



CIEE Global Institute – Berlin

Course name:	Sustainable Agriculture and Food Systems
Course number:	(GI) AGRI 3001 BRGE
Programs offering course:	Berlin Open Campus, Berlin Global Architecture and Design
Open Campus Track:	STEM and Society
Language of instruction:	English
U.S. semester credits:	3
Contact hours:	45
Term:	Spring 2020

Course Description

This interdisciplinary course examines the environmental, social, and economic dimensions of agriculture, and relevant emerging challenges involving climate change, and resource depletion and degradation, particularly in tropical environments. It treats the Green Revolution, capital-intensive/high-input practices, and corporate agriculture. Students will learn about the implications of “conventional” agriculture for the environmental protection, and food systems, security, and sovereignty. Additionally, students will explore the principles and practice of alternatives, including integrated crop and pest management, agroforestry, permaculture, plus organic, sustainable, and “climate smart” agriculture. Using a framework of “systems thinking”, and drawing analogies between agricultural and ecological systems, the course explores the multiple drivers, inputs, and outputs of agricultural production and trade. Students will have firsthand, immersive experiences with production systems that are wide-ranging, and will explore the costs and benefits of each, through the lens the environment, economy, and society.

Learning Objectives

By completing this course, students will:

- Be able to define the terms “sustainable agriculture” and “food security” from multiple perspectives
- Differentiate types of sustainable agriculture systems (e.g. conservation agriculture, organic, biodynamic, permaculture, climate smart agriculture, etc.) their origins, and advantages and disadvantages
- Be able to succinctly summarize why sustainable agriculture is not merely desirable, but necessary in order to meet coming global challenges
- Synthesize this knowledge and the costs and benefits of the perspectives explored using both oral and written language.



Course Prerequisites

Students should have completed a course in a STEM subject, preferably in sustainability or environmental studies, prior to enrolling in this course.

Methods of Instruction

This course is highly interactive and combines discussions (about the texts, films, etc.), in-class group work, and in-class presentations. The more theoretical parts of class sessions will sometimes consist of short lectures as well. Students will be asked to do their own fieldwork (e.g. taking photos, interviewing locals, local organizations, or other students) that will also be discussed in class. Since this course is designed to be highly interactive, students are expected to take part in discussions and debates, which will in most cases not be about “right” or “wrong,” but rather about finding individual and new approaches to framing the ecosystem intellectually, and using plausible arguments to analyze and evaluate the ways humans approach nature and its resources. The overall aim of the course is to learn how to think critically and originally. In order to encourage enquiry-based learning, students will be asked to answer questions, either individually or in groups, about an assigned text, film, initiative, etc. The instructor will use a broad selection of teaching methods including PowerPoint, audio-visual material, guest lectures, excursions, but also personal narrative, group work, and traditional teaching units.

Assessment and Final Grade

Students will be assessed according to the following criteria:

1. Participation:	20%
2. Presentation:	20%
3. Field research and written analysis:	20%
4. Creative project:	15%
5. Final exam:	25%
TOTAL:	100%

Course Requirements

Presentation

Each student is expected (together with one or two other students) to lead a 15-minute presentation of one particular text, topic, or media example, followed by questions posed to the class, which are meant to spark discussion. One week before the presentation, the group meets with the instructor to discuss possible questions. It is expected that at that point they have all read the assigned text, have thought about the topic, and suggest a question or two. The group then decides which questions to choose, together with the instructor. Following that meeting each presenter* has time to prepare additional questions/input that she/he will use during the



discussion to further inspire the conversation. The presentation also includes a written self-assessment after the event: what went well? What didn't? What would I do differently if I were to do this again? The self-assessment must be submitted on the Monday following the event and will be commented on by the instructor who adds his/her impression of the presentation.

Please Note: It is important that you see your instructor at least one week before your presentation to discuss possible lead questions, topics, and potential pitfalls. The grade results from the overall quality of the presentation (10%) and the way the presentation is prepared and carried out by each individual student (10%). While the first part of the grade will be the same for all in the group, the second may vary, depending on the individual student's performance.

* **Important:** presenters are not panelists; after your presentation, your job is to encourage your fellow students to contribute their ideas and well-founded views. Just like an orchestra conductor, you have to make sure that nobody dominates the discussion and that *all* contribute. Encourage them to also ask *each* other questions, or comment on what another student has said.

Field Research and Written Analysis

The course includes two written reflections on the excursions. For each, you are expected to create a 1500-word documentation of the event (that you can, ideally, save as part of a course portfolio and a memory of your time abroad). The documentation includes: a) one paragraph that describes the object/event (5%) and how it affected you emotionally and/or intellectually (5%) , b) 3-5 bullet points where you apply categories such as culture, nature, nationality—but also, potentially, gender, ethnicity, class (5%). Add a picture that you took of the figure/event (5%). The PDF file must be submitted on Canvas before the next class meeting after the event.

Creative Project

In this course, you are not only studying the agricultural environment from an interdisciplinary standpoint, but will try your hand at crafting an individual, creative, response to an agricultural environmental topic. For example, your creative project could be autobiographical or a literary piece, (e.g., a poem about agriculture from an animal's perspective). The project will be graded on originality (5%) and artistic quality (5%), as well as on an accompanying 400-word piece (5%), which will discuss the significance of the project and its relation to some of the material previously discussed in the course. Please note that your project will become part of a final exhibition on your local CIEE campus.

Final Exam

The exam will give students a chance to present what they have learned during this course by answering short essay questions. Questions will refer to the concepts discussed and include a



few practical examples, e.g. a painting, an advertisement, a short poem, a PETA campaign, etc.

Participation

Participation is valued as meaningful contribution in the digital and tangible classroom, utilizing the resources and materials presented to students as part of the course. Meaningful contribution requires students to be prepared in advance of each class session and to have regular attendance. Students must clearly demonstrate they have engaged with the materials as directed, for example, through classroom discussions, online discussion boards, peer-to-peer feedback (after presentations), interaction with guest speakers, and attentiveness on co-curricular and outside-of-classroom activities.

Reacting to, understanding, and interpreting the various texts, films, and other forms of cultural expression will be the central focus of this class. Film screenings and visits to cultural (campus and/or community) events will be obligatory for all students. Participants will be asked to take notes during visits or screenings. The grade for participation is comprised of the quantity and quality of your contributions to discussions as well as of the performance on in-class writing exercises and classroom activities (writing exercises are designed to sharpen the student's writing skills and to promote the student's engagement with course concepts and texts). Participation grades will be provided on a weekly basis.

A note on preparation: Students are expected to come to every class prepared with the reading—please bring a print-out of the respective text(s).

Attendance Policy

Regular class attendance is required throughout the program, and all unexcused absences will result in a lower participation grade for any affected CIEE course. Due to the intensive schedules for Open Campus and Short Term programs, unexcused absences that constitute more than 10% of the total course will result in a written warning.

Students who transfer from one CIEE class to another during the add/drop period will not be considered absent from the first session(s) of their new class, provided they were marked present for the first session(s) of their original class. Otherwise, the absence(s) from the original class carry over to the new class and count against the grade in that class.

For CIEE classes, excessively tardy (over 15 minutes late) students must be marked absent. Attendance policies also apply to any required co-curricular class excursion or event, as well as to Internship, Service Learning, or required field placement. Students who miss class for



personal travel, including unforeseen delays that arise as a result of personal travel, will be marked as absent and unexcused. No make-up or re-sit opportunity will be provided.

Attendance policies also apply to any required class excursion, with the exception that some class excursions cannot accommodate any tardiness, and students risk being marked as absent if they fail to be present at the appointed time.

Unexcused absences will lead to the following penalties:

<i>Percentage of Total Course Hours Missed</i>	<i>Equivalent Number of Open Campus Semester classes</i>	<i>Minimum Penalty</i>
Up to 10%	1 content classes, or up to 2 language classes	Participation graded as per class requirements
10 – 20%	2 content classes, or 3-4 language classes	Participation graded as per class requirements; written warning
More than 20%	3 content classes, or 5 language classes	Automatic course failure , and possible expulsion

Weekly Schedule

NOTE: This schedule is subject to change at the discretion of the instructor to take advantage of current experiential learning opportunities.

Week 1

Class 1.1 Introduction



We will use this first day of class to get to know each other, understand who we are in the context of the larger, cultural, regional and climate-specific agri-systems we individually come from and discuss sustainable cultural alternatives to the status quo.

Week 2

Class 2.1 Global change and Sustainable Agriculture

We will discuss the food-climate-energy-water-poverty nexus.

Reading:

Cribb, *The Coming Famine*, pp. xi-13.

Due date for meetings to discuss any presentations scheduled in Week 3

Class 2.2 Culture and Agriculture in the World

The class will critically review definitions and measurement methods for food security and insecurity.

Site Visit to Berliner Tafel

Berliner Tafel is one of the city's largest and most prominent nonprofits. The organization focuses on collecting food and produce, which would otherwise be bound for the landfill, and distributing the freshest and most nutritious items to community groups.

Reading:

Cribb, *The Coming Famine*, pp. 14-29.

Week 3

Class 3.1 The Climate Connection

This session will examine how climate change impacts food production and how food production impacts climate change.

Reading:

Cribb, *The Coming Famine*, pp. 135-153.

Due date for submission of first field research and written analysis of site visit

Class 3.2 Land and Soil: The Crucible of Terrestrial Life
This session examines understandings of the foundation of life on terrestrial surfaces.

Reading:
Cribb, *The Coming Famine*, pp. 48-68.

Due date for meetings to discuss any presentations scheduled in Week 4

Class 3.3 Site Visit with Agri-Food Group from Germany

On-site visit of a representative or lobby group organization working on supporting the development of government policy in the agri-food sector.

Week 4

Class 4.1 Water: The Indispensable Resource
This session focuses on water quality, quantity, and efficient use in agroecosystems

Reading:
Cribb, *The Coming Famine*, pp. 30-47.

Due date for submission of second field research and written analysis of site visit

Class 4.2 Fertilizers and Fertility
In this session, we will discuss costs, benefits, and future scarcity of inorganic fertilizers

Reading:
Cribb, *The Coming Famine*, pp. 69-85.



Due date for meetings to discuss any presentations scheduled in Week 5

Week 5

Class 5.1 Livestock Systems

In this session, we will explore livestock production systems, CAFOs, husbandry, and growing demand for animal products.

Reading:

Food and Agriculture Organization, *Livestock's Long Shadow*, 2006.

Class 5.2 Global Population Growth

This class will address the challenge of feeding 9.6 billion people by 2050.

Reading:

Cribb, *The Coming Famine*, pp. 154-167.

Due date for meetings to discuss any presentations scheduled in Week 6

Class 5.3 Energy and Agriculture

Biotechnology, biofuels, labeling, food movements, and other emerging issues in agriculture

Reading:

Tilman, "Beneficial Biofuels—The Food, Energy, and Environment Trilemma"

Ronald, "Plant Genetics, Sustainable Agriculture and Global Food Security"

Due date for submission of creative project

Week 6

Class 6.1 Sustainable Strategies

This penultimate class will examine soil, fertility and water management to sustainably intensify production, and novel crop production systems.



Reading:

Cribb, *The Coming Famine*, pp. 168-203.

Langergraber, "Ecological Sanitation—a way to solve global sanitation problems?" 2005

Class 6.2 Final Exam and Concluding Discussion

Final Exam to be completed during class

Readings

Julian Cribb. 2010. *The Coming Famine*. University of California Press

Henning Steinfeld, et al. 2006. *Food and Agriculture Organization, Livestock's Long Shadow*
<http://www.europarl.europa.eu/climatechange/doc/FAO%20report%20executive%20summary.pdf>

David Tilman, "Beneficial Biofuels—The Food, Energy, and Environment Trillema"
<http://science.sciencemag.org/content/325/5938/270>

Pamela Ronald, "Plant Genetics, Sustainable Agriculture and Global Food Security," 2011
<https://www.ncbi.nlm.nih.gov/pubmed/21546547>

G. Langergraber, "Ecological Sanitation—a way to solve global sanitation problems?," 2005
<http://www.ecosan.eu/info/publications/ecological-sanitation-2014-a-way-to-solve-global-sanitation-problems.pdf>