CIEE Cape Town, South Africa

Course title: Sustainable Agriculture and Food Systems
Course code: (GI) AGRI 3001 CTSA
Programs offering course: Cape Town Open Campus Block
Open Campus Track: STEM and Society
Language of instruction: English
U.S. semester credits: 3.00
Contact hours: 45.00
Term: Spring Block III 2021

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 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
1. Critical Reflections (3) 15%
2. Group Presentation 25%
3. Field Research and Written Analysis 15%
4. Essay 25%
5. Participation 20%
TOTAL 100%

Course Requirements

Critical Reflections (3)

Students will be presented with three individual types of food systems for debate and consideration. They will compose a 500-word response to each of the provocations. The first critical reflection will require them to discuss a major sustainable agricultural move to cater for the global water crisis. The second reflection will involve them in exploring a current national or global suggestion to meet food security issues in a country of their choice. The third provocation will require them to discuss three major food systems that are most effective in addressing globalization and the population explosion. The reflections will be graded by how comprehensively and critically they address and respond to the different issues and provocations, drawing on the course readings and in-class discussions.

Group Presentation

Each student is expected (together with one or two other students) to lead a 15-minute presentation on a text or topic (chosen from a selection provided at the start of the course). Following the formal presentation, the group will pose questions 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.

Field Research and Written Analysis

Students are required to submit a written reflection on the out-of-classroom field excursion undertaken during the course. This should creatively utilize different forms of media (such as photographs, diagrams, etc.) as well as written documentation and evaluation of site visit observations (that you can, ideally, save as part of a course portfolio and a memory of your time abroad).

The evaluation must be 1500-words in length and include at least two scholarly sources. It will be graded based on a student’s demonstrated understanding of syllabus concepts and how these may be applied in practice. More detailed instructions will be given in advance of this assignment. The Field Research and Written Analysis must be submitted by the last week of the course.

Essay

Students will be required to select a topic on sustainable agriculture that is implemented in the host environment. They will describe the system and how it is implemented in the specific location. They will compare this with how the system is implemented in another country of the students’ choice with the differences critically reviewed. The essay will be 2000 words exactly and consist of an introduction to the system, a description of the location implementing the system, and an analysis of the successes and challenges. It will then close by comparing the outcomes with another country. The essay will be graded on a student’s ability to identify, elaborate and describe how the sustainable agricultural system is implemented in a specific context and the elements used to compare the implementation in another country, drawing on the course readings.

Participation

Participation is valued as meaningful contribution in the digital and tangible classroom, utilizing the resources and
materiales presentados a los estudiantes como parte del curso. La aportación significativa requiere que los estudiantes estén preparados de antemano para cada sesión de clase y tengan asistencia regular. Los estudiantes deben claramente demostrar que han interactuado con los materiales como se les ha indicado, por ejemplo, a través de discusiones en el aula, tableros de discusión en línea, retroalimentación peer-to-peer (después de presentaciones), interacción con los visitantes y atención en actividades co-curriculares y fuera del aula.

**Asistencia**

La asistencia regular a todas las clases es requerida durante todo el programa, y todas las ausencias resultarán en una menor participación en el curso. Debido al horario intenso de los programas de Open Campus y Short Term, las ausencias que representen más del 10% del total de las horas de clase darán lugar a una advertencia escrita.

Los estudiantes que se transfieren de una clase CIEE a otra durante el periodo de inscripción/drop no serán considerados ausentes de las primeras sesiones de su nueva clase, siempre y cuando estén marcados presentes en las primeras sesiones de su clase original. En caso contrario, las ausencias de la clase original se llevan a la nueva clase y se cuentan contra la calificación de esa clase.

Para las clases CIEE, los estudiantes excepcionalmente retrasados (más de 15 minutos tarde) deben ser marcados como ausentes.

Las políticas de asistencia también se aplican a cualquier actividad co-curricular obligatoria, así como a cualquier prácticas de campo. Los estudiantes no pueden perder horas de trabajo en un intercambio o servicio de aprendizaje a menos que estén aprobados de antemano por el Director Académico y el supervisor de la práctica. Todas los estudiantes deben completar todas las horas de trabajo mínimas de 100 horas en el sitio de prácticas para ser elegibles para una calificación académica.

Los estudiantes que se ausentan para viajes personales, incluyendo demoras inesperadas que surjan como resultado de viajes personales, serán marcados como ausentes. No se proporcionará ninguna oportunidad de recibo o re-sit.

Las políticas de asistencia también se aplican a cualquier actividad obligatoria, con la excepción de que algunas actividades obligatorias no pueden permitir retrasos, y los estudiantes corren el riesgo de ser marcados como ausentes si no asisten al tiempo señalado.

Ausencias para clases llevarán a las siguientes penalizaciones:

<table>
<thead>
<tr>
<th>Porcentaje de horas de curso total</th>
<th>Penalización mínima</th>
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<tbody>
<tr>
<td>Hasta el 10%</td>
<td>Participación calificada como según los requisitos de la clase</td>
</tr>
<tr>
<td>10 - 20%</td>
<td>Participación calificada como según los requisitos de la clase, 3% penalización de la calificación y escrito advertencia</td>
</tr>
<tr>
<td>Más de 20%</td>
<td>Automatic course failure, y posibles expulsión</td>
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N.B. El horario del curso está sujeto a cambios debido a excursiones, viajes de estudio o vacaciones locales. Los horarios finales se incluirán en el horario final que se proporcionará a los estudiantes en el sitio.

**Horario semanal**

**Semana 1**

Clase: 1.1 Introducción

Podremos usar este primer día de clase para conocernos, entender quiénes somos en el contexto de los sistemas agropecuarios mayores, culturales, regionales y específicos climáticos a los que individualmente venimos.
and discuss sustainable cultural alternatives to the status quo.

Reading:

**Week 2**

**Class: 2.1 Global change and Sustainable Agriculture**

In this session, we will examine the food-climate-energy-water-poverty nexus.

Reading:

**Class: 2.2 Culture and Agriculture in the World**

In this session, we will critically review definitions and measurement methods for food security and insecurity.

Reading:

Due Date for Submission of the Critical Reflection # 1

**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:

**Class: 3.2 Land, Soil and Water: The Crucible of Terrestrial Life**

This session examines understandings of the foundation of life on terrestrial surfaces, covering issues such as soil fertility and nutrient cycling, land degradation, water quality and quantity, and evolving soil and water management practices in agroecosystems.

Reading:

**Class: 3.3 The Food System in Crisis**

In this session, students will conduct their 15-minute Group Presentations, including class discussion of questions posed by each group.

Due Date for Submission of the Group Presentations
Reading:

**Week 4**

**Class: 4.1 Global Population Growth**

This class will address the challenges of feeding 9.6 billion people by 2050. We will give consideration to various issues such as geographic disadvantage and globalisation, as well as gender equity and the role of women in global agriculture.

Reading:

**Class: 4.2 Livestock Systems**

In this session, we will consider how we define our relationship with animals and explore livestock production systems, concentrated animal feeding operations (CAFOs), husbandry, and the growing demand for animal products.

Reading:

Optional Viewing:

**Class: 4.3 Fertilizers and Fertility**

In this session, we will discuss costs, benefits, and future scarcity of inorganic fertilizers and consider alternatives to conventional farm inputs, including practices such as organic farming and biochar application.

Reading:

**Date Due for Submission of the Critical Reflection # 2**

**Week 5**

**Class: 5.1 Opportunities in the Changing Face of Agribusiness**

Though traditionally the realm of government and academic institutions, developments in agribusiness are increasingly being found in partnerships and alliances between research organisations and industry; involving a wide range of players from multi-national agribusiness giants through to small-scale start-ups and savvy investors. Innovations emerging from the agriculture and food sectors are delivering products and tools to improve efficiency and productivity and assist in adaptations to climate change and shifting dietary preferences. This class will include a Guest Lecture from a representative of the agriculture and food team at the host country’s national research agency (or similar, TBC).
Date Due for Submission of the Critical Reflection # 3

Class: 5.2 Site Visit: Integrated Whole-Systems Thinking in Agriculture

This class will involve a co-curricular activity involving an excursion to a farm located in close proximity to the city of study. An on-site farm tour will introduce students to basic principles of permaculture, a systems approach that mimics the patterns and relationships found in natural ecosystems and seeks to apply these in a holistic way to agricultural production and human habitation. The tour will give students a practical understanding of alternative agricultural techniques as well as the opportunity to interact with farm animals, observe the native countryside and wildlife and engage with the host country’s culture outside of the city.

Reading:

Carolan, M. (2017) No One Eats Alone, (Chapter 7, Chapter 8, Chapter 9). Island Press, USA.

Week 6

Class: 6.1 Bio-futures: The Potential of Bio-fuels and Bio-products

This class will explore a range of exciting developments in the area of biotechnology, biofuels and other industrial bio-products (such as bio-based alternatives to plastics). We will also consider risks and social implications of these agri-scientific advances, including labeling, food movements and other emerging issues.

Reading:


Due Date for Submission of Essay Topic

Class: 6.2 Sustainable Strategies

This class will review concepts presented throughout the course, and discuss what it would take to achieve a sustainable global agricultural production system – increased production intensity? More technology and innovation? Community-building and connectedness? Or perhaps, all of the above?

Reading:


Due Date for Submission of Field Research and Written Analysis

Course Materials
Readings


