<th>Major Field</th>
<th>Contact Information</th>
<th>Main contents of research and key words</th>
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</thead>
</table>
| Clinical Medicine                          | Oral and Maxillofacial Surgery     | Satoshi Yokoo Ext. 8480 syokoo@gunma-u.ac.jp | Present research theme  
1) Epithelization in oral mucous wound healing in terms of energy metabolism.  
2) Cytological evaluation in odontogenic cyst-lining keratinocyte.  
3) Oral and maxillofacial reconstruction with vascularised free flaps.  
4) Evaluation of treatment strategy of oral cancer.  
5) Effects of pilocarpine and isoproterenol on aquaporin-5 expression in salivary gland  
6) Clinical and experimental study of endodontic microsurgery for extensive radicular cyst.  
7) Surgical study of jaw deformity  
**[Keywords]** oral mucous wound healing, oral and maxillofacial reconstruction, oral cancer, salivary gland, jaw deformity |
| Healthcare Quality and Safety              |                                    | Yasuhiro Komatsu Ext. 8767 komayasu@gunma-u.ac.jp | Discipline of healthcare quality and safety aims to promote evidence-based, patient-centered quality healthcare through education, practice, and research utilizing multidisciplinary approach. Areas of interests include application of quality and safety indicators, studies of decision making process including shared decision making, development of methodology for analysis and prevention of medical errors, and promotion of interprofessional collaboration.  
**[Keywords]** healthcare quality, patient safety, quality indicator, shared decision making, interprofessional collaboration |
| Cooperative Department (University Hospital) | Clinical Trials and Regulator Science | Tetsuya Nakamura Ext. 8740 nakamury@gunma-u.ac.jp | Clinical trials and research are advanced very rapidly and changed dramatically in recent years. We conduct and support a variety of clinical trials in our hospital and in our community to establish highly qualified clinical evidence. We continuously improve our knowledge and skills about trial design, data management, statistical methods, regulatory science or ethical issues in daily practice. We are trying to open a door for new world of clinical research science.  
**[Keywords]** clinical research, study design, statistics |
| Medical Informatics                        |                                    | Yuichiro Saito (Associate Professor) Ext. 8771 saito-yui@gunma-u.ac.jp | Today’s rapid growth of hospital information systems produces huge amount of data and excellent infrastructure to let clinicians to access them. This seminar aims to learn methodology contributing human health care using medical information system. It has been exploring and presenting required data via hospital information system using ubiquitous computing technologies.  
**[Keywords]** medical information, health care, hospital information system |
| Cooperative Department (University Hospital) | Molecular Traffic                 | Ken Sato Ext. 8840 sato-ken@gunma-u.ac.jp | Membrane trafficking plays essential roles not only in secretion and nutrient uptake but also in various physiological processes such as the endocrine system, the metabolic system, the nervous system, and animal development. In our laboratory, we study the molecular mechanisms and physiological functions of membrane trafficking in multicellular organisms by using the nematode Caenorhabditis elegans and mice as model systems.  
**[Keywords]** membrane trafficking, secretion, metabolism, development, C. elegans, knockout mouse |
| Cooperative Department (University Hospital) | Molecular Membrane Biology         | Miyuki Sato (Associate Professor) Ext. 8843 m-sato@gunma-u.ac.jp | Eukaryotic cells are composed of several membrane-bound organelles. The shape and composition of organelles are dynamically regulated during cell differentiation and are also influenced by various changes in the extracellular environment. We are interested in the regulation of organelle dynamics during animal development and use C. elegans as a model system. In particular, we explore the mechanisms and physiological roles of autophagy and endocytosis in fertilized eggs by using genetic and cell biological approaches.  
**[Keywords]** C. elegans, embryonic development, organelle, autophagy, endocytosis |
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<th>Region</th>
<th>Major Field</th>
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<th>Main contents of research and key words</th>
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</table>
|        | Molecular Endocrinology and Metabolism | Tetsuro Izumi Ext. 8856 tizumi@gunma-u.ac.jp | To understand the physiopathology of multicellular organisms, it is important to know how differentiated cells communicate with each other to regulate their function as a whole body. We especially focus on the basic biology of pancreatic beta cells, adipocytes, and immune cells, because of their involvement in the pathogenesis of endocrine, metabolic, and allergic diseases such as diabetes, obesity, and asthma. We approach these themes at multiple levels from molecule to a whole body, and by using varying techniques of a molecular biology, biochemistry, cell biology, and genetics. 
**Keywords:**
generically modified mouse, regulated exocytosis, endocrine, metabolic, and allergic disease, live cell imaging, cell sorting |
|        | Developmental Biology and Metabolism | Yoshio Fujitani Ext. 8855 fujitani@gunma-u.ac.jp | The dysfunction of pancreatic beta cells or brown adipocytes can cause diabetes and metabolic syndrome. We aim to elucidate the mechanism involved in the maintenance of homeostasis in these higher-order function cells, which is the key to glucose metabolism, from a variety of viewpoints, including developmental biology, molecular biology, and tumor development studies have indicated that zinc not only plays a crucial role in the maintenance of protein structure, but is also involved in intracellular and extracellular signal transduction. Our second aim is to clarify the role of zinc signaling in diabetes and obesity. Furthermore, using our findings from basic medical research, we aim to establish a groundbreaking treatment for diabetes and obesity. 
**Keywords:**
pancreatic β cell, development, autophagy, brown adipocyte, zinc biology, glucose metabolism |
|        | Metabolic Signaling | Tadahiro Kitamura Ext. 8845 kitamura@gunma-u.ac.jp | In this laboratory, we are trying to elucidate the molecular mechanism by which metabolic syndrome occurs, using genetically manipulated animal models, such as knockout mice or transgenic mice. We hope that our research will contribute to the development of new strategies to treat or prevent diabetes and obesity. 
**Keywords:**
diabetes, obesity, metabolic syndrome, transcription factor, knockout mouse, insulin, glucagon |
|        | Laboratory of Epigenetics and Metabolism | Takeshi Inagaki Ext : 8835 inagaki@gunma-u.ac.jp | Epigenetic regulation of gene expression is independent of genomic sequence and therefore can flexibly respond to environmental factors. We are currently investigating various epigenetic mechanisms by which the environmental factors are linked to metabolic diseases. Main focus of our research is histone modification which regulates gene expression through changing chromatin structure and cofactor recruitment. Using techniques of transcriptomics, epigenetics, proteomics and animal models, we intend to elucidate the detail mechanisms of epigenetic regulations of energy metabolism and adipose cell development. 
**Keywords:**
epigenome, metabolic diseases, energy metabolism, transcription, chromatin structure |
|        | Molecular Genetics | Takayuki Yamashita Ext. 8830 y-taka@gunma-u.ac.jp | A wide variety of intrinsic and environmental stresses induce cellular senescence, apoptosis and genomic instability. These "stress responses" underlie the pathogenesis of aging-related diseases and tumor development. Specifically, we aim to clarify (i) the molecular mechanisms of oncogene-induced DNA replication stress in genomic instability and (ii) the regulatory role of HSP1, a master transcription factor of the heat shock response, in cellular senescence. 
**Keywords:**
DNA replication stress, genomic instability, carcinogenesis, heat shock transcription factor 1, cellular senescence |
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<tr>
<td></td>
<td>Genome Sciences</td>
<td>Izuho Hatada Ext. 8057 <a href="mailto:hatada@gunma-u.ac.jp">hatada@gunma-u.ac.jp</a></td>
<td>Epigenetics is the study of heritable codes other than genetic codes written in A.G. C. and T. Monozygotic twins have the same genetic information; however, they have different epigenetic information and phenotype. DNA methylation and histone modifications (acetylation and methylation) serve as epigenetic code. Epigenetic status, namely, epigenome, is thought to be influenced by the environment, such as food, infection, and chemicals. This reprogramming of the epigenome by the environment could cause diseases such as cancer, and diabetes. We are going to clarify the role of epigenetic anomalies in diseases such as cancer, diabetes and obesity. [Keywords] epigenetics, epigenome, DNA methylation, microarray, genome-wide analysis, ageing</td>
</tr>
<tr>
<td>Institute for Molecular and Cellular Regulation</td>
<td>Laboratory of Integrated Signaling Systems</td>
<td>Tohru Ishitani Ext. 8892 <a href="mailto:ishitani@gunma-u.ac.jp">ishitani@gunma-u.ac.jp</a></td>
<td>Morphogen signaling systems, such as Wnt signaling, plays crucial roles in animal tissue morphogenesis and homeostasis, and dysregulation of morphogen signaling causes a variety of diseases, including cancer, metabolic diseases, and neurological diseases. Our laboratory investigates the regulatory mechanisms of morphogen signaling systems and also searches for unknown signaling systems that regulate tissue morphogenesis and homeostasis, using in vivo imaging, biochemistry, and molecular genetics. Especially, we are now focusing on “cell competition”, a new system supporting animal tissue homeostasis. [Keywords] signal transduction, morphogen, cell competition, in vivo imaging, disease model</td>
</tr>
<tr>
<td></td>
<td>Medical Physics and Biology for Ion Therapy</td>
<td>Akihis Takahashi Ext. 7917 <a href="mailto:a-takahashi@gunma-u.ac.jp">a-takahashi@gunma-u.ac.jp</a> (Medical Biology) Mutsumi Tashiro (Associate Professor) Ext. 8378 <a href="mailto:tashiro@gunma-u.ac.jp">tashiro@gunma-u.ac.jp</a> (Medical Physics)</td>
<td>In this course, we aim to nurture researchers in the field of medical physics who are indispensable for ensuring the reliability of radiotherapy through sophisticated research and credible study of heavy ion and x-ray radiotherapies. To improve radiotherapy and to use space environment we carry out in vitro and in vivo experiments regarding a variety of radiation-induced biological phenomena. Another important purpose of this course is to increase the expertise of those radiobiology specialists involved in radiotherapy and space science. [Keywords] radiotherapy, heavy ion radiotherapy, medical physics, accelerator, radiation biology, effect of space radiation</td>
</tr>
<tr>
<td></td>
<td>Heavy Ion Clinical Medicine</td>
<td>Junichi Tamura Ext. 8665 <a href="mailto:jtamura@gunma-u.ac.jp">jtamura@gunma-u.ac.jp</a></td>
<td>Heavy ion radiotherapy for malignant tumors has several biophysical advantages compared with photon therapy. Heavy ion clinical medicine includes clinical oncology, tumor pathology, radiobiology, medical physics and engineering, diagnostic radiology, and image-guided therapy. This course is implemented to understand that the radiation oncology including heavy ion radiotherapy is comprehensive medical science which integrates and systematizes these wide varieties of scientific subfields to attain successful cancer treatment. [Keywords] heavy ion radiotherapy, multimodality, cancer therapy, biological response, high LET, hypofractionation, imageguided adaptive radiotherapy</td>
</tr>
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<td></td>
<td>Cooperative Department (Cancer &amp; Food, Space and Welfare)</td>
<td>Seiji Torii Ext. 8859 <a href="mailto:storii@gunma-u.ac.jp">storii@gunma-u.ac.jp</a></td>
<td>With the decrease of neuroendocrine function, a variety of diseases increase, which include metabolic syndrome and neuronal disorders. To understand fundamental mechanisms on such human diseases, we investigate the biosynthesis and secretion of peptide hormones, and the regulation of cell survival and death, with use of molecular and cellular technical approaches. In a collaborative study with some engineering researchers, we are developing new compounds or fluorescent probes for analyzing cancer, diabetes, and ischemia. Furthermore, we promote a substantial collaboration with the food company in Gunma. [Keyword] cancer, metabolism, endocrine, cell biology, peptide hormones, insulin, reactive oxygen species, ferroptosis</td>
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<td>Region</td>
<td>Major Field</td>
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</table>
| Cooperative Department (Center for Mathematics and Data Science) | Mathematics and Data Science | Takayuki Asao Ext. 8353 asao@gunma-u.ac.jp | There are many difficulties in the development of medical devices such as an approval and permission by PMDA and limitation of the dealing companies. Knowledge of the laws and regulations about the medical devices and consideration of quality to use safely in patients from the start of development to the clinical stage. In our division we construct a dedicated data base used for development of medical devices with AI technologies, in which a large scale of information of patent, application form for approval, results of non-clinical and clinical investigation, notifications from the regulatory office are included. Moreover, we practice development of several new devices and software to support doctors by robotic process automation and AI in collaboration with venture business.  
**[Keywords]**  
Medical devices, PMDA, Database, Natural language processing, Artificial intelligence, Robotic Process Automation, Python |
| Joint Department | Quantum Biology | Takasaki Advanced Radiation Research Institute, National Institutes for Quantum and Radiological Science and Technology  
Yasuuki Ishii  
Yusuhiko Kobayashi  
Kazuo Funayama  
Contact to Admissions Section, Educational Affairs Office | We are researching biological functions at the molecular, cellular and tissue levels using the physical and biological effects of ion beams at the ion beam irradiation facility of Takasaki Advanced Radiation Research Institute. Our final goal is the development of new methods of analyzing biological function not possible with previously established methods. The major subjects are as follows:  
·Making advances in micro-PIXE (Particle Induced X-ray Emission) analysis.  
·Developing a technology to target and hit a cell or a tissue with a single-heavy-ion of several hundred MeV within 1 μm spatial accuracy under microscope observation. Elucidating effects induced to normal or cancer human cells irradiated with heavy ions, and to those not irradiated (bystander effect).  
**[Keywords]**  
ion beam, microbeam, micro-PIXE, single-ion hit, irradiation of targeted cell, radiomicrosurgery, bystander effect |
出願書類
Application Forms

◆入学願書・履歴書
Application Form and Curriculum Vitae

◆成績評価合計単位数証明書
Certificate of Total credits of the academic transcript

◆志願理由書
Statement of Purpose

◆振込金受付証明書・検定料収納証明書貼付台紙
Sheet for Certificate of Transfer Receipt, Certificate of Payment

◆写真票・受験票
Photograph Verification Card, Examination Admission Card

◆入学資格審査申請書（該当者のみ）
Application for the screening for admission requirements
(only a person concerned)

◆研究歴証明書（該当者のみ）
Certificate of Research Activities
(only a person concerned)

◆宛名票
Name and Address Card
| 受験番号 | Examinee’s Number | ※ | 志望専攻分野の指導教員に出願の内容を取っている | Yes | No |
| 新元年 | Birth Date | 西暦 | 年 | 月 | 日 | 年 | 月 | 日 | 岁 | 岁 |
| 氏名 | Name | | | | | | | | | |
| 現住所 | Current Address | | | | | | | | | |
| 留学先 | University etc. | | | | | | | | | |
| 本人以外の入試に関する連絡先 | Personal History | | | | | | | | | |
| 学歴 | Educational Background | | | | | | | | | |
| | | | | | | | | |

【Notes on filling in】
1. Fill in the above application form in the block style and accurately by using a blue or black ball-point pen.
2. Fill in your working place and occupation minutely if you are a working person.
3. Fill in the current address where notice and inquiry, etc. can be received without fail.
4. Do not fill in the "*box."
5. Fill in the "Educational Background box" with your background such as research student, postgraduate student, etc.
6. Write your first choice in the Desired Major Field.
履歴書（Curriculum Vitae）

Educational background（学歴）

<table>
<thead>
<tr>
<th>エレメンタリーエデュケーション（初等教育）</th>
<th>Name and Address of School (学校名及び所在地)</th>
<th>Year and Month of Entrance and Completion (入学及び卒業年月)</th>
<th>Duration of Attendances (修学年限数)</th>
<th>Diploma or Degree awarded, Major Subject, Skipped years/levels (学位・資格、専門科目、飛び級の状況)</th>
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<th>Years (年) and months (月)</th>
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<tr>
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Total number of years of the aforementioned schooling (以上を通算した学校教育修学年限数) As of April 1, 2020 (2020年4月1日現在) Years and months (年) and (月)

Employment History（職歴）

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<thead>
<tr>
<th>Name and Address of Employer (勤務先及び所在地)</th>
<th>Period of Employment (在職期間)</th>
<th>Position (役職名)</th>
<th>Type of Work (職務内容)</th>
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*If the blanks above have not sufficient space to be filled in, write on another appropriate sheet and attach it.（注）上欄に書き切れない場合には、適当な別紙に記入して添付すること。*

Notes: 1. Exclude kindergarten education or nursery school.(幼稚園・保育所教育は含まれない。)
2. Preparatory education for university admission is included in upper secondary school.(いわゆる大学予備教育は中等教育に含まれる。)
3. If the applicant has passed the university entrance qualification examination, indicate this in the blank with *-1.(大学入学資格試験に合格している場合には、その旨を*-1欄に記入すること。)
4. Any school years or levels skipped should be indicated in the fourth column (Diploma or Degree awarded, Major Subject, Skipped years and levels). (Example: Graduated from high school in two years, etc.)(いわゆる「飛び級」をしている場合には、その旨を該当する教育課程の「学位・資格、専門科目、飛び級の状況」欄に記載すること。例：高校3年次を飛び級により卒業)
成績評価合計単位数証明書
Certificate of Total credits of the academic transcript

大学の御担当者の方へ
本様式を厳封にて作成・発行し、申請者に交付してください。

To the registrar
Please issue this form sealed off in the university envelope and send to the applicant.

<table>
<thead>
<tr>
<th>志願者氏名</th>
<th>Applicant's name</th>
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<th>優</th>
<th>良</th>
<th>可</th>
<th>総合計単位数</th>
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<td>Grade</td>
<td>Excellent</td>
<td>Good</td>
<td>Fair</td>
<td>(Total amount)</td>
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合計単位数*（学士）
Total Credits (Bachelor)

証明書発行日：
Date of issue：
年 月 日
Year Month Day

発行者の署名
Signature of Register

＊学士（卒業見込みも含む）の各評価の合計単位数を記載してください。群馬大学医学部医学科の卒業及び卒業見込みの者は合計単位数の記載は不要です。
A評価より良い成績、例えばSなどがある場合、すべてAに含めてください。
成績証明書に上記の情報が記載されている場合、本様式の提出は不要です。
授業時間数や単位数のみで評価計算がでず発行できない場合は、その旨を余白にお書きのうえ、志願者に返送願います。

＊ Fill in the total credits of each grade of Bachelor’s degree including the expected ones. Students who graduated or expected to graduate the Faculty of Medicine, School of Medicine of Gunma University do not need to write the total credits. If your school adopts a grade such as “S”, meaning better than “A”, please add those credits to A’s. If the transcript contains above information, this form is unnecessary.
If you don’t have any evaluation system except class hours and number of credits, therefore you can’t issue this certificate, please write its reason on the empty space and return to the applicant.

公 印
Official seal of the University
2020年度群馬大学大学院医学系研究科生命医科学専攻（修士課程）志願理由書（第2次）
2020 Course of Biomedical Sciences in Graduate School of Medicine, Gunma University (Master’s Program)
Statement of Purpose (Secondary)

<table>
<thead>
<tr>
<th>フリガナ</th>
<th>氏名</th>
<th>受験番号 Examinee’s Number</th>
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※欄は記入しないでください
Do not fill in the "box."

Statement of Purpose
Certificate of Transfer Receipt

Please paste “Certificate of Payment” here.

If you are receiving the Japanese Government (MEXT) Scholarship at the time of application, the examination fee payment is not required. Please submit the document certifying that you are the recipient of the scholarship.

☐ I am receiving the Japanese Government (MEXT) Scholarship at the time of application. (Fill in a circle in the square. The recipient of the scholarship doesn’t have to pay the examination fee.)

☐ I am the sufferer from Great East Japan earthquake and applying for exemption of the examination fee. (Fill in a circle in the square. The applicant doesn’t have to pay the examination fee.)

Please select one from the following four payment methods.

1. Payment at Convenience Store
   (1) Refer to the page 42 when you pay at a convenience store. Payment commissions must be borne by the person who pays the fees.
   (2) After payment, receive the "Application Fee Statement", detach the "Certificate of Payment" (receipt) portion from it, and paste it on the prescribed place in the "Sheet for Certificate of Transfer Receipt" [Form 4].
   (3) Payment period: December 9 (Mon.) to 3:00 p.m. (Japan time) of December 24 (Tue.), 2019. When you make payment via the web site, you have to pay 30 minutes before the end of payment period.

2. Payment by Credit card
   (1) Refer to the page 42 when you pay by credit card. Payment commissions must be borne by the person who pays the fees.
   (2) After payment, print the "Application Fee Statement", detach the "Certificate of Payment" (receipt) portion from it, and paste it on the prescribed place in the "Sheet for Certificate of Transfer Receipt".
   (3) Payment period: December 9 (Mon.) to 3:00 p.m. (Japan time) of December 24 (Tue.), 2019.

3. Remittance from abroad
   (1) Please make a remittance on a yen basis from a bank teller’s window to the following bank account (a bank transfer fee and an overseas remittance fee must be borne by an applicant in person).
   (2) Paste the receipt (the copy of it is also valid) you receive from a bank on the prescribed place in the "Sheet for Certificate of Transfer Receipt". In addition, if an excess or a deficiency arises in the amount of remittance, please note that it cannot be dealt with.
   (3) When you make a remittance, please contact a person in charge of Gunma University as below. At which time, be sure to specify your name, the name of the nation from which you remit, and also write as "I will apply for the Master’s Program of Gunma University". (E-mail: kk-mgakumu5@jimu.gunma-u.ac.jp)
   (4) Transfer payment period: December 9 (Mon.) to 3:00 p.m. (Japan time) of December 24 (Tue.), 2019.
   (5) Payment by using ATM (Automated Teller Machine), cell phone or personal computer should not be made.
2020 Course of Biomedical Sciences in Graduate School of Medicine, Gunma University (Master’s Program)

<table>
<thead>
<tr>
<th>Examinee’s Number</th>
<th>※</th>
</tr>
</thead>
<tbody>
<tr>
<td>氏名 Name</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>第一志望 The first choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>志望専攻分野 Desired Major Field</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>第二志望 The second choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>志望専攻分野 Desired Major Field</td>
</tr>
</tbody>
</table>

写真 Photograph

Make the photograph over this column.
1. L4 cm × W3 cm
2. 半身像、正面像、頭部前3~6ヶ月以内に半身像撮影したもの。
3. 写真の裏面に氏名を記入して貼ってください。

Notes when filling in the cards
1. Necessary matters must be filled in accurately and in the block style by using a blue or black ball-point pen.
2. Do not fill in the "※ box."
3. Write your first choice in the Desired Major Field column.

Notes when taking the examination
1. Examinee must carry his/her examination admission card.
2. Examinees must assemble in the examination room at least 30 minutes before (by 9:30 a.m.) the start of the examination.
3. In the examination room, sit at the seat which your examinee’s number is posted on and place your examination admission card on the top right corner of the desk.
4. Lateness within 30 minutes after the start of the examination will be accepted, but the test time shall not be extended.
5. Other detailed notes about the examination will be directed at the examination room.
私は、2020年度群馬大学大学院医学系研究科生命医科学研究科修了（修士課程）入学試験を受験したいので、下記により入学資格審査をお願いします。

記

1 該当する入学資格審査
次のいずれかに該当するかについて、当該項目の番号を〇で囲んでください。

(1) 学校教育法（昭和22年法律第26号）第102条第2項の規定により本大学院以外の大学院に入学者であって、本大学院において、大学院における教育を受けるにふさわしい学力があると認められたもの

(2) 本大学院において、個別の入学資格審査により、大学を卒業した者と同等以上の学力があると認められた者で、2020年3月31日までに25歳に達するもの

2 希望する専攻分野

第1志望（ ）
第2志望（ ）

3 添付書類

本申請書に添付した書類の番号を〇で囲んでください。

(1) 上記1の該当者
ア 成績証明書（出身大学（学部）の成績証明書と当該大学の教育課程が明記されている書類（履修手引等）を併せて提出のこと）
イ 在学証明書（在学中の大学院の長が作成したもので、入学者名が明記されたもの。なお、大学院を修了又は退学している者は、入学年月日の明記された書類（出身大学の成績証明書等）を提出のこと）
ウ 研究業績がある場合は、その業績（論文等）
エ その他の書類

(2) 上記2の該当者
ア 研究業績証明書（本要項添付の用紙（様式10）によります。）
イ 研究業績又はその他顕著な業績がある場合は、その業績（論文等）
ウ 最終学校（短期大学、専修学校又は各種学校等）の卒業又は修了証明書
エ 最終学校（短期大学、専修学校又は各種学校等）の成績証明書
オ その他の書類

履歴書も記入すること

氏名（Name）
生年月日（Birth Date）
現住所（Current Address）
郵便番号（Postal Code）
電話番号（TEL）
E-mail

I wish to take the entrance examination for the Course of Biomedical Sciences in Graduate School of Medicine, Gunma University in 2020 and request the screening of admission requirements under the following conditions.

Description
1 The screening of admission requirements that fall under the applicant.
Circle the applicable number of the items described below.
(1) A person who entered a graduate school other than our Graduate School based on the provisions of Article 102-2 of the School Education Act (Act No. 26 of 1947) and who has been recognized by our Graduate School as having academic abilities appropriate for receiving graduate school education.
(2) A person who has been recognized by our Graduate School as having academic abilities equivalent or superior to a person who has graduated a university based on the results of individual examination of the applicant’s qualifications, and who will be 22 years of age by March 31, 2020.

2 Desired Major Field
First choice （ ）
Second choice （ ）

3 Attached documents
Circle the number of the document attached to this application.
(1) Applicant who falls under the above（1）
   a. Academic transcript (faculty results and the document showing the curriculum of the faculty (e.g. syllabus))
   b. Certificate of student status (issued by the president of the university (graduate school) you are in and with the date of your entrance). If you completed or quit the graduate school, submit the document with the date of your entrance (e.g. the transcript from the graduate school).
   c. Published academic papers etc. on research achievements, if any.
   d. Other documents （ ）
(2) Applicant who falls under the above（2）
   a. Certificate of Research Activities (The form attached to our admission guidelines must be used. [form-10])
   b. Published academic papers etc. on research achievements or other remarkable achievements, if any.
   c. Graduation Certificate or Completion Certificate issued by the final educational institution (including a junior college, an advanced vocational school or a vocational school, etc.) from which the applicant graduated.
   d. Academic transcript issued by the final educational institution (including a junior college, an advanced vocational school or a vocational school, etc.) from which the applicant graduated.
   e. Other documents （ ）

The curriculum vitae shall also be filled in.
履歴書 (Curriculum Vitae)

### Educational background (学歴)

<table>
<thead>
<tr>
<th>Name and Address of School (学校名及び所在地)</th>
<th>Year and Month of Entrance and Completion (入学及び卒業年月)</th>
<th>Duration of Attendances (修学年数)</th>
<th>Diploma or Degree awarded, Major Subject, Skipped years/levels (学位・資格、専門科目、飛び級の状況)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary Education (初等教育) Name (学校名)</td>
<td>From (入学)</td>
<td>Years (年)</td>
<td>Diploma</td>
</tr>
<tr>
<td>Elementary School (小学校) Address (所在地)</td>
<td>To (卒業)</td>
<td>and months (月)</td>
<td>Degree</td>
</tr>
<tr>
<td>Secondary Education (中等教育) Name (学校名)</td>
<td>From (入学)</td>
<td>Years (年)</td>
<td>Subject</td>
</tr>
<tr>
<td>Lower Secondary School (中学) Address (所在地)</td>
<td>To (卒業)</td>
<td>and months (月)</td>
<td></td>
</tr>
<tr>
<td>Upper Secondary School (高校) Name (学校名)</td>
<td>From (入学)</td>
<td>Years (年)</td>
<td></td>
</tr>
<tr>
<td>Address (所在地)</td>
<td>To (卒業)</td>
<td>and months (月)</td>
<td></td>
</tr>
<tr>
<td>Higher Education (高等教育) Name (学校名)</td>
<td>From (入学)</td>
<td>Years (年)</td>
<td>*-1</td>
</tr>
<tr>
<td>Undergraduate Level (大学) Address (所在地)</td>
<td>To (卒業)</td>
<td>and months (月)</td>
<td></td>
</tr>
<tr>
<td>Graduate Level (大学院) Name (学校名)</td>
<td>From (入学)</td>
<td>Years (年)</td>
<td></td>
</tr>
<tr>
<td>Address (所在地)</td>
<td>To (卒業)</td>
<td>and months (月)</td>
<td></td>
</tr>
</tbody>
</table>

Total number of years of the aforementioned schooling (以上を含めた全学校教育修学年数)
As of April 1, 2020 (2020年4月1日現在)

<table>
<thead>
<tr>
<th>僅者名前 (Name)</th>
</tr>
</thead>
<tbody>
<tr>
<td>出願者名前 (Name)</td>
</tr>
</tbody>
</table>

Employment History (Begin with the most recent employment history, if applicable.) (職歴)

<table>
<thead>
<tr>
<th>Name and Address of Employer (勤務先及び所在地)</th>
<th>Period of Employment (在職期間)</th>
<th>Position (役職名)</th>
<th>Type of Work (職務内容)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>To</td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>To</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*If the blanks above have not sufficient space to be filled in, write on another appropriate sheet and attach it.*

(注) 職歴欄に書き切れない場合には、適当な別紙に記入して添付すること。

Notes: 1. Exclude kindergarten education or nursery school. (幼稚園・保育所教育は除く。)
2. Preparatory education for university admission is included in upper secondary school. (大学予備校教育は上位学年に含む。)
3. If the applicant has passed the university entrance qualification examination, indicate this in the blank with *-1. (大学入試に合格している場合には、その旨を*-1欄に記入すること。)
4. Any school years or levels skipped should be indicated in the fourth column (Diploma or Degree awarded, Major Subject, Skipped years and levels). (Example: Graduated from high school in two years, etc.) (飛び級のある場合は、その旨を該当する教育課程の「学位・資格、専門科目、飛び級の状況」欄に記載すること。
(例：短期卒業)
## Certificate of Research Activities

| 国籍 (Nationality) |  
|-------------------|---|
| 氏名 (Name)       |  
| 生年月日 (Birth Date) |  

上記の者は、下記のとおり研究歴を有することを証明する。

This is to certify that the above person has research history as follows.

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>記 (The Description)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>在職した機関、部局名及び身分 (Institution and division for which he/she worked and his/her then status)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>研究期間 (Duration of Research)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>年月日から 年月日まで (年か月間) (Day) (Month) (Year) to (Day) (Month) (Year)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>研究题目及び研究内容 (Title and Outline of Research)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>指導教員 職名 氏名 (Name and Position of Academic Advisor)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>年月日 (Date)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>署名 (Signature)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>在の者 (Institution)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in Japanese</th>
<th>in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>所在地 (Address of Institution)</td>
<td></td>
</tr>
</tbody>
</table>

Note: A certifier shall be a head (e.g., President, Dean, or Director, etc.) of an organization. However, in the case of certifying a research history of our university graduate (including a student enrolled in our university), a supervisor may also serve as a certifier.
宛名票
Name and Address Card

◎ 志願者は本票を学生募集要項記載の出願書類と一緒に必ず提出してください。
◎ 謹書で丁寧に記入してください。
◎ 切りとり線で切り離して、そのまま提出してください。
(ホームページから用紙を入手した方は、そのまま記入してください。)
入試に関する確実な受付場所を記入してください。
場所がアパート、団地等の場合は「様方」の欄にアパート、団地名等記入してください。
※欄は記入しないでください。
◎ Applicant must submit this card with the application documents mentioned in the Admission
Guidelines.
◎ Fill in this card neatly and in the block style.
◎ Detach the sheet along the perforated line and submit it.
(If you obtained the form from the website fill in it.)

Fill in the place for receiving information about entrance examination without fail.
If the above place indicates a flat or a housing complex, etc., fill in the name of a flat or a
housing complex, etc. in the "c/o box".
Do not fill in the "*box."

左欄に、郵便番号、住所、氏名
を記入してください。
Fill in postal code, current address
and name in the left column.

左欄に、郵便番号、住所、氏名
を記入してください。
Fill in postal code, current address
and name in the left column.
周囲は群馬県の象徴である名勝赤城、榛名、妙義の上毛三山を浮彫りにして大学を囲み、群馬大学の象徴としています。

The above design of “大学 (kanji for university, called ‘daigaku’)” surrounded by the famous picturesque view of three carved mountains which comprise Mt. Akagi, Mt. Haruna, and Mt. Myogi and are called JOMO SANZAN symbolizing Gunma Prefecture is the emblem of Gunma University.