Faculty of Agriculture UGM

Present

UNIVERSITAS GADJAH MADA

SOBA
SMART-ECO BIOPRODUCTION AGRICULTURE

2nd SC-SOBA

1 July- 12 August, 2022

A virtual Summer Course on Smart-Eco Bioproduction Agriculture

SUMMER COURSE ON SMART-ECO BIOPRODUCTION AGRICULTURE:

Climate-Smart Agriculture

Background

The continuation of the first SC-SOBA in 2021 that takes the topic of "The Nexus between Traditional Ecological Knowledge and Modern Agricultural Practices" held by the Faculty of Agriculture UGM. Despite the urgent issues of climate change, due to Indonesia being considered a highly vulnerable country to climate change, there has been no apparent awareness and fast-paced or widespread action from the academic, the government, and the society at large to overcome it. Since the last decades, actions related to climate change have been small in scale and patchy. Studies show that while the Indonesian farmers are aware of the climatic and environmental changes, suchas increasing daily temperature, unpredictable seasonal changes, longer dry periods, many are not familiar with the term and the broader impact of climate change.

Participant

Course materials

The SC-SOBA uses a case-based learning approach. Course materials to cover in the summer course are:

1. Climate change and society
2. Climate change and sustainable agriculture
3. Climate-resilient land
4. Emerging pests and diseases
5. Biodiversity in different landscapes
6. Smart agriculture
7. Biotechnology

- Both International and domestic students from Indonesia
- Undergraduate (preferably 3rd or 4th)
- Postgraduate Student

Course Enrollment is Free

REGISTER AT

International Student:
https://admission.ugm.ac.id/application/how-to-apply/
Domestic Student:
ugm.id/scsoba2022register

Registration:
1 May - 10 June 2022

More Information

Website: https://scsoba.faperta.ugm.ac.id
IG   : @summercoursefapertaugm
Email   : soba.faperta@ugm.ac.id

COURSE SYLLABUS & CALL FOR PARTICIPATION

Course description

Climate change is a global phenomenon with apparent evidence in the increasing number of extreme weather events, such as floods, typhoons, storms, and droughts. While the agriculture and fisheries sector remain the sole contributor in food production, agriculture, forestry, and land use is the second biggest contributor of greenhouse gasses (GHG) emissions. According to the World Research Institute (2020), agriculture emits 18.4% of total GHG emissions. Meanwhile, contribution of the fisheries sector is often unaccounted for. Parker et al. (2018) estimated that global marine fisheries take up to 4% of GHG emissions from the total food production. The latest IPCC Press Release on the 28th of February 2022 in relation to the "Climate Change 2022: Impacts, Adaptation and Vulnerability, contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change" presented a grim view. Nevertheless, the UN Climate Change Conference (COP26) in Glasgow in November 2021 offered a very limited action.

With regard to these issues, there are traditional knowledge and modern, scientific technology that potentially become strategies in mitigating and adapting to climate change. Some examples of traditional knowledge include agroforestry, terracing, crop rotation, and integrated farming that have been commonly practiced by farmers in many parts of the world, including in Indonesia. Besides providing crop and income diversification as a portfolio for the farms to face uncertainties in weather, the practices are also important for land and soil conservation. Some of this knowledge supplement the modern agricultural practices to form the concept of climate-smart agriculture, among others. Meanwhile, there are precision agriculture as modern, scientific technology along with the advancement in the communication and information technology. The use of sensors, IoT, robot, GPS, and mobile devices for climate, crop, and cattle monitoring, or greenhouse and irrigation automation can conserve soil and water as well as increase productivity in the changing climate and environment.

Summer course on Smart-eco Bioproduction Agriculture (SC-SOBA) with the topic of "Climate-Smart Agriculture and Fisheries" is the continuation of the first SC-SOBA in 2021 that take the topic of "The Nexus between Traditional Ecological Knowledge and Modern Agricultural Practices" held by the Faculty of Agriculture UGM. Despite the urgent issues of climate change, due to Indonesia being considered a highly vulnerable country to climate change, there has been no apparent awareness and fast-paced or wide-spread action from the academic, the government, and the society at large to overcome it. Since the last decades, actions related to climate change have been small in scale and patchy. Studies show that while the Indonesian farmers are aware of the climatic and environmental changes, such as increasing daily temperature, unpredictable seasonal changes, longer dry periods, many are not familiar with the term and the broader impact of climate change.

Therefore, the 2nd SC-SOBA is expectedly to gather lecturers, professors, researchers and students from various fields in agriculture to discuss the climate change issue in the agriculture sector. This includes the impact of climate change from the perspective of agronomy, soil/water science, microbiology, plant protection, and socio-economy, as well as best practices and potential mitigation and adaptation strategies.

Learning outcomes
At the end of the course, student participants should be able to:
1. Describe, review, and critically analyze the impact of climate change in agriculture sectors.
2. Compose and propose strategies for mitigation and adaptation for the agriculture sectors in general and for small-scale farmers in particular.
3. Communicate the strategies to multidisciplinary stakeholders.
4. Collaborate in the multidisciplinary and cross-cultural settings.

Course credit and activities
This course is equivalent to 3 credits, with fully online activities that include:

Sections	Activities	Time	Venue
Pre-course	● Independent study (10 hours) ● Poster assignment (24 hours)	1-13 July 2022	Asynchronous in Learning Management System (LMS): 1x intro meeting, no lecture meetings, materials from lecturers and invited speakers available on the LMS
Course	● Class meetings and discussion (16 hours) ● Quiz assignment (4 hours) ● Independent research and group project (57 hours) ● Final presentation (2 hours)	14 July-12 August 2022	- Synchronous in Zoom (for class meetings) - Asynchronous in LMS (for assignments) - Other media (for independent research and group project)

The credit hours are transferable. We will provide a credit transfer statement for students who complete all sections and evaluation of student performance. The credit transfer statement includes grade marks on individual student performance.

Learning approach
The SC-SOBA uses a case-based learning approach. Course materials to cover in the summer course are:
i. Climate change and society
ii. Sustainable agriculture
iii. Climate-resilient land
iv. Emerging pests and diseases
v. Biodiversity in different landscape
vi. Smart agriculture
vii. Biotechnology

Learning resources are a combination of lecturers, 'virtual field excursion' (i.e., video from the field), assignments, and a group project. To work on the group project, participants are grouped into several teams based on the individual students' chosen topic in their poster assignment. Each team is to pick a case study to analyze and to offer recommendations.

Evaluation of student performance

No.	Criteria	Type	Percentage (%)
1	Poster assignment	Group assignment (in pairs)	10
2	Attendance and active participation (lectures and group works)	Individual	20
3	Quizzes	Individual	10
4	Video presentation	Group assignment (in groups)	30
5	Peer evaluation	Individual	20
6	Course evaluation	Individual	10

Course schedule (subject to adjustment)

   a) **Pre-course section**

Date	Activities	Venue
Fri, 1 Jul	● Online introduction of students and instructors ● Course description ● Q&A	Zoom
1-13 Jul	- Course materials and learning videos are available to watch by the students on the LMS - **Assignment 1**: in pairs, students are to create a poster that describes a case study related to the issues of climate change, whether from the perspective of (may choose one or more) agronomy, soil/water science, microbiology, plant protection, socio-economy, fisheries, or best practices and potential mitigation and adaptation strategies. The poster may be digitally made or hand-drawn/written.	LMS
Wed, 13 Jul	**Deadline for poster submission**	**LMS**
14-15 July	Instructors create working groups for students based on their submitted posters	
15 Jul	Announcement of the student's working groups (students may start to get to know each other of their group mates)	LMS

b) **Course meetings**

No.	Topics	Activities	Resource persons
1 (Thur, 14 Jul) Time: 09:00 AM GMT+7	Climate change and society	- Formal opening ceremony - Class meeting 1 - Group work	- Prof. Iin Handayani (Murray State University, USA) - Prof. Lori Cramer (Oregon State University, USA) - Instructors & Teaching Assistants (TAs)
2 (Fri, 15 Jul) Time: 09:00 AM GMT+7	Sustainable agriculture	● Class meeting 2 ● Group work ● **Assignment**: Individual Quiz 1	● Prof. Maria Victoria O. Espaldon (University of the Philippines, Los Banos) ● Dr. Mucahid Bayrak (National Taiwan Normal University) ● Instructors & TAs
3 (Thur, 21 Jul) Time: 02:00 PM GMT+7	Climate-resilient land	- Class meeting 3 - Group work	- Dr. Spyros Paparrizos (Wageningen University & Research, Netherlands) - Dr. Galuh Candra Kirana (CSIRO) - Instructors & TAs
4 (Fri, 22 Jul) Time: 02:00 PM GMT+7	Emerging Pests and Diseases	● Class meeting 4 ● Group work ● **Assignment**: Individual Quiz 2	● Dr. Honour McCann (Max Planck Institute, Germany) ● Prof. Y. Andi Trisyono (Universitas Gadjah Mada, Indonesia) ● Instructors & TAs
5 (Thur, 28 Jul) Time: 02:00 PM GMT+7	Biodiversity in different landscape	- Class meeting 5 - Group work	- Prof. Simone Sandoz (United Nations University, Bonn) - Prof. Meine van Noordwijk (CGIAR) - Instructors & TAs
6 (Fri, 29 Jul) Time: 02:00 PM GMT+7	Climate-resilient land	● Class meeting 6 ● Group work ● **Assignment**: Individual Quiz 3	● Prof. Junun Sartohadi (Universitas Gadjah Mada, Indonesia) ● Prof. Stefaan de Neve (Ghent University, Belgium) ● Instructors & TAs

7 (Thur, 4 Aug) Time: 02:00 PM GMT+7	Smart agriculture	● Class meeting 6 ● Group work	- Prof. Dwikorita (Indonesian Agency for Meteorological, Climatological and Geophysics) - Dr. Husnain (Balai Besar Sumber Daya Lahan Pertanian) - Instructors & TAs
8 (Fri, 5 Aug) Time: 02:00 PM GMT+7	Biotechnology	● Class meeting 6 ● Group work ● Assignment: Individual Quiz 3	● Anker Sørensen (KeyGene Company, Wageningen, Netherland) ● Prof. Teemu Teeri (Department of Agricultural Science, University of Helsinki, Finland) ● Instructors & TAs

c) Final Presentation

Date	Activities	Venue
Fri, 12 Aug Time: 02:00 PM GMT+7	Final presentation	Zoom

Targeted Participants

Participants may include 3rd or 4th year undergraduate, master, and doctorate students, both international and domestic students from Indonesia.

Registration timeline
- Registration: 1 April-10 June 2022
- Link to register (including guidelines on how to apply): https://admission.ugm.ac.id/application/how-to-apply/

Date	Timeline of activities	Link
1 April-10 June 2022	Registration to UGM's admission system: Review of applications will be held monthly. Successful applicants will be notified by the end of every month.	UGM's admission system and guidelines how to apply: https://admission.ugm.ac.id/application/how-to-apply/
13-30 June 2022	Student participants enroll in the LMS	TBD

VIRTUAL SUMMER COURSE
ON SMART ECO BIOPRODUCTION AGRICULTURE (SC-SOBA)
"Climate-Smart Agriculture"
1 July-12 August 2022
Faculty of Agriculture, Universitas Gadjah Mada, Yogyakarta, Indonesia

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Application form follows UGM's admission system. Several notes:
1. International applicants who have no passport may register with her/his country's identification. The identification should clearly state her/his nationality.
2. When applicants are asked to upload documents, the required documents include (#a-c are required by UGM, and #d-e is an additional requirement for SC-SOBA 2022):
    a) Photo/scan of the identification page on Passport (or own country's identification, if Passport is not applicable).
    b) Curriculum Vitae or resume (please select one).
    c) Official passport size photo.
    d) Certificate of TOEFL/IELTS/other valid English proficiency test (this doesn't have to be the most recent).
    e) Transcript as a proof of academic records (this must be the most recent but doesn't have to be official. The PDF print of transcript from the applicant's home university system is accepted).
3. You may skip other documents, i.e., financial support (SC-SOBA is free of charge), personal statement, recommendation letter, diploma, and good health statement.

More information
Website   : https://scsoba.faperta.ugm.ac.id
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