COMMUNICATION SKILLS FOR RESEARCHERS – WRITING –

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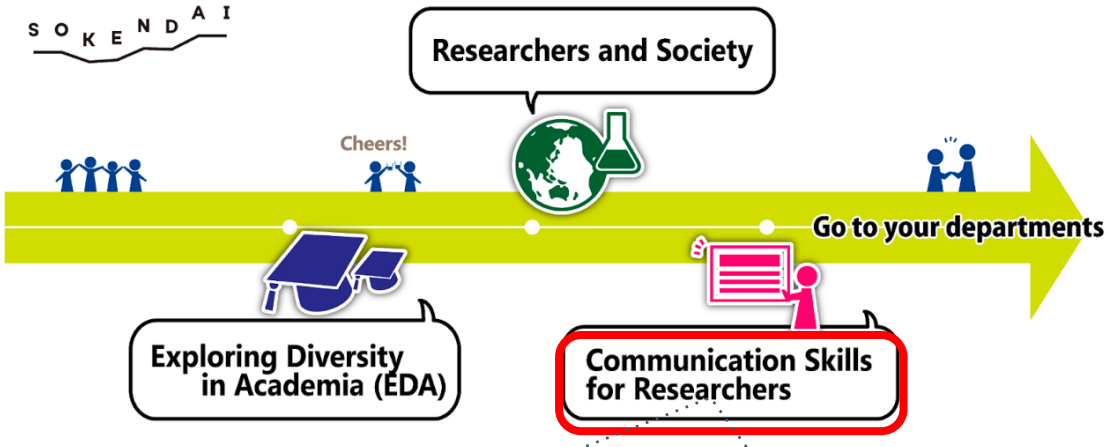
00 Introduction

In this *"Communication Skills for Researchers"* section of the Freshman Course, you will learn "writing" and "presentation" skills necessary for researchers.



To receive credit for completion of the FC course, you must take either "Communication Skills for Researchers (English)" or "研究者のための"伝える"技術(日本語)".
Optionally, you may take both courses.

This material is the **writing** portion of "Communication Skills for Researchers (English)".

[How to proceed]
Please follow the instructions in this Word file.

The course material contains 6 Lecture sections（PDF） and 4 Practice exercises（Google Forms）.

Submission of the 4 Practice exercises is required for completion of this material.

Videos of lecture for each section, taken from past online classes, are also provided. Watching the videos is not required, but they are available for additional reference.

Please proceed at your own pace.

[Course Flow]

- Download and read the "Lecture files" in sections 01 and 02.
- Work on Practice1.

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- Download and read the "Lecture file" in section 03.
- Work on Practice2.

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- Download and read the "Lecture file" in section 04.
- Work on Practice3.

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- Download and read the "Lecture files" in sections 05 and 06.
- Work on Practice4.

[Questions]
If you have any questions while studying this material, please contact us via the following form. If the link does not work, please copy and paste the following url into your browser: https://forms.gle/K4admuuiuKUJJ2n1A

Click here to submit questions

Let's begin!

01 Goals and Writing Structure

This section will introduce the goals for this course and talk about important concepts related to basic writing structure. It will also discuss what aspects of writing are needed to make something easy to understand for a reader.

DOWNLOAD Lecture files

Lecture files	01 Goals and Structure (English).pdf ※ or 01 Goals and Structure (日本語).pdf ※
Lecture video	01 Goals and Structure

※The lecture contents of both files are identical; only slide visuals will change.

02 Making the Message Clear - Topic Sentences

This section will talk about the role and importance of topic sentences in writing.

DOWNLOAD Lecture files

Lecture files	02 Topic Sentences (English).pdf or 02 Topic Sentences (日本語).pdf
Lecture video	02 Topic Sentences

Proceed to Practice 1.

Practice 1 - Topic Sentences

Instructions: Break this large paragraph into 4 or 5 smaller ones in order to make it easier for the reader to find the message of each section. Each paragraph should have a topic sentence pointing to its goal.
Examples of topics for each paragraph: astrocytes influence brain development, methods, findings, applications/treatments

Astrocytes exert profound effects on neuronal development as they provide support for neuronal survival, axon and dendrite outgrowth, and synaptogenesis. Such effects are largely mediated by a variety of factors that are expressed in and released by astrocytes. Numerous studies have shown that astrocytes promote neuritogenesis and synaptogenesis in neurons, and that oxidative stress impairs their ability to promote neurite outgrowth. To investigate the role of astroglia in the development of abnormal neurobiology in Down's syndrome (DS), we reprogrammed DS patient fibroblasts to induced pluripotent stem cells (iPSCs) and subsequently differentiated these disease-specific human iPSCs to astroglia (DS astroglia) and neurons (DS neurons) in high purity. Taking advantage of this unique in vitro iPSC-based neural differentiation model for DS, we dissected the pathological phenotypes of DS neurons and DS astoglia, and examined the interaction between DS astroglia and DS neurons or neural progenitor cells (NPCs) by exposing them to DS astroglia secreted factors. We demonstrated that S100B preferentially and markedly accumulated in DS astroglia, where it caused astroglial dysfunction and oxidative stress without affecting astroglial viability. Furthermore, we showed that DS astroglia negatively interact with DS neurons in regard to the regulation of neurite outgrowth, neuronal ion channel maturation, synaptic activity formation and non-cell-autonomous toxic effects on neurons. In addition, we transplanted DS iPSC-derived astroglia into neonatal brain and provided in vivo evidence further supporting that defects or alteration of astroglial function contributed to the impaired brain function in DS. We also explored potential therapeutic strategies based on modulating the function of iPSC- derived astroglia. We found that minocycline, a clinically available antibiotic drug that shows neuroprotective properties in a variety of experimental models of CNS, was able to partially restore impaired neurogenesis, prevent neuronal loss and promote maturation of neurons. Taken together, this study provides novel insights into the role of astrocytes in the pathogenesis of DS and suggests a possible treatment strategy for DS by targeting astroglia.

Vocabulary

astrocytes or astroglia: star-shaped glial cells of the central nervous system
Down's syndrome (DS): a genetic disorder associated with physical growth delays, mild to moderate intellectual disability, and characteristic facial features
induced pluripotent stem cells (iPSCs): cells that have been reprogrammed back into an embryonic-like state that enables the development of any type of

human cell
S100B: S100 calcium-binding protein B, involved in the regulation of a number of cellular processes such as cell cycle progression and differentiation.
pathogenesis: the manner of development of a disease

Taken from:
Chen Chen, et al. 2014. Role of astroglia in Down's syndrome revealed by patient-derived human-induced pluripotent stem cells.
*Nature Communications*DOI:10.1038/ncomms5430.

!!The green area in the frame below is for drafts. Please submit your answers via the link below the table. It is strongly recommended that you create drafts in this file in case your browser unintentionally closes without saving!!
You don't need to submit this word file.

Write the topic sentence for each paragraph of your revised version.	
Topic Sentence of paragraph 1	
Topic Sentence of paragraph 2	
Topic Sentence of paragraph 3	
Topic Sentence of paragraph 4	

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Submit your answers to Practice 1

If the link does not work, please copy and paste the following url into your browser:
https://forms.gle/qg1GKi2Bp8EdgLna7

[Sample Answers and Feedback]

You will be able to receive sample answers and feedback for each practice exercise in this course. After submitting your answers for each exercise via the links provided, you will be given a link to download detailed feedback with sample answers for each practice. If you click the "View accuracy" link there, you can also review your answers for the practice.

In addition, you will receive an email confirming the information you entered through the Google form. In that email, you can click on the "View score" link to review your answers along with sample answers for each exercise. Clicking on the "Feedback on Practice" link within that Google form will also link to the feedback and sample answers.

03 Connecting Ideas

This section will talk about strategies that you can use in your writing to create a better logical flow of ideas.

DOWNLOAD Lecture files

Lecture files	03 Connecting Ideas (English).pdf or 03 Connecting Ideas (日本語).pdf
Lecture video	03 Connecting Ideas

Proceed to Practice 2.

Practice 2 - Connecting Ideas

Instructions: Look at the following passage. Notice that it does not follow the old-->new model that we discussed.

A star's life begins with the gravitational collapse of gaseous material composed primarily of hydrogen, helium and trace amounts of heavier elements. The main factor in determining the evolution and eventual fate of a star is its total mass. Thermonuclear fusion of hydrogen into helium is responsible for this as it releases energy from the star's core. A white dwarf is created when these reserves are depleted, and the fusion process no longer takes place.

Instructions (cont.): Rewrite the passage, trying to maintain an old to new flow of information. In other words, the subject of each sentence should relate back to a previous idea in the paragraph.

Your Answer:

Submit your answer to Practice 2

If the link does not work, please copy and paste the following url into your browser:
https://forms.gle/U4WBG5optEJBZtsH8

04 Making Details Clearer - Avoiding Wordy and Confusing Language

This section will talk about the importance of simplicity in writing and will suggest strategies to make your writing less confusing for a reader.

DOWNLOAD Lecture files

Lecture files	04 Making Details Clearer (English).pdf or 04 Making Details Clearer (日本語).pdf
Supplemental handout	04 Making Details Clearer – Avoiding Jargon.pdf
Lecture video	04 Making Details Clearer

Proceed to Practice 3.

Practice 3 - Making Details Clearer

Instructions: In each section, simplify the language by either eliminating unnecessary words/expressions or by using a descriptive verb in place of a noun. Write the simplified versions in the spaces provided.

1	These are used for the purpose of estimating values.
2	This can be done by means of specialized equipment.
3	It is interesting to note that x=y
4	This can be achieved in a satisfactory way.
5	to achieve an improvement
6	to cause an increase
7	to conduct an observation
8	to carry out a test

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Submit your answers to Practice 3

If the link does not work, please copy and paste the following url into your browser: https://forms.gle/o2VpAmDT6R2NEERZ7

05 Making the Comment Clear - Strength of Statements and Signposting

This section will emphasize the importance of choosing the correct expressions to present your opinions. It will also talk about strategies to make key ideas clearer to your readers.

DOWNLOAD Lecture files

Lecture files	05 Making the Comment Clear (English).pdf or 05 Making the Comment Clear (日本語).pdf
Lecture video	05 Making the Comment Clear

The Practice for this topic follows after the last section.

06 Summary and Final Practice

This section provides a summary of the key points of this course along with suggestions for continued reading on the topic. There is also a final practice exercise to reinforce all of the concepts discussed in the course.

DOWNLOAD Lecture files

Lecture files	06 Summary and References (English).pdf or 06 Summary and References (日本語).pdf
Lecture video	06 Summary and References

Proceed to Practice 4.

Practice 4 - Concepts Review

In this section, you will be writing a short paragraph based on the data provided. Try to incorporate all of the concepts discussed throughout the course.

Instructions : You have been studying "Solid A". In the space below, write a paragraph about Solid A based on the following information:

Background/findings

1. When cold, Solid A was hard, brittle, and difficult to shape.
2. When heated to 1,200℃ Solid A became soft and malleable, and changed color.

Ideas to discuss

1. The characteristics of Solid A when in a cold state changed radically when heated.
2. These characteristics may have possible applications in building construction and product design, which hadn't been considered previously.
3. No one has previously thought of heating Solid A.

First decide on a message that the paragraph will be about. Be sure to have a topic sentence pointing to that message. The details that follow should have a logical flow of information (giving context before new information). Choose a key point to highlight so that the reader does not miss it.

Your Answer :

Submit your answers to Practice 4

If the link does not work, please copy and paste the following url into your browser: https://forms.gle/FjhyqnwgqANS3XFD6

This is the final exercise in the Writing section of the course. Before you complete the course we would appreciate your cooperation in providing some comments about it. **Please take a few minutes to complete the course survey below.**

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https://forms.gle/TP2cp2QyUWNhoA16A

This ends the **Communication Skills for Researchers – Writing** on demand course.

If you have not yet worked on the ***Presentation*** portion of "Communication Skills for Researchers (English)", please proceed to that part.

If you have completed both the ***Writing*** and ***Presentation*** parts of "Communication Skills for Researchers (English)", then you have fully completed the "Communication Skills for Researchers (English)" course.