

北陸先端科学技術大学院大学研究室教育指針  
Laboratory Education Guideline

研究室教育指針は、学則第30条の3に基づき、研究指導の方法及び内容並びに修了までの研究指導の計画をあらかじめ明示するものです。

Based on the Article 30-3 of the general academic rules, the Laboratory Education Guideline is intended to clearly outline the methods and content of research guidance, as well as the plan for research guidance until completion.

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1. 研究テーマ / Research Theme

Since harnessing fire, humanity has extended physical power through stone tools, externalized memory through writing, freed itself from manual labor through machinery, and automated calculation through computers. Now, in the AI era, machines can process and generate explicit knowledge. Throughout this evolution of tools, humans have also acquired the ability to fully utilize these tools.

What we explore is "Wild Knowledge." This is the totality of somatic, intuitive, and emotional knowledge that exists before theorization—a knowledge ecosystem where instinct, intuition, playfulness, and vitality are integrated and emerge unpredictably through interactions with the environment and others. Expert dancers, caregivers, and master craftspeople in manufacturing instantly generate optimal solutions even in situations not covered by manuals. This wild knowledge is the driving force that enables people to skillfully utilize tools and advance individual and societal growth and innovation.

At the heart of our research is collaborative abduction support technology powered by AI. Most phenomena in the world remain unsensed, and what gets datafied is selected by human awareness and intuition. Moreover, the grounding problem—connecting AI-generated information with human embodied understanding—remains unsolved. Therefore, we are conducting research in practical settings such as service and manufacturing industries, developing collaborative abduction support technology for forming and testing hypotheses about mind, body, and society. Through this, we visualize and structure the wild knowledge of experts, extend body and mind, and foster the emergence of new knowledge. This is research that engages people and co-creates new value in an era of change.

[Research areas] Artificial Intelligence, Knowledge Management, Service Engineering, Information Design, Health & Sports Science, Interaction, AR/VR

[Keywords] Wild Knowledge, Tacit Knowledge, Data Knowledge Structuring, Cognitive Science, Learning Support Systems, Intelligence Informatics, Systems Thinking, Ontology, Collaborative Abduction

[Job category of graduates] manufacturing, service industries, agriculture/fisheries, consulting, Industries that provide value through human interaction

2. 修得が期待される能力 / Competencies expected to be acquired

研究室教育は必修 A 科目（先端）又は研究支援科目（融合）の一部として単位化されており、この欄はそれら科目のシラバス上の達成目標の一部となります。

Laboratory Education is accredited as a part of the Required courses A (Division of Advanced Science and Technology) or Research Support Courses (Division of Transdisciplinary Sciences), and this section constitutes a part of the course goals stated in the syllabus for such subjects.

You will master data-knowledge structuring technology that elicits tacit knowledge from experts and visualizes it through multimedia, as well as collaborative abduction support technology that enhances human and societal intelligence, while advancing social practice through information design. Furthermore, just as experts explore knowledge through serious play, you will cultivate the ability to question the obvious, the flexibility to enjoy shifts in perspective, the courage to challenge new things, and the curiosity to continually find what you can be passionate about throughout your life. By developing ethical sensibility

as a researcher, social capabilities to collaborate with others, and the practical skills to implement research outcomes in society, you will become a talent with world-class research abilities and a comprehensive perspective, capable of taking initiative and innovating society.

### 3. 研究指導方針 / Research Guiding Principle-

Laboratory members will demonstrate exploration, co-creation, practice, and vision, aiming for knowledge pursuit that excites and inspires us together. To achieve this, we maintain an atmosphere where everyone can smile and help each other develop our strengths. Through active study and discussion, we broaden our perspectives by collaborating not only within the laboratory but also with other universities, research institutes, companies, and practitioners in service and manufacturing fields. We propose new technologies and methods, testing and refining them in practical settings. Without being swayed by others' metrics, we pursue research that moves us, driven by passion toward our own dreams, and cultivate the ability to question through our research. In this way, we grow into global leaders equipped with solid expertise in advanced science and technology, and the "resilient strength and co-creative power" to lead the new era.

### 4. 研究室活動の内容及び方法 / Content and Methods of Laboratory Activities

- Daily Activities: Core time (3+ days per week, 5+ hours per day)
- Weekly Activities: Ishikawa seminar (4+ hours per week), Lab cleaning and organization (once per week)
- Monthly Activities: Tokyo seminar (8+ hours per month)
- Occasional Activities: Individual meetings (personal research consultations, other students may join if not confidential), paper presentations, conference presentations, Ishikawa camp, Tokyo camp, inter-university collaborative camps, meetings with collaborative research companies, Ishikawa job hunting activities (internships, etc.), welcome/farewell parties, New Year's parties/year-end parties

### 5. 年間スケジュール / Annual Schedule

本学の全学共通の年間スケジュールは「履修案内」の「学位取得に至るスケジュール」を参照してください。(本学HP参照：ホーム>教育>履修関係>履修案内)

Please refer to the "Degree conferment schedule for the master's program/doctoral program" in the "Degree Completion Guide" for university-wide common schedule (JAIST website: Home > Education > Taking Courses > Degree Completion Guide)

#### Before Enrollment

Through seminars and individual guidance, you will learn related research and knowledge structuring methods while exploring novel research themes.

#### Months 1-3 After Enrollment

We support new students in establishing their daily life and academic routines. You will complete research ethics training. Master's students planning to seek employment will be supported in job hunting activities including internships alongside their studies.

Laboratory assignment is officially confirmed.

#### Months 4-6

While focusing on coursework and job hunting, you will discuss your research concept. Through seminars and assisting senior students' research, you will learn practically while surveying related work and concretizing novel research content.

#### Months 7-9

At the research retreat, you will gain detailed understanding of senior students' research. You will present and refine your research proposal through repeated discussions in seminars.

#### Months 10-12

You will finalize your research plan, establish experimental methods, submit ethics applications, and conduct preliminary experiments. Based on these results, you will further refine your research proposal.

#### Months 13-18

You will conduct main experiments and data analysis. Through interim presentations, you will receive advice from other faculty members and experience conference presentations and journal submissions. In seminars and retreats, you will transition to advising junior students' research.

Months 19-21

You will complete the first draft of your master's thesis and continue refinement.