Research Methodology

#1

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Schedule this time

	Monday	Tuesday	Wednesday	Thursday	Friday	Satruday	Sunday
	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug
Morning						RM2	Kiyota Departure
Afternoon					Yanagimoto Depature	RM3	
Evening	ML11	ML2	ML3	ML4	RM1		

Schedule in the middle of September

	Monday	Tuesday	Wednesday	Thursday	Friday	Satruday	Sunday
	11-Sep	12-Sep	13-Sep	14-Sep	15-Sep	16-Sep	17-Sep
Morning						BGL5	
Afternoon						RM5	
Evening	Kiyota/ Yanagimoto Arrival	ML7/BGDL1	BGDL3	BGDL2	BGDL4		
	18-Sep	19-Sep	20-Sep	21-Sep	22-Sep	23-Sep	24-Sep
Morning		SATREPS					
Afternoon		SATREPS					
Evening	BGDL6	Kiyota/ Yanagimoto Departure					

On Demand Schedule

➢ "On Demand" means that you study with online contents at any time you like.

➢ Research Methodology (#4-15, except for #5)
  - ➢ https://github.com/yhide/RUPP-RM
  - ➢ The contents will be uploaded from 1-Sep, and you are supposed to finish all contents by 30-Sep (but as early as possible)

➢ Machine Learning (#5, 6, 8-15)
  - ➢ https://github.com/yhide/RUPP-ML
  - ➢ The contents will be uploaded from 20-Sep, and you are supposed to finish all contents by 20-Oct)

➢ Big Data & Deep Learning (#7-15)
  - ➢ https://github.com/yhide/RUPP-BGDL
  - ➢ The contents will be uploaded from 15-Oct, and you are supposed to finish all contents by 15-Nov)

➢ All gradings will be completed by the end of November

Research Methodlogy

Course Description

Course Description	Research at the graduate school level requires a systematic understanding of research methodology and related topics. This course provides good understanding of what (academic) research is, how to conduct research with critical thinking, how to write papers, and resaerch ethics.
Learning Outcome	By taking this course, students are expected to be able - to design and proceed their own research projects - to elaborate their research projects - to write better papers (in English) - to conduct research with high research ethics

Textbook	V. Bairagi & M. V. Munot, 2019, Research Methodology: Practical and Scientific Approach, CRC Press P. Pruzan, 2016, Research Methodology: The Aims, Practics, and Ethics of Science, Springer

Grading	5 reports and presentations: 75% Research Proposal Writing: 25%

Schedule	Date	Contents	On site/online	Form	Assignment
1	25-AUG	What is research?	Room	Lecture and Discussion	
2	26-AUG	How to structurize your reaserach	Room	Lecture and Discussion	
3	26-AUG	How to make the research problem clearer	Room	Lecture and Discussion	
4		How to present your research	On Demand	Lecture	3 min presentation preparation
5	16-Sep	3 (or 5) minute presentation	Room	Student Presentation	
6		Research Ethics	On Demand	Lecture	
7		Literature Review (1)	On Demand	Lecture	
8		Literature Review (2)	On Demand	Lecture	Literature Review report/presentation
9		Research Writing (1) Introduction	On Demand	Lecture	Introduction Writing
10		How to build your research method	On Demand	Lecture	Research Method building
11		Research Writing (2) Literature Review and research method	On Demand	Lecture	Research Method writing
12		Research Writing (3) Result and Discussion	On Demand	Lecture	
13		How to write Research Proposal	On Demand	Lecture	Research Proposal Writing
14		Research Proposal Writing (1)	On Demand		Research Proposal Writing
15		Research Proposal Writing (2)	On Demand		

Introduction

What is 'academic' research?

➤ When you want to know something and investigate it, it can be called 'research' in a general sense. However, 'academic research' is a narrower concept.

➤ Academic research (henceforth, research) must contain 'something new'.

➤ In so many case (in South-East Asia), your *research project* as its whole will not be a study to be published.

What is *academic* research?

➢ Seek a solution to a problem that has never been properly solved

    ➢ Seek an answer to a question that has never been well answered

➢ Discover new knowledge

    ➢ Invent a new thing

    ➢ Devise a new combination of existing things to produce a new effect

> What is *new* in your research?

Originality --Something new in academics

➢In academics, something new that you find must be something that adds to the body of scientific knowledge.

> ➢Theoretical research
>> ➢ Just a corollary or a knowledge that can be automatically (or fairly easily) derived from the existing knowledge are not regarded as new.
>
> ➢Applicational research
>> ➢ Just an implementation of a new system is not regarded as new. The new system must contain new things, in its concept, in its technology, and/or in its application.
>
> ➢Descriptive research
>> ➢ Discovery of a piece of facts is also sometimes regarded as new.

➢Or, in other words, something new that you find must raise a new question (this is more difficult!) or solve a known/potential problem lying in the existing technology.

Good research has

Good topic

- Well-founded (on theoretical / social needs)
- Specific enough
- Appropriate goal

Sound thinking

- Logical thinking / Critical Thinking / Agile Thinking

Good research design, action, evaluation

- Design…what is needed, done, and scheduled
- Action…how to behave
- Evaluation…on the newness, on your behavior (PDCA)

Good outcome (paper and presentation)

- Good, coherent, and persuasive storytelling

Good attitude

- Listen to others, but do not blindly obey others
- Research ethics against
  - Dishonesty: FFP (Fabrication, Falsification, Plagiarism)
  - Laziness: NOI (Neglect, Overlook, Incompleteness)
  - Irresponsibility: (Social, Scientific/Engineering, Professional, Human)

Too serious? But don't worry

➢The real difference between research and something different usually lies in what you focus on in your research theme.
  ➢Too many students (and even some instructors) focus on the system implementation. But system implementation is just a means, not the purpose, from the academic research viewpoint.
  ➢Rather, focusing on a particular technique that is indispensable for the system and that has not been solved, is a research, for example.
➢Too many researchers also mistakenly present their research in their paper.

➢Appropriate focus is the key factor for successful research. (The second key factor is a good idea. Remember, not vice versa)

Why many papers are so poor?

Your whole research project *must not* be submitted as one small paper.

- Each paper should have only one focus point.

Describing your system development is NOT a right topic for a paper

- System development is *not* considered to be new.
- What's new should be something that you have to solve to achieve your system development.

Poor story-telling without good *unity* (*coherence*) and *flow* (*cohesion*) always make your paper poor

- Many submitted papers also have a wrong focus. All you have to do is to propose something new and show it's an improvement over others (or create a new effect)