UNU Institute for the Advanced Study of Sustainability (UNU-IAS)
Spring 2019 Semester-Competency Course

As of 20 January 2019

Title of Course: Environmental Statistics and Research Methods (ESRM)

Coordinators: Osamu SAITO

Course Schedule: From 10 April until 3 July, 2019

Purpose and learning outcomes: The purpose of this course is to understand basic skill to analyze environmental and social data, and to learn practical research methods and skills that would be useful throughout a research operating cycle, including problem identification, field survey, interpretation, academic writing, and dialogue with end-users (policy makers, private sectors and citizen). Environmental investigation often covers a broad range of disciplines of social science to natural science. Since the systems under environmental study are complex, statistical methods are important techniques in the interpretation of project results. By the end of the course, each student is expected to familiar with basic statistical methods and common research methods to apply them to their own thesis research.

Course Outline

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<th>Lecture</th>
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<th>Instructor</th>
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| Lecture 1 | 04/10 (Wed), 11:00-12:30 | Course Guidance  
- Project Design (Chap.1) | Saito, O.          |
| Lecture 2 | 04/17 (Wed), 11:00-12:30 | Describing data (Chap.2) | Saito, O.          |
| Lecture 3 | 04/24 (Wed), 11:00-12:30 | Using Statistics to answer questions (Chap.3) | Saito, O.          |
| Lecture 4 | 05/08 (Wed), 11:00-12:30 | Difference between two samples (Chap. 4) | Saito, O.          |
| Lecture 5 | 05/08 (Wed), 14:00-15:30 | Relationship between variables (Chap. 5) | Saito, O.          |
| Lecture 6 | 05/15 (Wed), 11:00-12:30 | Analyzing frequency data (Chap. 6) | Saito, O.          |
| Lecture 7 | 05/22 (Wed), 11:00-12:30 | Qualitative analysis methods (I)  
- Qualitative Research Design  
- Qualitative Methods: Theory Building 
  Methodology, Visual Etnography  
- Qualitative Data Analysis: Nvivo Software for Data Analysis | Isabel B. Franco |
| Lecture 8, 9 | 05/29 (Wed), 11:00-15:30 | Using statistics software (R or STATA) and multivariate statistics including hands-on session  
- Description of the data and analysis methods  
- Examples of multivariate regression | Geetha Mohan |
| Lecture 10 | 06/06 (Thu), 11:00-12:30 | Qualitative analysis methods (II)  
- Overview: the nature and scope of qualitative | Mizan Bisri |
| Lecture 11 | 06/12 (Wed), 18:00-19:30 | Qualitative analysis methods (III)  
- Stakeholder Analysis  
- Joint Fact Finding | Matsuura, M. |
| Lecture 12 | 06/19 (Wed), 11:00-12:30 | Social network analysis: methods and case studies | Leticia dos Muchangos |
| Lecture 13 | 06/19 (Wed), 14:00-15:30 | Peer-review process and academic writing  
- Selection of journal and types of manuscript  
- Peer-review and editorial process  
- Common reasons of rejection  
- Common mistakes and tips for scientific writing | Saito, O. |
| Lecture 14 | 06/26 (Wed), 11:00-12:30 | Wrap-up feedback session | All lecturers |
| Lecture 15 | 07/03 (Wed), 11:00-12:30 | Final exam | Saito, O. |

**Assessment:**
- Class participation: 30%
- Assignments: 20%
- Final exam: 50%

**Text books and reading materials:**