[Title]				[Instructor]		
Research Ethics				Ryu Kojima		
[Code]	[Credits]	[Program]		[Semester]	[Hours]	[Language of instruction]
GSC501 D	1	Graduate School Common Courses		Intensive	／	English

[Outline and purpose]

The Purpose of the Course and its Overview

In this course, we would like to discuss the role of natural scientists in contemporary society from a multidimensional perspective.

It is evident that contemporary society has greatly benefited from the achievement of science and technology. In order to be responsive to societal support, the accomplishment of scientific research and the publication of research results should be made in a fair and accountable manner. This is the issue of "Research Ethics" or "Research Integrity".

Various innovations derived from scientific research also provide a variety of benefits which improves our quality of life. It is now presumed that various "smart technologies" including AI, Big Data, Robotics, Internet of Things (IoT), etc. will dramatically change our lives and society in the near future.

However, technological innovation inevitably accompanies disruption, which creates uncertainties and risks. If we cannot properly control such uncertainties, new technologies and innovation will not be empathically received throughout the society. This is the issue of "Science, Technology and Innovation (STI) Policy."

In Europe, for example, the concept of "Responsible Research and Innovation (RRI)" has been discussed. RRI "implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society." (https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation) In the United States and Japan, similar concept such as "Responsible Innovation" has been also argued.

Currently, the regulation of the implementation of "smart technologies" is becoming more and more difficult, because regulatory framework cannot catch up with rapid advancement such as the proliferation of various global "platforms" to develop their business relying on these "smart technologies".

Standing on the verge of complex "smart societies", it is obvious that natural scientists are more expected than ever to collaborate various actors in the society including policymakers, lawyers, civil society, etc. to find out and give solutions to minimize uncertainties. This is the reason why we need to learn from the discussion of RRI.

[Objectives]

The goals of this class are as follows:
(1) To acquire basis knowledge of "Research Ethics", and "Science, Technology, Innovation (STI) Policy."
(2) To be able to critically examine the role of natural scientists in contemporary society.

[Requirements]

This course will meet intensively between February 12th and 14th, 2020. Participants are expected to read assignments beforehand, and to be actively engaged in class participation. At the end of the course, all participants are expected to make 3 minutes' presentation.

[Evaluation]

50 % Submission of the report
20 % Class attendance and contribution
30 % 3 minutes' presentation (like TED Talks)

[Textbooks]

1.Science Council of Japan (SCJ), Statement: Code of Conduct for Scientists –Revised Version– (2013), (available at http://www.scj.go.jp/en/report/Code_of_Conduct_for_Scientists.pdf and http://www.scj.go.jp/en/report/Code_of_Conduct_for_Scientists-Revised_version.pdf)
2.Committee on Science, Engineering, and Public Policy, National Academy of Science, National Academy of Engineering, and Institute of Medicine of the National Academies, On Being a Scientist: A Guide to Responsible Conduct in Research (3rd ed., National Academies Press 2009) available at https://www.nap.edu/catalog/12192/on-being-a-scientist-a-guide-to-responsible-conduct-in
3.Kathi E. Hanna, The Ethical, Legal, and Social Implications Program of the National Center for Human Genome Research: A Missed Opportunity?, in Ruth Ellen Bulger, Elizabeth Meyer Bobby and Harvey V. Fineberg (eds.), Society's Choices: Social and Ethical Decision Making in Biomedicine (National Academies Press 1995), pp.432-457 available at https://www.nap.edu/catalog/4771/societys-choices-social-and-ethical-decision-making-in-biomedicine

4.RRI Tools, A practical guide to Responsible Research and Innovation: Key Lessons from RRI Tools (2016),
(available   at
https://www.rri-tools.eu/-/rri-tools-a-practical-guide-to-responsible-research-and-innovation-key-lessons-from-rri-tools-)

[References]

1.Lawrence Lessig, Code: And Other Laws of Cyberspace, Version 2.0 (2nd Revised ed, Basic Books 2006),
(available at http://codev2.cc/download+remix/Lessig-Codev2.pdf)
2.OECD Science, Technology and Innovation Outlook 2018: Adapting to Technological and Societal Disruption (320
pages including tables and figures),
(available at https://www.oecd.org/sti/oecd-science-technology-and-innovation-outlook-25186167.htm)

[Schedule]

1. Orientation of the course
2. Research Ethics (Code of Conduct for Scientists, and On Being a Scientist, pp.1-23)
3. Research Ethics (On Being a Scientist, pp.24-48)
4. Ethical, Legal and Social Issues (ELSI) (The article of Kathi E. Hanna)
5. Responsible Research and Innovation (RRI) (A practical guide to Responsible Research and Innovation, pp.1-31)
6. Responsible Research and Innovation (RRI) (A practical guide to Responsible Research and Innovation, pp.33-57)
7. Students" Presentation and Q&A session
8. Students" Presentation and Q&A session

[Title]	[Instructor]
Communications in Sciences	Masanori Hanawa

[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
GSC503 E	1	Graduate School Common Courses	Intensive	／	Japanese／English

[Outline and purpose]

Nowadays, it is important communicating politely with non-professionals and gaining understanding on the importance of science or engineering, and outcomes from research activities. In this class, communication methodologies are discussed to gain skills for expression and negotiation as internationally reliable professional. Participants give presentations appealing their own research activities and those are peer-reviewed among participants.

[Objectives]

- Being able to explain importance of the science communications
- Being able to prepare presentations standing in audience shoes
- Being able to give scientific/technical presentations in English

[Requirements]

- Being able to read logical articles written in English
- Owing scientific/technical contents on own research activities

[Evaluation]

Story, logic and the ease of understanding of given presentation are evaluated

[Textbooks]

Kyota Ko，Simon Gillett／著・近藤科江，山口雄輝／監，テツヤ、ディスカッションしようか，羊土社，ISBN:978-4-7581-0846-1
愛場吉子, 英語のプレゼン　直前 5 日間の技術, アルク, ISBN:978-4-7574-2492-0

[References]

[Schedule]

1. Introduction to Science Communication
2. English expression for scientific/technical discussion (1): How to design a scientific/technical presentation
3. English expression for scientific/technical discussion (2): Making bold outline using paper cards
4. English expression for scientific/technical discussion (3): Making slides being able to transfer messages
5. English expression for scientific/technical discussion (4): Choosing expressions for better presentation
6. Presentations in English and peer-reviews (1)
7. Presentations in English and peer-reviews (2)
8. Summary

[Title]				[Instructor]		
Communications in Sciences				All academic supervisors		
[Code]	[Credits]	[Program]		[Semester]	[Hours]	[Language of instruction]
GSC503 F	1	Graduate School Common Courses		Intensive	／	Japanese／English

[Outline and purpose]

It is becoming increasingly important to correctly communicate the importance of science and the results of research to non-specialists. In this lecture, students will learn the methodology of communication in order to improve their ability to express and negotiate as a highly-skilled professional, and to improve their international acceptance and credibility. Students will be required to make presentations of their research to others and evaluate each other's presentations in order to develop communication skills. Oral presentations and writing papers in English will also be taught.

[Objectives]

To understand the importance of science communication and to be able to think about the content of presentations from the standpoint of others.
To learn practical English in the field of science and technology and to be able to give presentations in English.

[Requirements]

[Evaluation]

Students will be evaluated on the content of their presentations

[Textbooks]

[References]

[Schedule]

1. The importance of science communication
2. English expressions for discussion (1), Introduction and structure of presentation
3. English expressions for discussion (2), Making slides (1)
4. English expressions for theory (3), Making slides (2)
5. English expressions of theory (4), Final check of presentation
6. Presentation in English and peer evaluation (1)
7. Presentation in English and peer evaluation (2)
8. Conclusion

[Title]				[Instructor]		
Communications in Sciences				Lianhua Jin		
[Code]	[Credits]	[Program]		[Semester]	[Hours]	[Language of instruction]
GSC503 G	1	Graduate School Common Courses		Intensive	／	Japanese／English

[Outline and purpose]

・Introduce the importance of communications in scientific fields.
・Instruct the difference and analogy between communications in science and those in other fields.
・Students can practice scientific communications in English.

[Objectives]

This lecture aims to instruct students how to express scientific topics by using several tools, especially English.

[Requirements]

All students need to prepare scientific or social topics for each lesson, and discuss each other in English.
Afterwards, each person presents his/her own research work in English.

[Evaluation]

Evaluate toward scientific presentation and English communication.

[Textbooks]

None

[References]

None

[Schedule]

1. Introduction
2. Express scientific topics in Japanese, English, and other tools (1)
3. Express scientific topics in Japanese, English, and other tools (2)
4. Introduce his/her own research work in Japanese and English (1)
5. Introduce his/her own research work in Japanese and English (2)
6. Practice presentations in English
7. Practice presentations in English
8. Summary

[Title]				[Instructor]		
Communications in Sciences				each academic supervisors		
[Code]	[Credits]	[Program]		[Semester]	[Hours]	[Language of instruction]
GSC503 I	1	Graduate School Common Courses		Intensive	／	English/ Japanese

[Outline and purpose]

It is increasingly important to properly communicate the value of science and the results of research to people who are not experts. In this lecture, students will learn the communication methodology to refine expression capabilities and negotiation abilities as professionals and improve international versatility and reliability. Specifically, students will develop presentations in English to convey their research contents to others and develop communication skills by mutually evaluating the contents.

[Objectives]

Understand the importance of science communication and prepare the presentation materials from audience viewpoint.
Learn practical English in the field of science and technology and develop presentation materials in English.

[Requirements]

Lecture on knowledge and expression techniques necessary for English expression in science and technology fields.
Practice communication necessary for discussion in English.
Solve a given task and present it in English.

[Evaluation]

Presentation and others (100%) Efforts on exercises such as presentation will be evaluated.

[Textbooks]

[References]

[Schedule]

[Title]				[Instructor]		
Communications in Sciences				Kei Nishida		
[Code]	[Credits]	[Program]		[Semester]	[Hours]	[Language of instruction]
GSC503 D	1	Graduate School Common Courses		Intensive	／	Japanese／English

[Outline and purpose]

It is becoming increasingly important to correctly communicate the importance of science and the results of research to non-specialists. In this lecture, students will learn the methodology of communication in order to improve their ability to express and negotiate as a highly-skilled professional, and to improve their international acceptance and credibility. Students will be required to make presentations to communicate their research to others and evaluate each other's presentations in order to develop communication skills. Oral presentations and writing papers in English will also be taught.

[Objectives]

- Understand the importance of science communication and be able to think about the content of presentations from the standpoint of others.
- To learn practical English in the field of science and technology, and to be able to give presentations in English.

[Requirements]

- This course is designed to provide students with the knowledge and skills necessary to express themselves in scientific English.
- Practice communication skills necessary for discussions in English.
- Students will research a given topic and make a presentation in English.

[Evaluation]

Presentations (10%): Evaluation on the content of their presentations in their approach to exercises such as presentations.

[Textbooks]

Nothing special

[References]

Nothing special

[Schedule]

1. Importance of science communication
2. English expressions for discussion (1): Presentation Structure and Introduction
3. English expressions for discussion (2): Making slides (1)
4. English expressions for theory (3): Making slides (2)
5. English expressions of theory (4): Final check of presentation
6. Presentation in English and peer evaluation (1)
7. Presentation in English and peer evaluation (2)
8. Summary