Workshop 1: The Natural Resources Assessment and Analysis

1. **Background**

   Natural resources are being depleted day by day due to worldwide population growth and economic development. Therefore, the understanding of natural resources, the tools to explore each type of natural resource, and the assessment of natural resources are a top priority before using those natural resources.

2. **Objectives**

   To enable students to:

   - explain the importance and limitations of each type of natural resource.
   - to use tools to explore each type of natural resource
   - to analyze and synthesize data

3. **Expected outcome**

   - Students understand and recognize the value of each resource
   - Students are able to use each type of natural resource for maximum benefit and sustainability

4. **Participants**

   PhD students who are in the 1st year (1st semester)

5. **Date and venue**

   The second week of the semester

   Faculty of Environment and Resource Studies, Mahidol University, 999 Phutthamonthon Rd 4, Salaya, Phutthamonthon, Nakhon Pathom 73170

6. **Agenda**

Time	Activity	lecturer
8.00-9.00	Registration	
9.00- 10.15	Lecture on Forest Resources, Tools for Inventory, Data Analysis	Assoc. Prof. Dr. Nathsuda Pumijumnong
10.15-10.25	Break	
10.25 -11.30	Lecture on Soil Resources, Soil Surveying Tools, Data Analysis	Asst. Prof. Dr. Noppol Arunrat

Time	Activity	lecturer
11.30 – 12.45	Lecture on Water Resources, Water Surveying Tools, Data Analysis	Assoc. Prof. Dr. Kampanad Bhaktikul
12.45 – 13.45	Lunch	
13.45-15.30	Practice on Resource Surveys and Assessments	PhD students
15.30-15.40	Break	
15.40- 16.30	Presentation and evaluation	All lecturers

7. Student Evaluation

- Five ratings scale for evaluation: Excellent, Good, Moderate, Fair, and Poor
- Evaluation topics:
    i) Course contents are essential knowledge and applicable.
    ii) Course contents are appropriate in accordance with course objectives.
    iii) Satisfaction towards each lecturer's ability to transfer knowledge.
    iv) Satisfaction towards the teaching method and instructional media of each lecturer.
    v) Satisfaction towards the facility and any supporting factors.

Workshop 2: Technology of Environmental Pollution Management

8. Background

Environmental pollution has become a serious environmental problem of much concern. Several pollutants, occurring from both natural- and man-made sources are contaminating environmental media, including soil, air, and water. In addition, numerous solid wastes and hazardous wastes are generated from human activities and pollute the environment. Therefore, the best available technology and/or appropriate solutions for controlling pollutants discharged into the environment are needed to solve these problems.

9. Objectives

- Identify the sources and types of environmental pollutants contaminating the environmental media
- Describe the effects of environmental pollutants on the environment and human health
- Analyze technology for prevention, control, and mitigation of environmental pollution problems

10. Expected outcome

- Understand the different types of environmental pollution and its effects on environment and human health
- Propose the best available technology for solving and managing environmental pollution problems

11. Participants

PhD students who are in the 1st year (1st semester)

12. Date and venue

The third week of the semester

Faculty of Environment and Resource Studies, Mahidol University, 999 Phutthamonthon Rd 4, Salaya, Phutthamonthon, Nakhon Pathom 73170

13. Agenda

Time	Activity	lecturer
08.00-08.30	Registration	
08.30- 10.00	Lecture on: - Environmental pollutants and their effects on environment and human health - Soil pollution and treatment technology of contaminated soil - Air pollution, air pollution control technology and mitigation measures	Assoc. Prof. Dr. Benjaphorn Prapagdee
10.00-10.15	Break	
10.15 -11.45	Lecture on: - Pollution prevention - Water pollution and management - Water quality analysis - Wastewater treatment technology	Assoc. Prof. Dr.Jaruwan Wongthanate
11.45 – 13.00	Lunch	
13.00 – 14.30	Lecture on: - Solid and hazardous waste management - Technology of solid waste treatments and waste utilization - Laws and regulations for waste management	Asst. Prof. Dr. Achara Ussawarujikulchai
14.30-14.45	Break	
14.45-16.15	Criticize the case studies on the current issues of technology of environmental pollution management: Soil, air, water pollution and waste management	All lecturers
16.15- 16.30	Course summary	All lecturers

14. Student Evaluation

- Five ratings scale for evaluation: Excellent, Good, Moderate, Fair, and Poor
- Evaluation topics:
    vi) Course contents are essential knowledge and applicable.
    vii) Course contents are appropriate in accordance with course objectives.
    viii) Satisfaction towards each lecturer's ability to transfer knowledge.
    ix) Satisfaction towards the teaching method and instructional media of each lecturer.
    x) Satisfaction towards the facility and any supporting factors.

Workshop 3: Research Methodology and Academic Writing

15. Background

Research methodology is important for those studying at a higher education level to provide a framework for initiating research work and related issues which include the importance and origin of the problem, raising questions in research, setting objectives, etc. It also covers literature review and references, and the systematic writing of methodology. In addition, doctoral students must have their work published in a journal accredited by the Ministry of Higher Education Science, Research and Innovation and journals in databases that are accredited by the Faculty of Graduate School, Mahidol University. Thus, this workshop will cover journal selection advice and precautions for article submission, and will include editing, and response after receiving feedback from peer reviewers.

16. Objectives

- To enable students to be able to write research methodologies correctly.
- To prepare students to write articles and submit journals that have been certified by the Ministry of Higher Education, Science, Research and Innovation and the Graduate School of Mahidol University.

17. Expected outcome

- Students are able to write research methodologies according to academic principles.
- Students can write articles and submit journals with confidence.

18. Participants

PhD students who are in the 1st year (2nd semester)

19. Date and venue

The fourth week of the semester

Faculty of Environment and Resource Studies, Mahidol University, 999 Phutthamonthon Rd 4, Salaya, Phutthamonthon, Nakhon Pathom 73170

20. Agenda

Time	Activity	lecturer
08.00-08.30	Registration	

08.30- 10.30	Research Methodology writing: • Chapter I: Rational, research question, objective, scope of study, time line etc. • Chapter II: literature review • Chapter III: methodology • References	Assoc. Prof. Dr. Nathsuda Pumijumnong, Asst. Prof. Dr. Paramita Panwong, Asst. Prof. Dr. Noppol Arunrat
10.30-10.40	Break	
10.40 -11.45	Research methodology exercise	Assoc. Prof. Dr. Nathsuda Pumijumnong, Asst. Prof. Dr. Paramita Panwong, Asst. Prof. Dr. Noppol Arunrat
11.40 – 12.30	Presentation by Ph.D. Student	Assoc. Prof. Dr. Nathsuda Pumijumnong, Asst. Prof. Dr. Paramita Panwong, Asst. Prof. Dr. Noppol Arunrat
12.30 – 13.30	Lunch	
13.30 – 14.30	Academic article writing: Principles of journal selection An introduction to writing articles for journals to be published from an editor's perspective.	Assoc. Prof. Dr. Benjaporn Prapagdee
14.30-14.40	Break	
14.40-15.30	Academic article writing exercise	Dr. Thomas Neal Stewart, Assoc. Prof. Dr. Nathsuda Pumijumnong, Asst. Prof. Dr. Paramita Panwong,

		Asst. Prof. Dr. Noppol Arunrat
15.30- 16.30	Presentation and Course summary	All lecturers

21. Student Evaluation

- Five ratings scale for evaluation: Excellent, Good, Moderate, Fair, and Poor
- Evaluation topics:
    xi) Course contents are essential knowledge and applicable.
    xii) Course contents are appropriate in accordance with course objectives.
    xiii) Satisfaction towards each lecturer's ability to transfer knowledge.
    xiv) Satisfaction towards the teaching method and instructional media of each lecturer.
    xv) Satisfaction towards the facility and any supporting factors.

Workshop 4: Advanced Statistics

22. Background

Statistical knowledge helps us use the proper methods to collect the data, employ the correct analyses, and effectively present the results. Statistics is a crucial process behind how we make discoveries in science, make decisions based on data, and make predictions. Statistics plays an important role in programming. Nowadays, most advanced statistics is based on programming such as Python.

23. Objectives

- To recommend the use of appropriate statistics in research
- To introduce and practice advance Statistics in Programming

24. Expected outcome

- Students can use the appropriate statistics in their research.
- Students are able to interpret statistical interpretations accurately.

25. Participants

PhD students who are in the 1st year (2nd semester)

26. Date and venue

The fourth week of the semester

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27. Agenda

Time	Activity	lecturer
08.00-08.30	Registration	
08.30- 9.00	Introductory • Definition of statistics • Why are statistics important?	Asst. Prof. Dr. Saranya Sucharitakul
9.00-10.30	Statistics in programming	Asst. Prof. Dr. Noppol Arunrat
10.30 -10.40	Break	
10.40 – 12.00	Statistics in programming exercise	Asst. Prof. Dr. Saranya Sucharitakul
12.00 – 13.00	Lunch	

13.00 – 15.00	Statistics in Big Data science	Assoc. Prof. Dr. Nathsuda Pumijumnong
15.00-15.10	Break	
15.10-16.10	Statistics in Big Data science practices	Assoc. Dr. Nathsuda Pumijumnong, Asst. Prof. Dr. Paramita Panwong
16.10- 16.30	Course summary	All lecturers

28. Student Evaluation

- Five rating scales for evaluation: Excellent, Good, Moderate, Fair, and Poor
- Evaluation topics:
  - xvi) Course contents are essential knowledge and applicable.
  - xvii) Course contents are appropriate in accordance with course objectives.
  - xviii) Satisfaction towards each lecturer's ability to transfer knowledge.
  - xix) Satisfaction towards the teaching method and instructional media of each lecturer.
  - xx) Satisfaction towards the facility and any supporting factors.