Sustainable Bioproduction and Ecosystems Management (SBEM) - 2019

As of 28 June 2019
Dr. Osamu SAITO, Dr. Keiko Hori, and Maiko Nishi

Objective:
This course is to overview global consequences of ecosystem changes and drivers of these changes including international trade on global ecosystem services. The course also introduces sustainable approaches to land and ecosystem management at different levels. The students will be familiarized with the key concepts and practical methods of ecosystem assessment and landscape ecology including the techniques of accounting various ecosystem services, and be able to choose appropriate analysis tools and management options for sustainable society living in harmony with nature.

Learning Outcomes:
- Understand the key concepts and practical methods of landscape ecology and ecosystem assessment including accounting tools and market-based policy instruments to address negative and positive externalities,
- Learn sustainable ecosystems management approaches to integrate bioproduction, biodiversity, and associated ecosystem services at different scales
- Learn how to develop case studies on sustainable bioproduction and ecosystems management through group work, and collectively develop an integrated final course report

Course Outline and Schedule:

<table>
<thead>
<tr>
<th>Course Unit</th>
<th>Date</th>
<th>Topic/Activity</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>4 Oct(Fri), 11:00-12:30</td>
<td>Introduction and overview of the course Conceptual Framework of Biodiversity and Ecosystem Services, and current research activities at UNU-IAS</td>
<td>Dr. Osamu Saito</td>
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<td>2</td>
<td>11 Oct (Fri), 11:00-12:30</td>
<td>Ecosystem Assessments (I): Inventory accounting, material flow analysis, evaluation methods and case studies</td>
<td>Dr. Osamu Saito</td>
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<td>3</td>
<td>18 Oct (Fri), 11:00-12:30</td>
<td>Ecosystem Assessments (II): Mapping natural capital and ecosystem services, methods and case studies</td>
<td>Dr. Osamu Saito</td>
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<td>4</td>
<td>25 Oct (Fri), 11:00-12:30</td>
<td>Ecosystem Assessments (III): Global trade of natural resources; tradeoff analysis and multi-criteria analysis</td>
<td>Dr. Osamu Saito</td>
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<tr>
<td>5</td>
<td>25 Oct (Fri), 14:00-15:30</td>
<td>Vegetation, GHG inventory system and biomass measurement</td>
<td>Dr. Osamu Saito</td>
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<td>6</td>
<td>TBD 2 Nov (Sat), 13:00-16:30</td>
<td>Field Trip 1: Institute for Nature Study in Meguro, Tokyo</td>
<td>Dr. Osamu Saito</td>
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<td>7</td>
<td>8 Nov (Fri), 11:00-12:30</td>
<td>Mid-term group presentation</td>
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<td>8, 9</td>
<td>15 Nov (Fri), 11:00-12:30, 14:00-15:30</td>
<td>Processes and approaches for ecosystem service assessments (TBD)</td>
<td>Dr. Maiko Nishi</td>
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<td>10</td>
<td>22 Nov (Fri), 11:00-12:30</td>
<td>Alumini session: Case studies of food security and ES assessment in Ghana, Ethiopia, and Zimbabwe</td>
<td>Rodolfo Dam Lam Thelma Mahachi</td>
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<tr>
<td>11</td>
<td>22 Nov (Fri), 14:00-15:30</td>
<td>Modeling and designing sustainable utilization of local renewable energy</td>
<td>Dr. Keiko Hori</td>
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<tr>
<td>12</td>
<td>29 Nov (Fri), 11:00-12:30</td>
<td>Bio-energy production and ecosystem services</td>
<td>Dr. Alexandros Gasparatos</td>
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<tr>
<td>13</td>
<td>TBD (30 Nov(Sat) pm, 1 Dec(Sun)</td>
<td>Field Trip 2: Visit to Nerima (urban agriculture)</td>
<td>Dr. Osamu Saito</td>
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<td>14, 15</td>
<td>13 Dec (Fri), 11:00-12:30, 14:00-15:30</td>
<td>Final Group Presentation Session Wrap-up Session</td>
<td>Saito Student Presentation</td>
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<tr>
<td>Extra</td>
<td>28 Jan. (Tue), 11:00-12:30</td>
<td>Feedback session</td>
<td>All students</td>
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Assessment:
- Class Participation: 30%
- Final Group Presentation: 30%
- Final Individual Report: 40%

Readings:
1: Introduction and overview of the course

2: Ecosystem Assessments (I): Inventory accounting, material flow analysis, evaluation methods and case studies

3: Ecosystem Assessments (II): Mapping natural capital and ecosystem services, methods and case studies
- Landreth, N. and Saito, O. (2014) An Ecosystem Services Approach to Sustainable Livelihoods in the


4. Ecosystem Assessments (III): Global trade of natural resources, tradeoff analysis and multi-criteria analysis


5. Vegetation, GHG inventory system and biomass measurement


8, 9: Processes and approaches for ecosystem service assessments (TBD)


To be informed more

10. Almuni session: Case studies of food security and ES assessment in Ghana, Ethiopia, Zimbabwe, and Phillipine


11: Modeling and designing sustainable utilization of local renewable energy

To be informed more

12: Bio-energy production and ecosystem services


Field Trip 1: Institute for Nature Study (自然教育園) in Meguro, Tokyo

The Institute for Nature Study, Shizen kyoiku en in Japanese, is a branch of the National Science Museum, Tokyo. It occupies a 200,000 square meter area with various original habitats of the Tokyo area, such as forest, marsh and ponds. Because the Institute’s garden has been an isolated natural habitat in the urban area and has remained well conserved for many years, it is a valuable place where rich biota are maintained. At the Institute, the museum staff conduct original research on ecology and education.

Access:
7 minutes’ walk from the east exit of Meguro Station on the JR Yamanote Line.
4 minutes’ walk from exit 1 of Shirokanedai Station on the Tokyo Metro Namboku Line

Address:
5-21-5 Shirokanedai, Minato-ku, Tokyo 108-0071
Tel: 03-3441-7176 Fax: 03-3441-7012 Email: ins@kahaku.go.jp

Meeting Place:
JR Meguro Station (目黒駅)
Central Exit (中央改札口) ※Attention: There are two exits at the station. Come to the central exit!!

Belongings:
writing materials, drinks, camera, handout

Contact:
Osamu SAITO: 080-3155-5873