

## List of Syllabi for Common Graduate School Subjects (FY2024)

Classification:

①Advanced liberal arts education at the graduate level ②Cultivation of skills necessary in modern society, such as AI, mathematics, and data education

③ Education to improve research skills such as English and presentations ④Cultivation of wide-ranging skills such as transferable skills ⑤ Education on ethical, legal, and social issues (ELSI)

Course Title (Japanese)	Class Subject	Credits	Instructors	Curricula	Terms	Day of the week	lecture period	Language used in courses	Classification ①~⑤	Object and Summary of Class
Intellectual Property seminar (知的財産セミナー)	Patent System and Patent Searches	2	戸次 一夫 KAZUO BEKKI	Master's Program	2nd Term	Thurs.	3	Japanese	①④ ⑤	In this class, students will first learn about the relationship between the patent system and the realization of inventions into products and services. Obtaining and utilizing patent information is required in various situations, such as analyzing information for new research and development, obtaining strong and broad patent rights, warning suspected infringers of patent rights, and avoiding infringement of patent rights. The purpose of this class is to help students understand the structure of the patent system and acquire the ability to obtain and utilize patent information. In this class, students will first understand the structure of the patent system and its major rules, and learn when and why patent searches are necessary. After that, students will learn specific methods of patent search and acquire practical patent search skills and basic IP strategy planning skills by working on exercises. This class will also cover recent topics such as the relationship between corporate management and patent information.
Lectures on Interdisciplinary Researches (融合領域研究合同講義)	Lectures on Interdisciplinary Researches	2	日笠 健一 他 KEN-ICHI HIKASA, et al.	Master's Program	2nd Term	Wed.	3	Japanese	①	(Japanese only) 学際的・異分野融合的研究領域の進展に伴い、学際的な視野を持つ優れた若手研究者を養成するために、東北大学を代表する研究者に1回ずつ問題意識、ブレイクスルー、先端的研究事例、研究経緯、体験談等を語ってもらうことにより、最新の学問の進展を俯瞰的に理解し、学際的・横断的な視野の重要性を体感する。
Special Seminar on Multicultural Understanding PBL (多文化理解PBL特別演習)	Special Seminar on Multicultural Understanding PBL	2	未松 和子 KAZUKO SUEMATSU	Master's Program	1st Term	Wed.	2	Japanese	①④ ⑤	This class provides both international and domestic students with opportunities to learn from each other through thematic discussions and collaborative projects. Interactions among students from diverse linguistic and cultural backgrounds are built into the learner-centered lessons where different ways of thinking, values, communication as well as working-styles are embraced in this class. The class will be conducted in Japanese, but English can be used as supplement.
Intercultural Collaborative Learning and Communication Seminar (グローバル・コミュニケーション 協働演習)	Special Seminar on Multicultural Understanding PBL	2	未松 和子 KAZUKO SUEMATSU	Master's Program	1st Term ・ 2nd Term	Wed.	5	English	③④	Collaborative projects by students with diverse cultural backgrounds are built into the learner-centered lessons where different ways of thinking, values, communication as well as working-styles are respected. The intensive interactions across cultures enable students to develop global competency, which is an essential element of employability in the international society. The theme of this semester is "Owarai," the Japanese comedy. The class will be conducted in English,
Internship for Master Course Students A (修士インターンシップ・ キャリア実習A)	Internship for Master Course Students A	1	猪股歳之 TOSHIYUKI INOMATA	Master's Program	3rd Quarter	Thurs.	5	Japanese	④	The purpose of this course is for students to participate in an internship while enrolled in the master's program, clarify their interests and future careers, and further enrich their student life and research efforts.

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Internship for Master Course Students B (修士インターンシップ・ キャリア実習B)	Internship for Master Course Students B	2	猪股歳之 TOSHIYUKI INOMATA	Master's Program	3rd Quarter	Thurs.	5	Japanese	④	The purpose of this course is for students to participate in an internship while enrolled in the master's program, clarify their interests and future careers, and further enrich their student life and research efforts.
Teaching Development in Higher Education (大学教授法開発論)	Teaching Development in Higher Education	2	戸村 理 OSAMU TOMURA	Doctoral Program	1st Quarter ・ 3rd Quarter	Wed.	3・4	Japanese	①④	The purpose of this class is twofold. The first is to provide graduate students of our university who wish to become teachers in Japanese universities and higher education institutions with the basic knowledge required in modern Japanese university education and higher education. The second is for the students to acquire self-reflection skills to analyze, design, develop, implement, and evaluate their own classes.
Special Lectures on Interdisciplinary Researches I (学際研究特別講義I)	Special Lectures on Interdisciplinary Researches I	1	日笠 健一 他 KEN-ICHI HIKASA, et al.	Doctoral Program	3rd Quarter	Wed.	3	Japanese	①	(Japanese only) 東北大学を代表する研究者に1回ずつ問題意識、ブレークスルー、先端的研究事例、研究経緯、体験談等を語ってもらうことにより、最新の学問の進展を俯瞰的に理解する。これにより学際的・横串的な視野の重要性を体感するとともに、アカデミックなキャリアを追求する上でのヒントを得る。
Special Lectures on Interdisciplinary Researches II (学際研究特別講義II)	Special Lectures on Interdisciplinary Researches II	1	日笠 健一 他 KEN-ICHI HIKASA, et al.	Doctoral Program	4th Quarter	Wed.	3	Japanese	①	(Japanese only) 学際研究特別講義Iに引き続き、東北大学を代表する研究者に1回ずつ問題意識、ブレークスルー、先端的研究事例、研究経緯、体験談等を語ってもらうことにより、最新の学問の進展を俯瞰的に理解する。これにより学際的・横串的な視野の重要性を体感するとともに、アカデミックなキャリアを追求する上でのヒントを得る。
Special Exercise on Interdisciplinary Researches I (学際研究特別研修I)	Special Exercise on Interdisciplinary Researches I	1	日笠 健一 他 KEN-ICHI HIKASA, et al.	Doctoral Program	year round	Designa ted date	—	Japanese	①③	(Japanese only) 学際高等研究教育院が学際科学フロンティア研究所と協力して開催する全領域合同研究交流会および FRIS/DIARE Joint Workshop において、自分の研究内容を異分野の学生・研究者に理解できるよう工夫された発表を行い、専門外の視点からの質問・議論により、発表者も含め、理解を深化させる。
Special Exercise on Interdisciplinary Researches II (学際研究特別研修II)	Special Exercise on Interdisciplinary Researches II	1	日笠 健一 他 KEN-ICHI HIKASA, et al.	Doctoral Program	year round	Designa ted date	—	Japanese	①③	(Japanese only) 学際研究特別研修Iに引き続き、学際高等研究教育院が学際科学フロンティア研究所と協力して開催する全領域合同研究交流会および FRIS/DIARE Joint Workshop において、自分の研究内容を異分野の学生・研究者に理解できるよう工夫された発表を行い、専門外の視点からの質問・議論により、発表者も含め、理解を深化させる。
Special Exercise on Interdisciplinary Researches III (学際研究特別研修III)	Special Exercise on Interdisciplinary Researches III	1	日笠 健一 他 KEN-ICHI HIKASA, et al.	Doctoral Program	year round	Designa ted date	—	Japanese	①③	(Japanese only) 学際研究特別研修IIに引き続き、学際高等研究教育院が学際科学フロンティア研究所と協力して開催する全領域合同研究交流会および FRIS/DIARE Joint Workshop において、自分の研究内容を異分野の学生・研究者に理解できるよう工夫された発表を行い、専門外の視点からの質問・議論により、発表者も含め、理解を深化させる。

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Special Exercise on Interdisciplinary Researches IV (学際研究特別研修IV)	Special Exercise on Interdisciplinary Researches IV	1	日笠 健一 他 KEN-ICHI HIKASA, et al.	Doctoral Program	year round	Designa ted date	—	Japanese	①③	(Japanese only) 学際研究特別研修IIIに引き続き、学際高等教育院が学際科学フロンティア研究所と協力して開催する全領域合同研究交流会および FRIS/DIARE Joint Workshop において、自分の研究内容を異分野の学生・研究者に理解できるよう工夫された発表を行い、専門外の視点からの質問・議論により、発表者も含め、理解を深化させる。
Special Exercise for Frontier Research in Interdisciplinary Sciences (学際フロンティア特別研修)	Special Exercise for Frontier Research in Interdisciplinary Sciences	1	日笠 健一 他 KEN-ICHI HIKASA, et al.	Doctoral Program	year round	Designa ted date	—	Japanese English	①	(Japanese only) 自然科学、人文社会科学の様々な研究分野をカバーする学際科学フロンティア研究所の教員による研究発表セミナー。様々な分野の第一線で活躍する若手研究者による分かりやすい最新研究成果の紹介を聞き、討論に参加する。これにより俯瞰的・学際的な視野を養う。
Basic PhD Literacy (博士リテラシーの基礎)	Basic Ph.D. Literacy	2	安藤 晃・ 工藤 成史 AKIRA ANDO・ SEISHI KUDO	Doctoral Program	1st Term ・ 2nd Term	Tue.	1・2	Japanese (English available)	④⑤	In this course, Ph.D. literacy is viewed as a comprehensive ability to survive as a doctor (as a researcher and as a person). At its core is the ability to conduct research (research capability). This includes the ability to come up with ideas and use logic. The research capability is refined mainly through daily life in the laboratory. And most of them can be used across disciplines. This course will start with an awareness of this fact. Further, there are some additional qualities and capabilities that you will need after you obtain your degree, irrespective of whether you go into academia or business. They are those that involve people-to-people relationships. The first ones are the ability to communicate with the people close to you and the management skills to execute projects. In the main part of this course, we aim to raise the level of these qualities and capabilities. It also aims to arouse your awareness of issues ranging from personal to global and to provide an opportunity for students in different fields to build new human networks.
Doctoral Internship (博士インターンシップ研修)	Doctoral Internship	1or2 *Depend s on the period.	安藤 晃・ 工藤 成史 AKIRA ANDO・ SEISHI KUDO	Doctoral Program	year round	Designa ted date	—	Japanese	④	During the doctoral program, students will undertake a research internship in the form of practical training at a research institute or private company in Japan. Through this internship, students learn to utilize their university research and doctoral abilities in society. In addition, they gain hands-on experience and understanding of product planning and development, market research, and quality control in the corporate. The research internship conducted by concluding an agreement between the training site and the University is the subject of this course.
Renweable energy : Biomass circulation (再生エネルギー・バイオマス循環)	Renewable energy : Biomass circulation	2	多田 千佳 CHIKA TADA	Master's Program, Doctoral Program	1st Term	Thurs.	2	Japanese	⑤	(Japanese only) 再生可能エネルギーの中でも、特に、バイオマスエネルギーに注目し、その技術や社会実装について、座学、実験、現場体験、グループディスカッションを行いながら、バイオマス循環について理解を深める。

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Special Seminar on Multicultural Understanding PBL (多文化理解PBL特別演習)	Human Rights Education Seminar	2	高松 美能 MINO TAKAMATSU	Master's Program, Doctoral Program	2nd Term	Thurs.	3	English	①③	The aim of this course is to apply the knowledge about human rights to analyze various topics, to argue and to write about human rights issues from personal perspectives, and to develop a plan to take action for human rights in reality. We will try to create a classroom environment, where students study with each other and each of our views is heard and taken into consideration. You are highly expected to participate as a facilitator in group discussions, and lead to make the group presentations.
Special Seminar on Career and Skill Development (キャリア・スキル開発特別演習)	Seminar on Career and Skill Development	2	米澤 由香子 YUKAKO YONEZAWA	Master's Program, Doctoral Program	2nd Term	Mon.	5	English	③④	In this course, students will learn the basic knowledge, skills and attitudes that are needed to create their own careers, by viewing careers as a lifelong process of continuous learning and action. The course will promote students to: (1) learn from guest speakers with a variety of cultural, linguistic, educational and professional backgrounds in order to gain knowledge and information that will be useful in shaping their own career perspectives; (2) engage in collaborative learning with other students in order to understand the significance of working together; and (3) review the results of their learning by providing presentations and writing reports in order to reflect the results of their studies, set career goals, and take concrete action. As this course is offered jointly with a course for undergraduate students, postgraduate students are expected to take a leading role in dialogue and discussion with undergraduate domestic and international students, with the aim of developing their leadership skills.
Special Seminar on Career and Skill Development (キャリア・スキル開発特別演習)	Seminar on Employment Practice Comparisons	2	未松 千秋 CHIAKI SUEMATSU	Master's Program, Doctoral Program	2nd Term	Thurs.	2	English	③④	The goal of the course is to make students understand the basic principles of Japanese employment practices. By reading a textbook written by an English author and the lectures, the students are also expected to judge advantages and disadvantages of employment practices in other nations. Two main objectives of the course are to understand the rationales for changes in the practices for the past 20 years and to get an insight into the direction where the Japanese employment practices will be heading for. The graduate students are to take leading roles in the group discussions with undergraduate students and international students, which will help them strengthen the administrative ability and the leadership.
Special Seminar on Career and Skill Development (キャリア・スキル開発特別演習)	Seminar on Corporate Decision-Making Comparisons	2	未松 千秋 CHIAKI SUEMATSU	Master's Program, Doctoral Program	1st Term	Thurs.	2	English	③④	The goal of the course is to make students understand the basic principles of consensus decision-making. By reading a textbook written by an English author and the lectures, the students are also expected to work as an effective facilitator who feels comfortable in leading discussions carried out by Japanese people and in conducting meetings in other nations, especially those in their home country. The graduate students are to take leading roles in the group discussions with undergraduate students and international students, which will help them strengthen the administrative ability and the leadership.

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Intercultural Collaborative Learning and Communication Seminar (グローバル・コミュニケーション協働演習)	Practicing Intercultural Communication Education with Performance	2	中野 遼子 RYOKO NAKANO	Master's Program, Doctoral Program	1st Term	Tue.	4	English	①④	In this class students will develop an understanding of intercultural communication studies and through group work, group discussion and workshops recognize the complications and difficulties that arise in communication. Theatrical workshops by Renryo sensei (professional writer, director, actor) and other guest speakers, and tasks of creating performances and discussions with classmates will be given in the class, and you will gain real experiences in intercultural communication, considering ways to resolve problems. During the spring semester students will focus on problems in intercultural relationships that can be compared with our own personal networks. At the end of the class this will be demonstrated in performances. In the process of creating a performance students will think comprehensively about skills for communication.  Students who participate in this class as graduate students are expected to acquire the ability to design intercultural communication as a facilitator by observing communication in the classroom at a meta-level and facilitating interactions among participants in group work and workshops.
Intercultural Collaborative Learning and Communication Seminar (グローバル・コミュニケーション協働演習)	Practicing Language Communication Education with Performance	2	中野 遼子 RYOKO NAKANO	Master's Program, Doctoral Program	2nd Term	Tue.	4	English	①④	In this class students will develop an understanding of intercultural communication studies and through group work and workshops recognize the complications and difficulties that arise in communication. Theatrical workshops by Renryo (professional writer, director, actor) and other guest speakers, and tasks of creating performances and discussions with classmates will be given in the class, and students will gain experiences in intercultural communication and resolving problems. During the fall semester students will focus on problems regarding language communication which arise in intercultural situations.  Students who participate in this class as graduate students are expected to acquire the ability to design intercultural communication as a facilitator by observing communication in the classroom at a meta-level and facilitating interactions among participants in group work and workshops.
Global Studies of International Education (国際教育演習)	Global Studies of Higher Education	2	米澤 彰純 AKIYOSHI YONEZAWA	Master's Program, Doctoral Program	1st Term	Mon.	2	English	①③	This course is intended to generate a comprehensive understanding of the global context of universities in Japan and the world. Universities and higher education play an essential role in contemporary knowledge-based societies. At the same time, the characteristics of current universities are inevitably linked with their historical contexts, issues of access and equity, and mobility perceived as brain gain/drain and brain circulation. This class covers the following topics: (1) historical origins and current trends of higher education, (2) access, equity and finance in higher education, (3) knowledge economy and higher education, and (4) international dimensions of higher education. Across these topics, participants are expected to examine the role and value of universities in Japan and the world. Postgraduate level studies on the realities of universities with various education and research levels are expected.
ILAS Special Lecture A (教養教育院特別講義A)	memento mori	2	尾崎 彰宏 AKIHIRO OZAKI	Master's Program, Doctoral Program	1st Term	Tue.	5	Japanese	①	(Japanese only) 人文社会科学分野の第一線で活躍している12人の講師を招き、死をめぐる諸問題と関連する毎回異なるテーマの講演の後、受講生とのディスカッションを行う。受講生からの質問や意見を手掛かりに自由な討論を行い、俯瞰的視野から自身の研究と人生に対する省察を得る。特に博士課程ではさらに得られた学際的視点を自身の研究にフィードバックする。

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ILAS Special Lecture B (教養教育院特別講義B)	Mathematical Modelling Methods and Applications	2	田中 仁 HITOSHI TANAKA	Master's Program, Doctoral Program	2nd Term	Tue.	4	Japanese English	①②	Various mathematical models have been widely utilized in science. In this lecture, we will extract the elements common to these mathematical methods, explain their analytical solutions from a general view point, and discuss the effectiveness and limitations of the models. In addition, a method of numerical solution using a spreadsheet program will be introduced. As a specific example of mathematical model, topics of deep social interest will be employed. The aim of this course is to deepen a mathematical viewpoint and strengthen the ability to use a mathematical model in various situations. It is expected that the students, especially Ph.D. students, will be able to feed back the acquired interdisciplinary perspectives into their own research activity.
ILAS Special Seminar (教養教育院特別演習)	Practical Methods and Issues in SDGs and Humanities Sciences	2	尾崎 彰宏 AKIHIRO OZAKI	Master's Program, Doctoral Program	2nd Term	Mon.	5	Japanese	①	(Japanese only) 近年、SDGsがさまざまな所で話題となっている。ここでは、専門分野的な見地から、SDGsに深く関わる研究を紹介し、それに基づき参加者が調査・発表を行い、学問のめざすべき目標、使命を考察することにより理解を深める。特に博士課程ではさらに得られた学際的視点を自身の研究にフィードバックする。