

## Master's Program in Medical Sciences

Name of the degree to be conferred	Master of Science in Medical Sciences
Educational purpose	Frontier medical science is an interdisciplinary area that covers broad areas such as basic medical sciences, clinical medicine, medical physics, translational research and regulatory science. Based on comprehensive fundamental education for medical science, this program shall provide education/research of practical and broad medicine-related areas that correspond to social needs and train the human resources who can play an active role in realization and maintenance of safe and healthy society as researchers/educators in universities or highly specialized professionals.
Vision of human resources development	<ul style="list-style-type: none"> <li>·The desired students shall be able to promote research in the area of medical science in educational research institutions such as universities and contribute to pioneering new area with fundamental knowledge of medical science in general and deep knowledge of area of expertise.</li> <li>·The human sources who engage in research development and medicine-related services in the corporations relating to medical care with fundamental knowledge of medical science and knowledge of expertised area that meets social needs.</li> <li>·The human resources who can contribute to safety of medical care and health promotion in medical institutions with fundamental knowledge of medical science and practical knowledge of expertised area.</li> </ul>
Competencies specified in diploma policy	Evaluation perspectives
1. Knowledge application competence: Ability to contribute to society with advanced knowledge	<ul style="list-style-type: none"> <li>①Can you apply knowledge gained through research and other activities in society?</li> <li>②Can you identify new problems, even in other fields of expertise, based on broad knowledge?</li> </ul>
2. Management competence: Ability to appropriately address challenges from broad standpoints	<ul style="list-style-type: none"> <li>①Can you take on major tasks with systematic planning?</li> <li>②Can you understand and solve problems from multiple perspectives?</li> </ul>
3. Communication competence: Ability to accurately and clearly communicate expert knowledge	<ul style="list-style-type: none"> <li>①Are you capable of efficient communication for research purposes?</li> <li>②Can you discuss research or research-specific knowledge with experts from your own field and from other fields?</li> </ul>
4. Teamwork competence: Ability to work with a team and actively contribute to the achievement of goals	<ul style="list-style-type: none"> <li>①Do you have experience cooperatively and actively working on challenges as part of a team?</li> <li>②Have you helped promote projects and activities other than your own research?</li> </ul>
5. Internationality competence: Willingness to contribute to international society	<ul style="list-style-type: none"> <li>①Are you aware of making contributions to international society and getting involved in international activities?</li> <li>②Have you obtained the linguistic skills necessary for international information collection and action?</li> </ul>
6. Ability to make use of basic knowledge: an ability to make use of fundamental knowledge of comprehensive medical science that covers basic medical sciences, clinical medicine and social physics.	If acquired knowledge related to medical science and an ability to make use of such knowledge.
7. Practical ability: highly specialized knowledge related to medical science and command of such knowledge.	If having acquired highly specialized knowledge related to medical science and command of such knowledge.
8. Research ability: an ability to conduct advanced research relating to medical science.	<ul style="list-style-type: none"> <li>①If capable of understanding cutting-edge research method and procedures of different areas and applying such method and procedures to research.</li> <li>②If capable of independently conduct information collection, system establishment and negotiation necessary to complete research.</li> </ul>
9. Ability to solve issues: an ability to extract and solve the issues in medical science based on deep specialized knowledge.	If capable of finding important issues based on the latest specialized knowledge in medical science and devise creative research.

10. Ethical view: High level of awareness and ethical view suitable for researchers/highly specialized professionals who engage in medical science.	①If having high level of awareness and motivation for medical science. ②If having ethical view and ethical knowledge suitable for researchers and highly specialized professionals in medicine.
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#### Dissertation evaluation criteria

The master's degree (medical science) shall be awarded to the person whose master's thesis is approved as valid regarding the following evaluation items and judged as a pass in final examination after satisfying the requirements prescribed in School Regulations of Tsukuba University.

The evaluation items shall be that:

1. the findings of research are qualitatively and quantitatively eligible for master's thesis.
2. the background of research is referred.
3. the purpose of research is clear.
4. the method of research follows its purpose.
5. the results of research are properly stated.
6. the consideration based on the results of research is appropriately provided.
7. the charts are accurately prepared.
8. the descriptions such as references and abbreviations etc. are accurate.
9. the students sufficiently understand the contents of master's thesis.
10. the students can accurately respond to questions and answer session.
11. the students have understood the research in the relevant areas.
12. there is no research misconduct such as falsification/fabrication or plagiarism in research data.

Research of master's thesis shall be supervised by multiple faculty members as "Dissertation in Medical Sciences". For the students who pass interim examination which shall be conducted from the latter half of the first year to the first half of the second year, the final examination shall be performed. The final examination shall consist of research presentation examination performed by three members of academic affairs committee in public presentation and individual examination performed by the members of master's thesis examination committee (one chief examiner and two sub chief examiners). Through consideration of results of such examination by the thesis examination committee and steering committee of Master's Program in Medical Science and Graduate School Steering Committee, the degree conferment shall be decided.

#### Curriculum Policy

Medical science is an interdisciplinary area that covers broad areas such as basic medical sciences, clinical medicine, medical physics, translational research and regulatory science etc. In the curriculum, students can learn comprehensive knowledge from basic to application necessary to correspond to social needs in these broad areas of medical science and develop research and pioneer new areas, and the knowledge necessary to contribute to safety of safety of medical care and health promotion in medical institutions etc.

Curriculum organization policy	Master's Program in Medical Sciences shall consist of General Foundation Subjects, Foundation Subjects for Major and Major Subjects. Students can learn the fundamental knowledge of medical science by Basic Subjects and Foundation Subjects for Major, and acquire competence in specialized areas according to their desired career path through the Major Subjects. Students shall learn more than 50 % of the General Foundation Subjects, Foundation Subjects for Major and Major Subjects in English. Consideration shall be given in order that international students can acquire the degree only in English. Additionally, students shall acquire comprehensive knowledge/culture of other than in one's own area of expertise and ethical view and cultivate an ability to contribute to human resource development of the next generation.
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Learning methods Processes	<p>The standard study schedule is as follows:</p> <ol style="list-style-type: none"> <li>1. In the first year, students shall take a large number of subjects to meet completion requirements other than Dissertation in Medical Sciences (master's thesis research).</li> <li>2. In the second year, students shall take the subjects to deepen knowledge of medical science centering on Dissertation in Medical Sciences (master's thesis research).</li> <li>3. In the presentation of research plan of the first part of the first year, each student shall present his/her future research plan of master's thesis.</li> <li>4. In the latter half of the first year, the members of master's thesis examination committee excluding research supervisor shall be selected (one chief examiner and two sub chief examiners) and interim individual examination shall be performed according to each student's progress status of research.</li> <li>5. In the beginning of the latter term in the second year, presentation of research outcomes shall be held, where the research outcomes shall be presented so far.</li> </ol>
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6. At the end of the second year, the final examination shall be performed. The final examination shall consist of research presentation examination performed by the members of academic affairs committee in public presentation and individual examination performed by the members of master's thesis examination committee for academic abilities.

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Evaluation of learning outcomes

1. The subjects other than Dissertation in Medical Sciences (master's thesis research) shall be evaluated in accordance with the evaluation methods described in the syllabus.
2. The final evaluation for Dissertation in Medical Sciences (master's thesis research) shall be performed by evaluating the following items of (1) to (4).
  - (1) Evaluation by presentation of research plan, interim individual examination, presentation of research outcomes and public presentation by members of academic affairs committee and public presentation.
  - (2) Evaluation in individual examination of master's thesis by the members of master's thesis examination committee.
  - (3) Evaluation by the supervisor of master's thesis.
  - (4) Evaluation in the presentation of academic conferences and presentation of research thesis.

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#### Admission Policy

Desired students

For this course, enrollment of the persons shall be required who have basic knowledge relating to medical science and motivation to actively perform research with an ability to logically analyze and creative and flexible idea. After enrollment, the students shall be required not only to learn fundamental knowledge of medical science and highly specialized knowledge, but also to have abilities to explore and independently solve various problems in their area of expertises they face from comprehensive perspective.

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Selection policy

- By conducting and comprehensively evaluating both written examination and oral examination, the entrants shall be selected.
- By written examination, English ability and basic knowledge related medical science shall be evaluated.
- By oral examination, an ability for logical analysis, an ability for creative and flexible idea and motivation for learning shall be evaluated.
- Both written and oral examination shall be performed either in Japanese or in English according to the applicants' desire.