



Internal Quality Assurance Plan & Reports

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Disclaimer

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EXECUTIVE SUMMARY

A Quality Assurance Strategic Plan was developed in line with and the Monitoring and Quality Assurance Group (MQAG consisted of the project coordinator, the two local coordinators (Egypt & Jordan) the institutional coordinators at Jerash University and Suez Canal University where the Master Programme is being implemented and the external evaluators. Internal monitoring addressed three levels: 1) at the design level, 2) at the development level and 3) at the implementation level. At the design level, we carried out the stakeholders' survey substantiated with focus interviews (D2.2) in order to identify knowledge, skills and competences needed. Based on the knowledge elicited at the design phase the development of the 31 Master courses (18 in Egypt and 13 in Jordan) have gone through several phases of internal peer-reviewing, using templates and rubrics related to ECTS, the 10Cs (transversal skills) and SDGs. Peer-reviewing was also taking into consideration the stakeholders' inputs as being extracted from the situation analysis. The various versions of the reviewed courses are listed in the Online Community of Practice (OCOP). an assessment of the contribution of the Online Community of Practice. The quality of the Master courses' content was dependent on the quality of teacher training. At each of the three national training workshops carried out in each partner country, a questionnaire was delivered to assess the impact of the knowledge and skills acquired on course curriculum development. The results of the evaluation are integrated in D3.3. To assess the quality of the Master courses, an evaluation was carried out at the pilot phase using a specific methodology developed by the project coordinator entitled DREAM (Diagnose, Review/reflect, Explain, Assess and Manage). The report of the pilot assessment is presented in D6.2. At the end of the project we have carried out: a SWOT analysis involving all partner institutions. The individual SWOT contributions were analysed to develop a partner country perspective of the Strengths, Weaknesses, Opportunities and Threats of the CCSAFS project and its long-term sustainability.

Table of Contents

1. Purpose of the monitoring and quality assurance plan.....	
2. The internal quality assurance strategy.....	
3. Assigning external evaluators for quality assurance.....	
4. Internal peer-reviewing process for quality assurance.....	
5. Internal quality assurance reports.....	
5.1 SWOT Analysis.....	
5.2 The DREAM Methodology.....	
5.3 The 10Cs rubric.....	
5.4 Guidelines for the SDGs rubric.....	
5.5 Guidelines for ECTS workload and assessment.....	
5.6 Assessment of the Online Community of Practice.....,	
5.7 Feedback on course curriculum development.....,	
5.8 Peer-reviewing comparisons between Egyptian and Jordanian courses	

1. Purpose of the Monitoring and Quality Assurance Plan

The Internal Quality Assurance Plan (IQAP) is aimed at establishing criteria, tools and procedures for monitoring and evaluating the project in terms of both processes, practices in line with the project aims and objectives, the methodologies and strategies adopted, the timeframe of deliverables, and the budget. In particular, the purpose of the IQAP is to identify processes that will be applied to assure quality, define roles and responsibilities to ensure a successful project and deliverables, provide CCSAFS management with indicators to allow them to take appropriate decisions, and to track and report on project progress. It is led by the University of Crete (P1), the Coordinating Institution, with close support from local coordinators and all CCSAFS involved staff.

The IQAP addresses three levels: 1) at the design level, 2) at the development level and 3) at the implementation level. It necessitates the coordinated efforts of many individuals, such as those who will generate information and those who will use the information or make decisions based on that information. These individuals include: project members, project coordinators, work package leaders, stakeholders, project staff etc. In addition, peer reviewers and individuals with varied expertise ensured that critical issues for the success of the project are sufficiently addressed, thus helping to minimize problems during planning, implementation and evaluation.

2. The internal quality assurance strategy

The focal point of quality assurance and control within the CCSAFS project will be the deliverables. At the first partner meeting (kick-off meeting), the consortium discussed the standards and quality indicators as defined in the earlier stage in the Consortium Agreement:

- Work package leaders will be responsible for ensuring that the agreed deadlines for submitting the deliverables are met.
- All deliverables will be discussed and approved by the consortium at the partner meetings.
- All deliverables in English will be professionally proof-read and edited.
- Project communication (as defined in the description of the WP1 (D1.2)).
- Conflict resolution and the decision making process will define the procedure used to resolve problems at an earlier stage, determine proper handling of problems, etc.

Thus, all CCSAFS project activities and outputs are subject to evaluation in this work package. Such evaluation is diagnostic, formative and summative. Our strategy is that evaluation is approached as an integral part at beginning, during and by the end in the following way:

1. Diagnostic evaluation at the beginning has been described at the design phase through the situation analysis.
2. Formative evaluation continues during development, peer reviewing (internally and externally), accreditation and pilot implementation. The evaluation methods

include: self-assessment, peer assessment and impact studies to measure the effectiveness of curriculum. This kind of evaluation allows identification of eventual weaknesses of the project and, consequently, identification of opportune adjustments.

3. Summative evaluation consists in a conclusive quality judgement aimed at the assessment of the project and its final results in terms of the aims and objectives set and in line of its time frame and budget. It may be also the starting point for the planning of future activities.

The PDCA approach, that is, plan–do–check–act cycle (Figure 1)- a four–step model for carrying out the monitoring and quality assurance of the CCSAFS project has been adopted. Just as a circle has no end, the PDCA cycle should be repeated again and again for continuous improvement. In this way, the three levels, diagnostic, formative and summative work interactively until the end product meets the expected results. In this way, all project deliverables, although they are developed in accordance to the timeframe set, they are subject for improvement until the end of the three-year project.

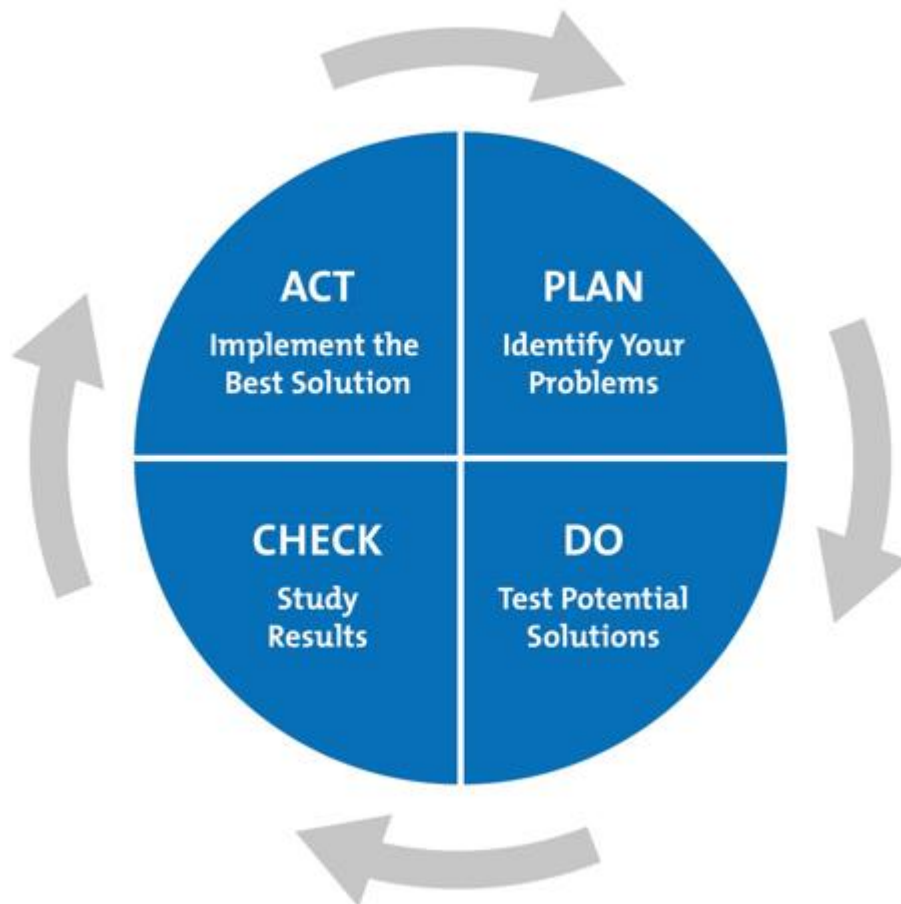


Figure 1. The CCSAFS PDCA approach to monitoring and quality assurance

PLAN

The “Plan” phase of PDCA for the CCSAFS quality assurance covers:

- Defining the problem or issue that requires redress
- Allocating responsibilities
- Planning of how you will monitor the progress and the effectiveness of the change
- Planning about unexpected problems
- Reflection on and interpretation of relevant information concerning the existing process – this should be drawn from as wide a range of sources as possible and Include information from clients and stakeholders
- Data collection to determine the problem in terms of deviance from the ideal state
- Ascertaining the root cause for the problem or issue
- Evaluating the various possible interventions to solve the problem and their possible outcomes
- Selecting the best possible intervention
- Scheduling the corrective process by planning for resources, determining people responsible for the corrective action
- Mapping the corrective process through various tools

DO

The “Do” phase of PDCA for the CCSAFS quality assurance concerns

- document the activities of implementation
- implementation of the selected solution to reduce the deviation or solve the issue.
- consultations for the adopted quality intervention
- carry out the change or new practice

CHECK

The “Check” of PDCA for the CCSAFS quality assurance entails:

- Monitoring the progress and effectiveness of the change according to the plan
- Recording of observations and results (planned and unexpected) in comparison with the project goals, measures and objectives.
- Comparing the product specifications against defined standards.
- Use of statistical tools to understanding the nature of variation in terms of what worked, what did not work, and the lessons learned from the experience.

ACT

The “Act” phase in PDCA for the CCSAFS quality assurance entails:

- What did the information collected tell us about the effectiveness of the change?
- What can be done to improve the process further? How can the change be refined?
- What lessons have we learned that can be used for further improvement? How Can these lessons be communicated to project partners and stakeholders?
- standardization of the successful solution and adopting the same for wholesale process improvement;
- Involving multiple stakeholders in the changed process

3. Assigning external evaluators for quality assurance

External monitoring and quality assurance is an integrative part of the CCSAFS project. Two-three external evaluators will be involved in this process. Currently, two external reviewers are subcontracted who will assess the structure of the MSc course curriculum and the content of the courses in line with certain standards and indicators. The external evaluators will be involved in assessing all MSc course syllabi and course modules as well as the MOOCs and the structure of the MSc course curriculum. The external assessment process will be based on certain standards, principles and indicators as well as rubrics, which will be developed together with the external evaluators. To this end the following rubric adjusted from the DeCoRe methodology for curriculum development will be used as the main instrument. In this sense, the engagement of external evaluators in the monitoring process of the project will contribute not only to the quality of the work done, but also be used as a means of external ‘critical readers’. On the basis of the following criteria:

- a) Arabic and English language proficiency
- b) Previous experience in assessing course syllabi and course modules in the field
- c) knowledge of the institutions participating in the CCSAFS project

Two external evaluators that have the credentials to carry out these tasks have been selected and subcontracted, namely: Dr. Nancy Kanbar and Dr. Khaleel Al-Said who meet the criteria.

Dr. Khaleel Al-Said has a Ph.D. Degree focusing in the field of educational technology, curriculum and instruction. He is currently is associate professor at Taibah University in KSA. Dr. Al-Said, besides expertise in curriculum and instruction, he has a long experience in the design, developed and assessment of MOOC courses as well as blended learning. Thus, Dr. Al-Said has been chosen to assess course syllabi, the blended learning dimensions of the CCSAFS MSc. courses as well as the MOOCs courses to be developed.

Dr. Nancy Kanbar is an Associate Professor at the Faculty of Economics and Business Administration of the Lebanese University. She is holder of a Ph.D. in *Environmental Sciences and Public Policy* from George Mason University (GMU), a Master Degree in *Agricultural Economics and Development*. Dr. Kanbar has been involved in two Tempus projects (RUCAS & CLIMASP) dealing with sustainability issues and climate change. She has long experience in assessing curricula dealing with climate change and agricultural sciences.

4. Peer-reviewing process for assuring quality

Internal monitoring and evaluation will be based on peer reviewing, especially during the process of course syllabi and course modules development. The revision process depended on two elements, scientific content and teaching methodologies. A list of peer-reviewers has been prepared with close cooperation of partners. Particular importance in the reviewing process is given to the CCSAFS staff from University of Padova due to their strong experiences in the field of CCSAFS and the challenge to create spaces for connecting the MSc CCSAFS with the MSc in Sustainable Development run by the University of Padova and University of Georgia US. The following criteria were generally used for reviewing the courses:

- The relevance of the course content to the scope of the master (climate change, sustainable agriculture and food security).
- The objectives of the course must be SMART.
- The activities are explained in details with the steps of implementation and the used assessment technique.
- The suitability of the course content and number of modules to the duration of the course.
- The presence of the references and supporting reading material.
- The use of blended learning techniques.
- The link between the course content and the SDGs.
- The use of effective learning and teaching methodologies (active learning).

Peer-reviewing was also taking into consideration the stakeholders' inputs as being extracted from the situation analysis. After reviewing the course content, some modifications will be required from the staff members who developed the courses. The modifications and suggestions of adapting active learning techniques, and other effective teaching and learning methodologies will help enhancing the content of the courses as well as the adapted teaching methodologies. Better description of the assignments and activities would make it easier for other staff members to implement the courses during the master program.

SEM	CORE COURSES	ECTS	PEER-REVIEWERS
1	Climate Change, Sustainable Agriculture and Food Security	10	Prof BORIN Maurizio maurizio.borin@unipd.it
	Climate Change Adaptation and Mitigation	10	Prof. MORARI Francesco francesco.norari@unipd.it
2	Sustainable Management of Soil and Water	10	Prof TAROLLI Paolo Prof CARLETTI Paolo

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	Research Methods and Advanced Statistics Analysis	10	Prof BERTI Antonio Prof. BATTISTI Andrea (UNIPAD) and Prof. Vassilios Makrakis (UOC) antonio.berti@unipd.it makrakis@edc.uoc.gr andrea.battisti@unipd.it
3	Economics of Climate Change, Sustainable Agriculture and Food Security	10	Prof TRESTINI Samuele samuele.trestini@unipd.it
	GIS Applications in Climate Change, Sustainable Agriculture and Food Security	10	Prof. PIROTTI Francesco francesco.pirotti@unipd.it

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	2- Precision Farmin, Dr. Wagdi Saber Soliman	Internal reviewer: Nehal Lotfy nehal_lotfy@hotmail.com

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	3- Small Scale Farming, Indigenous Knowledge and Local Food Supply Dr. Wagdi Saber Soliman wagdi79@agr.aswu.edu.eg	Internal reviewer: Nehal Lotfy (nehal_lotfy@hotmail.com) Manal Hefny Manalhefny96@gmail.com
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	2- <i>Sustainable Fisheries and Food Security</i> Prof. Mamdouh Ahmed Omar mamdohomar2003@yahoo.com	Internal reviewer: Nehal Lotfy (nehal_lotfy@hotmail.com)



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CCSAFS

Climate Change,
Sustainable Agriculture
& Food Security



University of Crete

CCSAFS SESSION 3 SWOT ANALYSIS GUIDELINES

Developed by:

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Contents

What is SWOT Analysis?	2
Why Use SWOT Analysis?	3
Who Should Take Part and How Much Time is Needed?	3
How Do You Conduct SWOT Analysis?	4
Step 0: Setting the Stage.....	4
CCSAFS SWOT Matrix: Guiding Prompts/Questions	5
Step 1: What is now? Brainstorming on Strengths & Weaknesses	6
Step 2: What might be.... Brainstorming on Opportunities and Threats.....	7
Step 3: What to do with data..... Refinement, Analysis & Interpretation.....	8

1. What Is SWOT Analysis?

SWOT analysis is a classic strategic planning tool that often forms a useful complement to a stakeholder developed by Albert Humphrey at Stanford University in the 1960s. SWOT is an acronym for Strengths, Weaknesses, Opportunities, and Threats depicted graphically with the following matrix or grid. The four headings that constitute SWOT provide a framework for organizations to identify strengths, mitigate weaknesses, seize opportunities, and avoid threats. Strengths and Weaknesses are **internal** SWOT factors while Opportunities and Threats are **external** SWOT factors. Strengths and Opportunities are **positive** factors, while Weaknesses and Threats are **negative** factors.

Table 1. SWOT Matrix

	POSITIVE/ HELPFUL to achieving the goal	NEGATIVE/ HARMFUL to achieving the goal
INTERNAL Origin facts/ factors of the organization	Strengths Positive tangible and intangible attributes, internal to an organization that are helpful to achieving the objective.	Weaknesses Factors that are within an organization's control that detract from its ability to attain the desired goal and objectives.
EXTERNAL Origin facts/ factors of the environment in which it operates	Opportunities External attractive factors that are helpful to achieving the objective.	Threats External factors, beyond our control, which could place goals and objectives at risk.

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In practice, the analysis component of SWOT comes after the information addressing the four headings is collected. In other words, the analysis refers to the discussion, refinement and interpretation of the SWOT outcomes by applying a brainstorming and critical reflective technique. Although, SWOT looks like a simple model and easy to apply, experiences show that there is need for careful planning to turn it as an effective and meaningful tool.

2. Why Use SWOT Analysis?

A SWOT analysis generates information that is helpful in identifying and assessing needs and capacities to perform certain activities and/or reach defined goals and objectives. It can also help to explore new opportunities and risks, make strategic decisions and prepare action plans. The results and interpretations can be very worthy, if SWOT is planned and implemented by a team represented by stakeholders with common interests to the questions addressed.

3. Who Should Take Part and How Much Time is Needed?

As stated previously, the representation of stakeholders makes the results of the SWOT more meaningful. In our case, there is need to include academic instructors, faculty and university administration, student representatives as well as representatives from external stakeholders. Applying a participatory approach representing internal and external stakeholders is more likely to come up with fruitful and meaningful data, while it also signals that community members should be part of the process. In other words, the best SWOT results come when the process is representative, collaborative and inclusive.

Taking time to do a thorough SWOT needs assessment is very critical to reach more fruitful and deep insights in understanding needs and developing workable plans. A SWOT analysis can range depending on the goals and objectives set. Usually, it ranges from a couple of hours to half a day or over the course of a day depending on the type and number of questions and the depth of the analysis and discussion. In any case, the SWOT activity should be seen as a serious workshop guided by the appointment of a facilitator or leader who has good skills in listening and leading discussion as well as one who can keep things moving and on track.

4. How Do I Conduct SWOT Analysis?

Step 0- Setting the stage

- Decide for the leader or group facilitator who has good listening and coordinating skills.
- Use a flip chart or a large board to record inputs.
- Introduce the SWOT method and its purpose.
- Let all participants introduce themselves.

- Divide participants into smaller groups (e.g. 3-5) and make sure you mix participants to get a range of perspectives.

List all participants in the following table

[illegible]

The CCSAFS SWOT Analysis will focus on assessing the Strengths, Weaknesses, Opportunities and Threads of the sustainability of the project after its three year financing period. It is suggested to engage in this process NOT only the staff involved in the CCSAFS project but also high ranking administrative staff (e.g. Deans of Faculties) from partners' institutions in each Egypt and Jordan.

CCSAFS SWOT Matrix: Guiding Prompts/Questions

The following table includes key questions to be used as guiding prompts for carrying out the SWOT activity.

Table 2: SWOT Matrix

	POSITIVE/ HELPFUL to achieving the goal	NEGATIVE/ HARMFUL to achieving the goal
INTERNAL Origin facts/ factors of the organization	Strengths 1. As a Partner Country, what do you consider as strengths that lead to supporting the CCSAFS MSc in the future? 2. What unique knowledge, talent, or resources have been achieved through the 3-year period to cope with the teaching capacities? 3. What changes did the CCSAFS project made to respond to the sustainability of the MSc in the future? 4. What do students, staff, and other people say about the strengths of the implemented MSc program? What resources do you have available for that? 6. What is your greatest achievement in relation to the implementation and sustainability of the MSc in CCSAFS?	Weaknesses 1. What could we improve in preparing our academic staff to cope with the teaching demands of the MSc in CCSAFS? 2. What knowledge, talent, skills and/or resources are we lacking for that purpose? 3. What disadvantages do we have to a) support academic teaching skills and competences for the CCSAFS study program?
EXTERNAL Origin	Opportunities	Threats

facts/ factors of the environment in which it operates	1 How can we turn our strengths in sustaining the MSc program to address CCSAFS challenges into opportunities? 2. How can we turn your weaknesses for the above into opportunities? 3. What could you do that isn't being done?	1. What obstacles do you face for maintaining the MSc in CCSAFS? 2. Could any of your weaknesses prevent Jerash University or Suez Canal University in maintaining the program in the future? 3. What might cause problems in the future? 4. How can you overcome the problems that might negatively impact your efforts?
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Step 1: Applying the SWOT

At this step, the SWOT team will start brainstorming on each question listed in Table 2 and fill out their own strengths and weakness in the following SWOT chart.

The SWOT facilitator should encourage groups to collect as many as possible answers to the questions without doing any analysis of the answers at this step. Participants should be frank with themselves when considering strengths and weaknesses. List all strengths that exist now. Then in turn, list all weaknesses that exist now. Be realistic but avoid modesty! During your brainstorming session, you'll ask each person to supply one bullet point for the category they are working on and make sure that the results are being written down.

It is usual habit that everyone tries to exaggerate strengths and minimize weaknesses. So, asking people to report about weaknesses might not be at comfort. However, it's vital information and as such there is need to truthfully mapping the weaknesses within each entity for this SWOT analysis to be effective and meaningful. As pointed earlier, in the context of a SWOT analysis, weaknesses are internal factors that take need to be corrected. Accordingly, in the SWOT brainstorming session, participants should be motivated to think of weaknesses that relate to the subject under investigation. You'll put this information on your four-box SWOT template.

So, in your brainstorming session, which should include a variety of participants, representing as many as possible disciplines at your University as well as student representatives and high ranked administrative staff, you're going to think of weaknesses that are usually not outspoken that fit within the categories below.

Table 3: List of Strengths and Weaknesses

	POSITIVE/ HELPFUL to achieving the goal	NEGATIVE/ HARMFUL to achieving the goal
INTERNAL Origin facts/ factors of the organization	Strengths	Weaknesses

Step 2: What might be... Brainstorming on Opportunities and Threats

At this step, following-up the same process as before, brainstorm and list all opportunities that exist in the future. Opportunities are potential future strengths. Then in turn, list all threats that exist in the future. Threats are potential future weaknesses. By knowing your threats, you might be able to find a suitable strategy to minimize them, or at least, come up with a plan on how to handle them in an effective. As in the case of weaknesses, developing a list of threats can be difficult, although for different reasons. Such as the difficulty in coming up with possible threats in mind and due to the fact that threats are coming from external factors.

Table 4: List of Opportunities and Threats

	POSITIVE/ HELPFUL to achieving the goal	NEGATIVE/ HARMFUL to achieving the goal
EXTERNAL Origin facts/ factors of the environment in which it operates	Opportunities	Threats

Step 3: What to Do with the Data.... Refinement, Analysis and Interpretation

A brainstorming activity always culminates with lots of ideas, which need further treatment. Reaching also some consensus about the most meaningful items in each SWOT category is very critical.

There is need first to proceed in the refinement or polishing of the brainstormed answers in each part of the SWOT chart. In others words, through careful consideration, the brainstormed lists will be refined and eventually narrowed down to. It is often useful to rate or rank the most important refined strengths and weaknesses (perhaps with symbols: ++, + and 0). It is also important to be specific, keep your SWOT short and avoid complexity, gray areas or duplications. Thus, it is necessary to do the refinement before you do the analysis.

When creating the analysis, the SWOT group should proceed in pooling their individual and shared knowledge and experience in a relaxed, friendly and constructive environment and start interpreting the refined results in relation to the objectives of the SWOT activity.

Table 5: Refinement of the SWOT results

	POSITIVE/ HELPFUL to achieving the goal	NEGATIVE/ HARMFUL to achieving the goal
INTERNAL Origin facts/ factors of the organization	Strengths	Weaknesses
EXTERNAL Origin facts/ factors of the environment in which it operates	Opportunities	Threats

Interpretation is very critical, as it will provide useful inputs to translate the analysis to action plans and strategies at a later step, when the SWOT inputs will be substantiated with other type of data collected through survey activities. Analysing and interpreting the results of the SWOT activity, opportunities and threats is a challenging process that needs special care and effort.

As pointed earlier, at a later stage we are going to developing a strategic plan, by taking the highest-ranking strengths, weaknesses, opportunities and threats and answer the following questions:

- How do you use your strengths to take advantage of opportunities?
- How do you overcome weaknesses preventing you from taking advantage of opportunities?
- How can your strengths reduce the probability of threats?
- What can you do about your weaknesses to make the threats less likely?

SWOT ANALYSIS

The Case of Egyptian Partners

Presented by Dr. Omar Ramzy on behalf of the Egyptian Partners



STRENGTHS



WEAKNESSES



OPPORTUNITIES



THREATS



STRENGTHS

- **International partnerships with universities that address the CCSAFS themes**
- **Interdisciplinary approach at Heliopolis University among the different faculties**
- **Founding the first organic agriculture faculty in Egypt at Heliopolis University**
- **ICT facilities that support blended learning programs**
- **Several projects were implemented at Heliopolis University that address the CCSAFS themes**

- **Very strong research department that supports the research areas of CCSAFS**
- **Egyptian Biodynamic Agriculture Association (EBDA) is part of SEKEM and is located at Heliopolis University premises**
- **As part of indirect promotion, the M.Sc. Could be disseminated within the events that take place at HU Premises (e.g. The International Conference of Scaling up Agro-ecology that took place on the 12th of September, 2019- CCSAFS Master Students joined this conference)**



STRENGTHS



STRENGTHS

- The Center of Education for Sustainable Development (CESD) at Heliopolis University supports the curriculum development process
- The program is unique and distinguished among Egyptian universities in terms of its multidisciplinary nature and its alignment with SDG's
- Synchronizing the projects that are implemented in the faculty of Engineering especially Food, Energy, and Water Nexus (TriNex Erasmus+ Project)
- The botanical garden at HU Campus will facilitate practical experiments of the M.Sc. Program



STRENGTHS

- Number of qualified experts in the field of climate change, sustainable agriculture and food security
- Supportive administration
- The alumni from the ICT & ESD master program in Frederick University will support the blended learning approach
- SEKEM was founded in 1977 based on the organic agriculture principle



STRENGTHS

- The infrastructure and capacity building of the participating universities were enhanced to serve the implementation of the M.Sc. Program efficiently
- Accredited program from the Supreme Council of Universities
- Revised and ready to use course specification
- SEKEM is involved in a huge number of projects while having limited number of staff which may hinder achieving the project objectives effectively



WEAKNESSES

- Education for Sustainable Development awareness is not well established in Egypt
- Weak dissemination
- Insufficient budget in order to promote the program
- Lack of student financial supporting programs
- Low level of English language proficiency among students enrolled in the program



WEAKNESSES

- Lack of expert in the field of agriculture from the beginning of the project
- Some of the staff are lacking the ICT competencies needed for teaching in the M.Sc.
- Lack of staff competencies needed to deal with blending learning systems
- Staff member's internal interaction is weak



OPPORTUNITIES

- Stakeholders are willing to support CCSAFS with training internships
- Official national and local interest in climate change education programs
- The labor market is demanding climate change specialists
- We can strength collaboration with donors concerned with CCSAFS
- Staff are motivated to learn modern teaching techniques



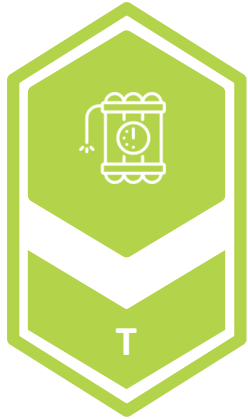
OPPORTUNITIES

- The government direction towards cutting the subsidies of the chemical fertilizers gives the partners an opportunity to promote the program
- The government is intending to mainstream organic agriculture practices within the 1.5 million hectare reclamation project
- Organic agriculture is one of the main dimensions of Egypt's 2030 vision for sustainable development
- Alignment with the international trends towards studying climate change



THREATS

- **Low command of English among potential applicants**
- **Low level of ICT awareness which might hinder applicants' ability to use CCSAFS LMS**
- **Students may be reluctant to join the program due to the high tuition fees**
- **The challenge of getting foreign students to apply in the M.Sc. due to security reasons**



THREATS

- The economic situation in Egypt is in favour of conventional products rather than organic products
- The organic market in Egypt is not dominating yet and its market share is too low compared with the conventional market

Thank you





The Post-CCSAFS: Strengths, Weaknesses, Opportunities and Threats

Presented by

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The university of Jordan

Crete-Greece

Date: 14/09/2019

Overview

- **Project Objectives**
- **Qualitative Indicators**
- **Quantitative Indicators**
- **Key Achievements**
- **SWOT Analysis**

Main Objective

Main objective

Promote sustainable agricultural production, food security and climate change adaptation and help vulnerable rural communities to combat hunger and adjust to local, regional and global changes in climate, which is contribute to the achievement of Sustainable Development Goals (SDG 2).

How?

Through developing of an inter/multidisciplinary MSc programme in Climate Change, Agricultural Development and Food Security in Jordan and Egypt, that providing the students with the needed skills and tools for developing agricultural practices, policies and measures to address the challenge that climate change poses for agriculture and food security.

Specific Objectives

1. Carry out capacity building for the involved staff from the partner institutions:
 - a) to design post-graduate curricula in line with the Bologna process;
 - b) to design and develop inter/multidisciplinary course curricula at the post-graduate level; and
 - c) to apply innovative and flexible teaching and learning methods.

2. Develop a platform for blended learning supplemented by laboratories to support the MSc. programme and function as life-long learning resources and develop Centers of Excellence in CCSAFS in each partner country university.

3. Develop, accredit and implement an inter/multidisciplinary MSc. programme in Climate Change, Sustainable Agriculture and Food Security, comparable and compatible with EU equivalent programmes in cooperation with EU and PC Universities, NGOs, local agricultural/food industry, government agencies and higher education accreditation commissions. It will be worth of 120 ECTS (90 ECTS course work & 30 ECTS thesis) where Suez Canal University, Egypt and Jerash University, Jordan will serve as the main hubs.

Qualitative indicators

- Prepared Guidelines for strengthening stakeholders inputs
- Training needs are identified and justified
- Trainees are selected and trained
- Prepared CCSAFS programme structure and courses
- Newly prepared teaching material for CCSAFS courses

Qualitative indicators

- CCSAFS programme is accredited
- CCSAFS programme is piloted
- Establishment of Center of excellence
- Establishment of blended learning labs
- Establishment and implementation of online learning management system (LMS)
- Quality of the feedback received through peer-reviewing and other assessment methods
- Students are enrolled in CCSAFS programme

Quantitative indicators

- Number of stakeholders involved (Projected 100 key experts; 2000 students; 500 alumni)
- Number of training sessions (3 national & 2 regional) , and Number of teaching staff trained (projected 50)
- Number of teaching staff using the online community of practice for training purposes (projected 50-60)
- Level of satisfaction on the conducted trainings
- Number of course modules for the CCSAFS curriculum developed (projected to 11-16).
- Number of MOOCs courses developed (projected to 2-3)
- Number of courses piloted (projected to 2-3)
- Number of hardware and type of software supporting blended learning activities
- Number of dissemination events
- Number of students expressing interest to study CCSAFS

Key Achievements in CCSAFS project

- 3 National Training Workshops in Jordan
- 3 Regional Training Workshops (Jordan, Cyprus & Egypt)
- 5 Managerial Meetings
- Tools developed (CCSAFS Toolkit, Online Community of Practice & Blended Learning Environment (LMS))
- 4 Centers of Excellences on CCSAFS established in each partner university in Jordan
- 4 ICT Labs established in each partner university in Jordan

Blended Learning Labs



Key Achievements in CCSAFS project

- The MSc in CCSAFS course syllabi and course modules developed and being reviewed internally and externally through quality assurance instruments
- Accreditation of the MSc in CCSAFS in Jerash University
- The MSc in CCSAFS piloted
- The MSc in CCSAFS is currently being implemented
- The CCSAFS widely disseminated through various means, including colloquia, presentations, conferences, networks, social media.
- Deliverables and works in progress uploaded in the CCSAFS website

Key Achievements in CCSAFS project

- CCSAFS Courses were prepared based on the inputs received through the internal stakeholders (academic teaching staff and students) and external stakeholders (CCSAFS professionals, alumni).
- The MSc. in CCSAFS program consists of six compulsory courses of 10 ECTS each and nine optional or electives of 10 ECTS each.
- The course work amounts for 90 ECTS during the three semesters and 30 ECTS for the thesis. In total, 120 ECTS for the full programme.
- All the courses are inter/multidisciplinary combining aspects from the field of Climate Change, Sustainable Agriculture and Food Security.

Program status

☐ CCSAFS programme was accredited at the end of September 2018.

➤ The First semester of CCSAFS started on October 1, 2018 (Fall Semester 2018/2019).

➤ 18 students were registered in the programme

➤ The Second semester was the Spring Semester (2018/2019)

➤ 10 New students were registered in the programme

➤ The Third semester was the Summer Semester (2018/2019)

➤ 1 New students were registered in the programme

Total number of students in the first year was 29 students

24 Males, and 5 Females

Program status

- 8 Courses have been piloted within the first year of the programme.
- E-learning platform has been used during piloting.
- Assessment for piloting phase has been conducted

S

SWOT Analysis

W

Strengths

Need for the Programme in Future

- Jordan need to continue the capacity building at different levels in the areas of CCSAFS program.
- CCSAFS competences in Food Security and Climate change meet the national need to implement of 2030 agenda and the SDGs in Jordan.

Unique knowledge developed within CCSAFS

- Developed Teaching curricula in the areas of climate change adaptation and Food Security that are seen as national priorities (compatible with the recommendations of the Ministry of environment and UNDP Rio implemented programs).
- CCSAFS program is unique in Jordan and officially accredited by MOHE
- CCSAFS was developed based on the European experience and implement new teaching methodologies that promote research and collaboration with community.
- Multidisciplinary program that opens channel for developing nonconventional research and work areas.
- Created e-learning platform for CCSAFS courses function as life-long learning resources

Weaknesses

Teaching Demands

- Low number of available faculty members and high teaching load on faculty members.
- Teaching staff from partner universities (UJ, JUST, and Mutah) could teach selected courses in JU university.

Staff Knowledge, skills and competences

- Knowledge in UN development programs in the areas of CCSAFS is lacked among some of the staff members involved in the program.
- Background in downscaling climate change impacts from global to regional and local levels is needed.
- Feedback from stakeholders and graduates shall be taken into consideration continuously.
- Capacity in CC adaptation and disaster risk reduction programs needed for mitigation and adaptation to CC.
- CC are subject to change according to donor's implementation agenda and continuously changing mechanisms.

SWOT Analysis



Strengths

Resources

- Existing resources and infrastructure for CCSAFS education and research were upgraded.
- Dedicated budgets from the involved universities.
- Trained Staff

Greatest achievement

- Good number of MSc students in the first year of the program indicating the self-supporting mechanism.
- Commitments of Jerash University and the support of its administration to continue in implementing and updating the program in the future.
- Cooperation channels between Jordan Universities developed through this project.



Weaknesses

Resources

- Maintenance and continuous upgrading for resources are needed.

Gender equality

- Females number enrolled in the programme needs to be increased, through good dissemination.

SWOT Analysis

A green letter 'O' inside a light gray square with a thin black border.

Opportunities

Opportunities for Sustaining CCSAFS

- New research area will be opened for the staff. This will improve the existing resources of Jerash University.
- High level dissemination will attract more students will make the programme in self -supporting process.
- Continuous update of the teaching curricula of the program.
- A plan from Jerash University can be prepared to have agreements with inline ministries, institutions and NGOs to address national needs in the areas of CCSAFS as research topics for the MSc programs.
- Think about online degree through CCSAFS e-learning platform.

A purple letter 'T' inside a light gray square with a thin black border.

Threats

Obstacles to maintain the MSc in CCSAFS

- Inadequate financial resources for teaching and research.
- Lack of interest from students to join the program due to lacking financial support.
- Changes of governmental policies and plans in the areas of CCSAFS.
- Lack of experience in the areas of CCSAFS among staff members involved in teaching the courses.

What could prevent maintaining the programme

- Lack of students' interest and the required financial resources.

Causes of obstacles

- Changes at administrative and institutional levels.
- Similar MSc programs that will compete with Jerash ad Suez Universities.



Thank you

COURSE NAME:.....

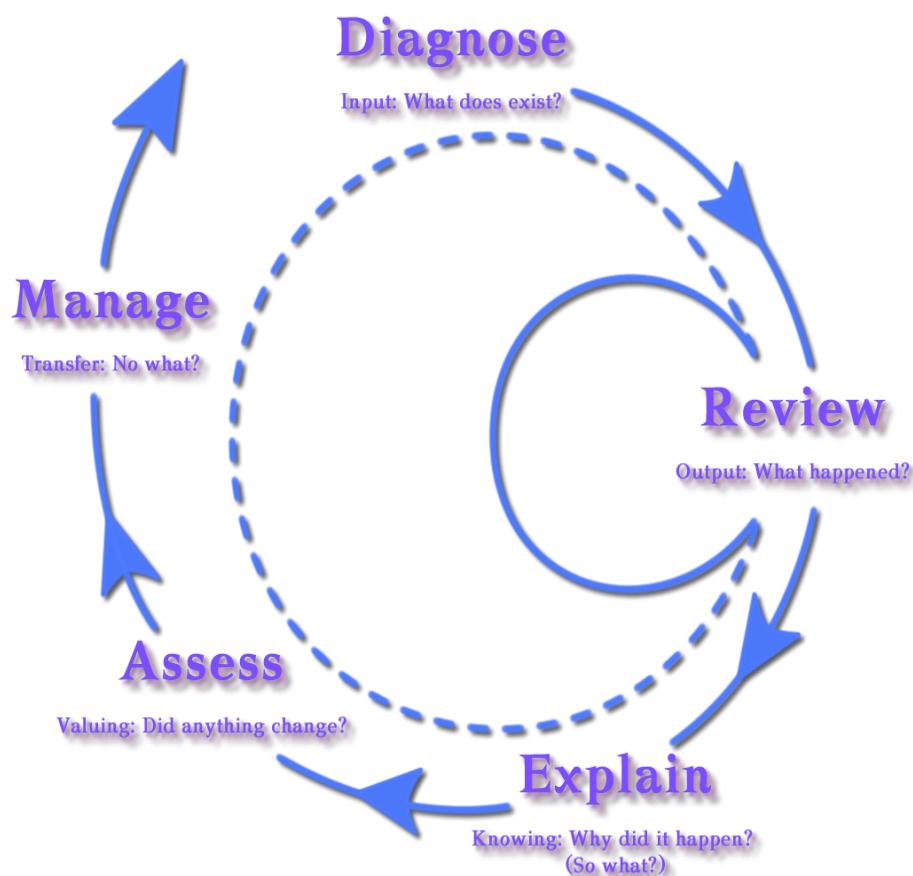
STUDENT NAME:.....

MODULES FINISHED (Give the number):

Dear student of the CCSFS MSc program

This questionnaire is a follow-up of the pre-course evaluation you have done at the beginning of your course. The answers do not have any impact on your grade. So, feel free to answer carefully the questions asked and be self-critical. You must answer these questions in the middle of your course period. That is, when you finish half of the course modules. The completed questionnaire must be sent to your instructor within one week after the middle of the course.

THE DREAM METHODOLOGY



DIAGNOSE

Student name:.....

Have you ever attended a course on this topic or skill area in the past?

Yes..... No.....

If Yes, give the title.....

Have you ever created a project or written work similar to this course?

Have you ever worked in a work dealing with issues similar to the topic of this course?

Yes..... No.....

If Yes, What are your main responsibilities at work?

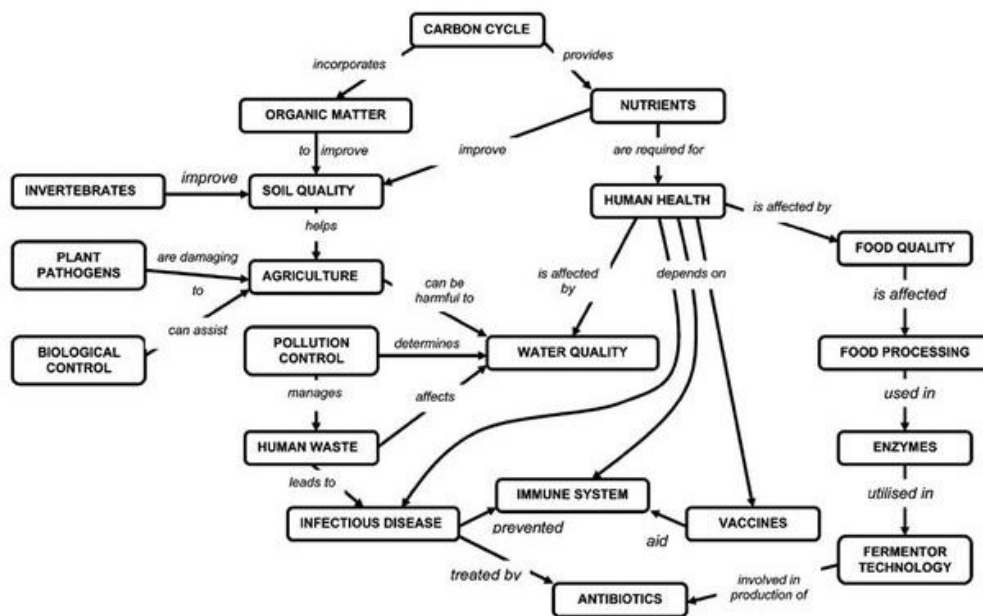
.....

What do you expect from this course?

.....
.....
.....
.....
.....
.....

In this page, you are given an example of a diagram or graphical tool (concept map) that visually represents relationships between concepts and ideas. The lines that connect the boxes can phrases that explain the connections between concepts referring to the key concept in the box (Carbon cycle). The title of your course has three key concepts- **climate change adaptation and mitigation**. You have to create a similar diagram for each of the two key concepts. Start with the first key concept and write in the black box in the middle, the word CLIMATE CHANGE ADAPTATION. Now, try to brainstorm about CLIMATE CHANGE ADAPTATION by organizing your existing knowledge in the other boxes of the figure. Before beginning your concept map, it can be helpful to come up with a list identifying the key concepts that need to be included. Establish a rank ordered list from the most general to the most specific. Then, figure out where they fit in the map. Remember, that the map shows key ideas and concepts and how they link together to make up a whole. When you finish with it, do the same with CLIMATE CHANGE MITIGATION

LIST OF KEY WORDS/CONCEPTS AND PHRASES



REVIEW/REFLECT

What happened during the half period of your course? (Describe briefly the positive and negative incidents)

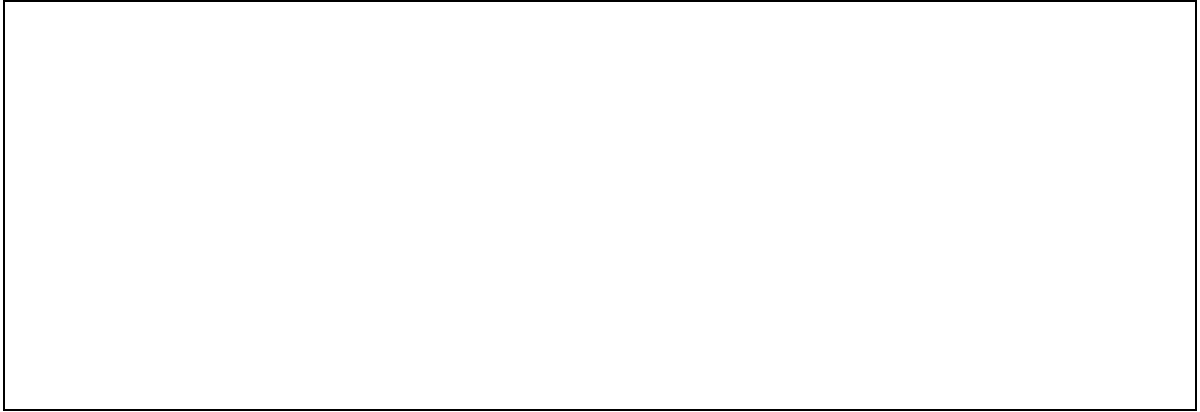
Positive	Negative

What did you expect and what was different?

Expectations	Differences from what expected. Here you have to state what was different from what you expected as well as unexpected things that possible happened)

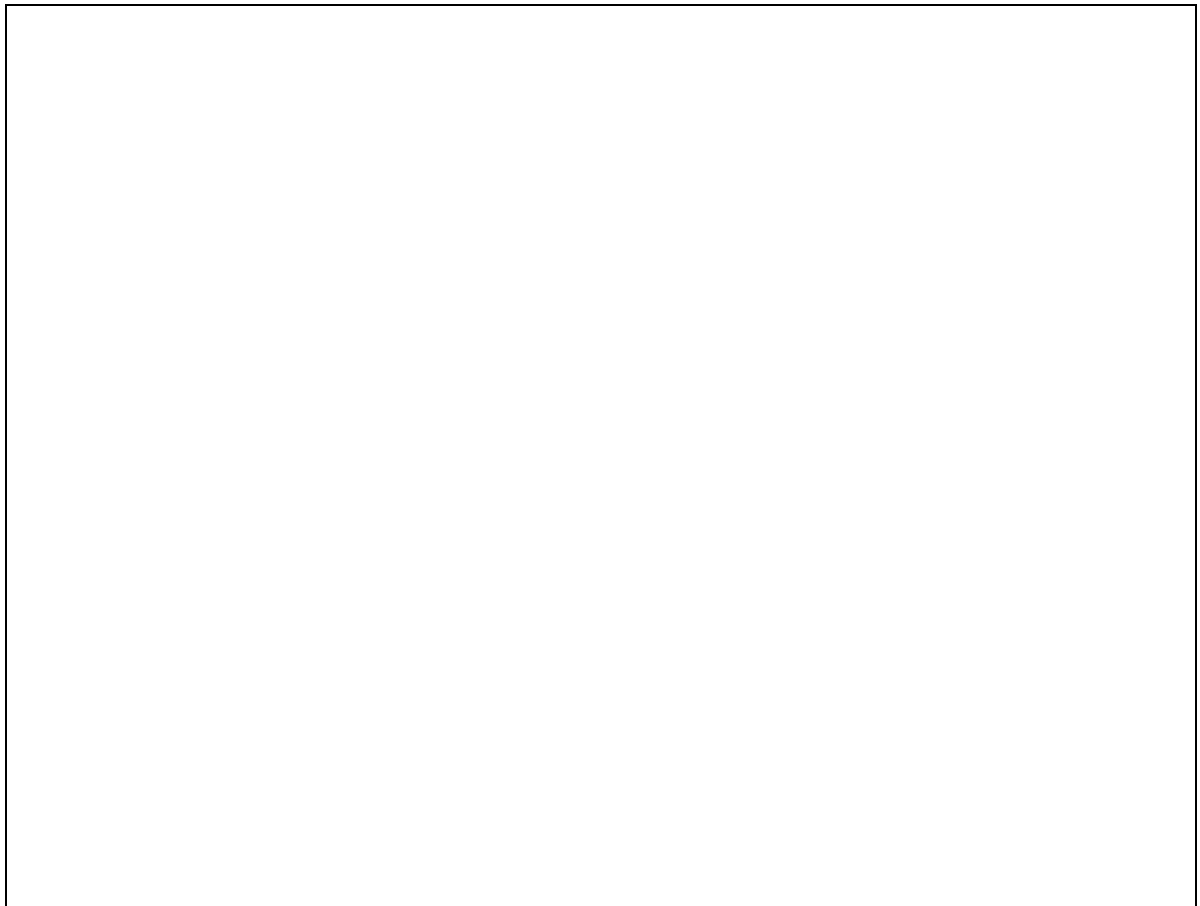
What was your reaction due to differences in your expectations? Have you or could you suggest anything to improve the course?

--



EXPLAIN

In case that some of your expectations from the first half of the course have not been in the way you expected, why is it so? How do you explain that?



ASSESS

What impact did what you have learned in these two modules in terms of?

- 1) Academic development**
- 2) Professional development**
- 3) Social development**

4) Personal development

Impact on your knowledge that contributes to your academic development	
Impact on your professional development that makes you more competent in terms of employment	
Impact on the society you live in terms of turning your community and country more sustainable	
Impact on your personality. In what ways, what learning you have achieved so far	

has contributed to your personality. How do you feel now?	
--	--

If you would take the same course again, what would you suggest to be different?

--

MANAGE

What you can change or how can you apply the new learning of the course in the future?



Name of the student:.....

PART 1

Gender: Male..... Female.....

Age:

How often do you use?

Information seeking through the web for e-books, e-journals, e-databases, etc.

Very frequently **Frequently** **Sometimes** **Never**.....

Using statistical analysis tools

Very frequently **Frequently** **Sometimes** **Never**.....

Using communication tools such as blog, discussion forums

Very frequently Frequently Sometimes Never.....

Using presentation tools such as Power Point

Very frequently Frequently Sometimes Never.....

Using e-learning platforms

Very frequently Frequently Sometimes Never.....

PART 2

No	Read carefully the statements and tick your preference	Agree	Newtral	Dissagree
1	I enjoy doing new things.			
2	I like to do a job well.			
3	I think carefully before making my mind up.			
4	I make decisions quickly			
5	I enjoy a challenge.			
6	I like outgoing, lively people.			
7	I don't act straight away.			
8	It takes me a while to make my mind up.			
9	I like people to take things seriously.			
10	I listen before I speak.			
11	I don't usually hide my feelings.			
12	I don't like quick people.			
13	I like people who think before they act.			
14	I like things to be done well.			
15	I enjoy group work.			
16	I can upset people.			
17	I enjoy practical activities.			
18	I am calm in discussions.			
19	I can get cross with people.			
20	I don't think about other people.			
21	I have firm views about what is right and wrong.			
22	I do things without thinking.			
23	I speak my mind.			
24	I like to work carefully.			

PART 2

Read the following questions and circle the letter of the best answer in your opinion. There is no right or wrong answers to this quiz. Just circle what you usually prefer.

- When learning how to use my computer, I prefer to:
 - Read the manual first
 - Have someone explain how to do it first
 - Just start using the computer and get help if I need it
- When getting directions to a new location, it is easier to:
 - Look at a map

- B. Have someone tell me how to get there
 - C. Follow someone or have them take me there
3. To remember a phone number, I:
- A. Look at the number and dial it several times
 - B. Repeat it silently or out loud to myself several times
 - C. Remember the number by the pattern pressed on the keypad, the tones of each number or by writing it down
4. For relaxation, I prefer to:
- A. Read a book or magazine
 - B. Listen to or play music
 - C. Go for a walk or do something physical
5. I am better at:
- A. Reading
 - B. Talking
 - C. Physical activities
6. In school, I learn best by:
- A. Reading
 - B. Listening
 - C. Hands-on activities
7. I tend to be a:
- A. Thinker
 - B. Talker
 - C. Doer
8. When I study for a test, it works best when I:
- A. Read and picture the information in my head
 - B. Read and say the ideas out loud or silently
 - C. Highlight, write notes and outlines
9. It is easier for me to remember:
- A. Faces
 - B. Names
 - C. Events
10. On Saturday, I would prefer to:
- A. See a movie
 - B. Go to a concert
 - C. Participate in athletics or be outside
11. In a college class, it is most important to have:
- A. A good textbook with pictures, graphs and diagrams
 - B. A good teacher who has interesting lectures
 - C. Hands-on activities
12. It is easier to study by:
- A. Reading and reviewing the material
 - B. Discussing the subject with others
 - C. Writing notes or outlines
13. When I get lost, I prefer to:

- A. Look at the map
B. Call or ask for directions
C. Drive around the area until I recognize familiar landmarks
14. When cooking, I often:
A. Look for new recipes
B. Talk to others to get new ideas
C. Put it together and it generally comes out OK
15. When assembling a new toy or piece of furniture, I usually:
A. Read the instructions first
B. Talk myself through each step
C. Start putting it together and read the directions if I get stuck
16. When solving a problem, it is more useful to:
A. Read a best selling book on the topic
B. Talk over the options with a trusted friend
C. Do something about it
17. Which statement do you like the best:
A. A picture is worth a thousand words
B. Talk to me and I can understand.
C. Just do it.
18. When I was a child, my mother said I:
A. Spent a lot of time reading, taking photos or drawing
B. Had lots of friends and was always talking to someone on the phone
C. Was always taking things apart to see how they worked



اسم الطالب:

.....

الجزء الأول:

[] أنثى

[] ذكر النوع الاجتماعي:

[] سنة العمر:

● حدد مستوى مهاراتك في كل من المجالات التالية:

مستوى المهارة				الرقم	
مطلقا	أحيانا	غالبا	دائما	الجزء الأول	

1.	البحث عن المعلومات في الشبكة العنكبوتية عبر الكتب والمجلات العلمية وقواعد البيانات الالكترونية			
2.	استخدام الأدوات الاحصائية التحليلية			
3.	استخدام أدوات الاتصال كالمدونات ومنتديات النقاش			
4.	استخدام ادوات العروض التقديمية مثل (بور بوينت)			
5.	استخدام منصات التعليم الإلكتروني			

الجزء الثاني:

- اقرأ العبارات التالية جيدا وضع إشارة (√) عند الخيار الذي يبين مستوى الموافقة على انطباق العبارة عليك:

الرقم	العبارة	مستوى الموافقة على انطباق محتوى العبارة عليك		
		موافق	محايد	غير موافق
1.	استمتع بعمل الأشياء الجديدة			
2.	أفضل إنجاز العمل على أكمل وجه			
3.	أفكر جيدا قبل اتخاذ قراري			
4.	اتخذ القرارات بسرعة			
5.	استمتع بخوض التحديات			
6.	أحب التعرف على أناس جدد			
7.	أنا لا أتصرف على الفور			
8.	يتطلب مني الأمر بعض الوقت لاتخاذ قراري			
9.	أحب أن يأخذ الأفراد الأمور بجدية			
10.	استمع دائما قبل أن أتكلم			
11.	أنا عادة لا أخفي مشاعري			
12.	لا أحب الأشخاص المتسرعين			
13.	أفضل الأشخاص الذين يفكرون قبل أن يتصرفوا			

14.	أحب أن تنجز الأشياء بشكل جيد		
15.	أستمتع بالعمل الجماعي		
16.	يمكنني أن أزعج الآخرين		
17.	أستمتع بالنشاطات العملية		
18.	أنا هادئ أثناء النقاشات		
19.	يمكنني أن أكون غاضبا وأعارض الآخرين إذا تطلب الأمر ذلك		
20.	لا أفكر في الأشخاص الآخرين		
21.	لدي وجهات نظر ثابتة حول ما هو صواب وما هو خطأ		
22.	أفعل الأشياء بدون تفكير		
23.	أبوح دائما بما يجول بخاطري		
24.	أحب العمل بدقة وعناية		

الجزء الثالث:

- اقرأ العبارات التالية وضع دائرة حول الإجابة التي تراها مناسبة حسب رأيك:

1. عندما أحاول تعلم كيفية استخدام جهاز الحاسوب الخاص بي فإنني:

أ. أقرأ أولاً كتيب التعليمات.

ب. أستعين أولاً بشخص ليشرح لي كيفية استخدام الجهاز.

ج. أبدأ فوراً باستخدام الجهاز وأحاول الحصول على المساعدة في حال احتجت إليها.

2. عند محاولة الحصول على الاتجاهات لمعرفة موقع جديد فإنه من الأفضل:

أ. الاستعانة بخريطة.

ب. الاستعانة بشخص ليشرح لي كيفية الوصول للموقع.

ج. تتبع شخص ما أو جعله يأخذني للموقع.

3. لتذكر رقم أي هاتف فإنني:

أ. انظر إلى الرقم وأطلبه عدة مرات.

ب. أكرر الرقم بصمت أو بصوت عال عدة مرات.

ج. تذكر الرقم بنمط الضغط على لوحة المفاتيح أو بنغمات كل رقم أو بكتابته.

4. للراحة والاسترخاء أفضل:

أ. قراءة كتاب أو مجلة.

ب. الاستماع أو عزف الموسيقى.

ج. المشي أو ممارسة الرياضة.

5. أنا أفضل في:

أ. القراءة.

ب. المحادثة.

ج. النشاطات البدنية.

6. خلال دراستي أتعلم بشكل أفضل من خلال:

أ. القراءة.

ب. الاستماع.

ج. ممارسة النشاطات العملية.

7. أنوي أن أكون:

أ. مفكرا.

ب. متكلمًا.

ج. منفذا (فاعلا).

8. عندما أدرس لامتحان فإن أفضل طريقة هي:

أ. القراءة وتصور المعلومات في ذهني.

ب. القراءة وذكر الأفكار بصمت أو بصوت عال.

ج. تظليل المكتوب وكتابة ملاحظات وخطوط أو عناوين رئيسية.

9. من السهل علي أن أتذكر:

أ. الوجوه.

ب. الأسماء.

ج. الأحداث.

10. أفضل في أيام السبت (العطلة) أن:

أ. مشاهدة فيلم.

ب. الذهاب إلى حفلة موسيقية.

ج. المشاركة بألعاب رياضية أو البقاء خارج المنزل.

11. في الصفوف الجامعية من المهم أن يوجد:

أ. كتاب مقرر جيد بصور ورسوم بيانية وأشكال توضيحية.

ب. مدرس جيد بمحاضرات شيقة.

ج. نشاطات عملية.

12. من الأسهل الدراسة:

أ. بقراءة ومراجعة المادة الدراسية.

ب. مناقشة الموضوعات الدراسية مع الآخرين.

ج. كتابة الملاحظات والعناوين الرئيسة.

13. عندما أضيع أفضل أن:

أ. أنظر إلى الخريطة.

ب. أسأل عن الاتجاهات.

ج. أسوق السيارة حول المنطقة حتى أتعرف على علامات مميزة تساعدني.

14. عند الطهي غالبًا ما أقوم بما يلي:

أ. أبحث عن وصفات جديدة.

ب. أتحدث مع الآخرين للحصول على أفكار جديدة.

ج. إنجاز المهمة كيفما اتفق وغالبًا ما تكون النتيجة مرضية.

15. عند تركيب لعبة جديدة أو قطعة أثاث جديدة فإنني عادة:

أ. أقرأ التعليمات أولاً.

ب. أتحدث مع نفسي في كل خطوة.

ج. أبدأ بعملية الجمع وأقرأ التعليمات إذا تعثرت.

16. عند حل أي مسألة فمن المفيد أن:

أ. قراءة أحد الكتب الأكثر مبيعًا حول الموضوع.

ب. التحدث عن الخيارات المتوفرة مع صديق موثوق.

ج. فعل شيء حيال الأمر.

17. أي من الجمل التالية تفضل:

أ. الصورة تغني عن ألف كلمة.

ب. تحدث معي ويمكنني أن أفهم.

ج. فقط افعل ذلك.

18. عندما كنت طفلاً قالت أمي عني:

- أ. أنني كنت أمضي وقتاً طويلاً في القراءة وأخذ الصور والرسم.
- ب. أن لدي الكثير من الأصدقاء وأنني أتحدث دائماً مع أحد ما بالهاتف.
- ج. كنت دائماً أفكك الأشياء لمعرفة كيف تعمل.



10Cs (CRITICAL TRANSVERSAL SKILLS) RUBRIC FOR THE INTEGRATION IN THE MSc IN CCSAFS

Communication	The course materials, activities and assignments provide students Clearly identifies and summarizes main issues and successfully explains why/how they are problems or questions; and identifies embedded or implicit issues, addressing their relationships to each other	Successfully identifies and summarizes the main issues, but does not explain why/how they are problems or create questions	Identifies main issues but does not summarize or explain them clearly or sufficiently	Fails to identify, summarize, or explain the main problem or question. (OR) Represents the issues inaccurately or inappropriately.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					

Collaboration	The course materials, activities and assignments provide students Not only correctly identifies all the empirical and theoretical contexts relevant to all the main stakeholders, but also finds minor stakeholders and contexts and shows the tension or conflicts of interests among them.	Correctly identifies all the empirical and most of the theoretical contexts relevant to all the main stakeholders in the situation.	Shows some general understanding of the influences of empirical and theoretical contexts on stakeholders, but does not identify any specific ones relevant to situation at hand.	Fails accurately to identify and explain any empirical or theoretical contexts for the issues. (OR) Presents problems as having no connections to other conditions or contexts.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
Critical thinking & problem solving	The course materials, activities and assignments provide students Not only formulates a clear and precise personal point of view, but also acknowledges objections and rival positions and provides convincing replies to these.	Formulates a clear and precise personal point of view concerning the issue, and seriously discusses its weaknesses as well as its strengths.	Formulates a vague and indecisive point of view, (OR) anticipates minor but not major objections to his/her point of view, (OR) considers weak but not strong alternative positions.	Fails to formulate and clearly express own point of view, (OR) fails to anticipate objections to his/her point of view, (OR) fails to consider other perspectives and position.	
<i>Critical comments: Provide your constructive and</i>					

<i>critical comments aiming to improve the activity</i>					
Creativity & innovation	Not only identifies and evaluates all the important assumptions, but also some of the more hidden, more abstract ones.	Identifies and evaluates all the important assumptions, but not the ones deeper in the background – the more abstract ones.	Identifies some of the most important assumptions, but does not evaluate them for plausibility or clarity.	Fails to identify and evaluate any of the important assumptions behind the claims and recommendations made.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
Critical reflection	Not only identifies and rigorously evaluates all important evidence offered, but also provides new data or information for consideration.	Identifies all important evidence and rigorously evaluates it.	Successfully identifies data and information that counts as evidence but fails to thoroughly evaluate its credibility.	Fails to identify data and information that counts as evidence for truth-claims and fails to evaluate its credibility.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
Critical consciousness	Not only formulates a clear and precise personal point of view, but also acknowledges objections and rival positions and provides	Formulates a clear and precise personal point of view concerning the issue, and seriously discusses its weaknesses as well as its strengths	Formulates a vague and indecisive point of view, (OR) anticipates minor but not major objections to his/her point of	Fails to formulate and clearly express own point of view, (OR) fails to anticipate objections to his/her point of view, (OR)	

	convincing replies to these.		view, (OR) considers weak but not strong alternative positions.	fails to consider other perspectives and position.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
Connectivity	Not only identifies and evaluates all the important assumptions, but also some of the more hidden, more abstract ones.	Identifies and evaluates all the important assumptions, but not the ones deeper in the background – the more abstract ones.	Identifies some of the most important assumptions, but does not evaluate them for plausibility or clarity.	Identifies and evaluates all the important assumptions, but not the ones deeper in the background – the more abstract ones.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
Cross-cultural understanding	Not only identifies and rigorously evaluates all important evidence offered, but also provides new data or information for consideration.	Identifies all important evidence and rigorously evaluates it.	Successfully identifies data and information that counts as evidence but fails to thoroughly evaluate its credibility.	Fails to identify data and information that counts as evidence for truth-claims and fails to evaluate its credibility.	
<i>Critical comments: Provide your constructive and</i>					

<i>critical comments aiming to improve the activity</i>					
Co-responsibility	Identifies and thoroughly discusses implications, conclusions, and consequences, considering all relevant assumptions, contexts, data, and evidence.	Identifies and briefly discusses implications, conclusions, and consequences considering most but not all the relevant assumptions, contexts, data, and evidence.	Suggests some implications, conclusions, and consequences, but without clear reference to context, assumptions, data, and evidence.	Fails to identify implications, conclusions, and consequences of the issue, (OR) the key relationships between the other elements of the problem, such as context, assumptions, or data and evidence.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
<i>Information and discovery</i>	Provides a thorough description of the problem, investigation, or challenge, including all important details, in his/her own words. Creates a large number of questions; questions are always clear. Although some questions are fairly easy to answer, includes a number of powerful questions (i.e., open,	Clearly explains the problem, investigation, or challenge in his/her own words; creates an acceptable number of questions; and questions are usually clear.	Defines the problem, investigation, or challenge in his/her own words, but explanation is a little unclear; creates a small number of related questions; and questions are sometimes clear.	Shows an inability to explain the problem, investigation, or challenge in his/her own words; creates a small number of questions; and questions are unclear.	

	requiring a lot of thought).				
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
<i>Interpretation and analysis</i>	Clearly and accurately describes sources' points of view; explains how sources use reasons and evidence to support particular points.	Clearly and accurately describes points of view from a variety of sources.	Attempts to describe the points of view of a small number of sources, but explanation may be a little unclear.	Is beginning to show understanding of the concept of point of view; is building a foundation to describe sources' points of view.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
<i>Reasoning</i>	Clearly explains what he/she believes, but has not proven, about the problem, investigation, or challenge—i.e., assumptions. When describing inferences, explains the assumptions used to make inferences.	Clearly describes inferences, finds meaning that is not explicitly (clearly) stated by sources, and makes conclusions on the basis of available information.	Attempts to describe inferences, but descriptions are a little unclear.	Is beginning to show understanding of inferences; is building the foundation to make and describe own inferences.	
<i>Critical comments: Provide your constructive and</i>					

<i>critical comments aiming to improve the activity</i>					
<i>Problem solving/solution finding</i>	Offers a very clear and convincing description of how to best solve the problem, meet the challenge, or answer the inquiry question. Tests ideas, assesses the outcome, and decides if a new solution is necessary. When using systems thinking in problem solving, describes inputs and outputs within a system; describes how the output will change if an input is changed.	Explains ideas about how to best solve the problem, meet the challenge, or answer the inquiry question. Clearly describes why their ideas make sense. Uses systems thinking in problem solving. Describes the function of the whole system, names all of the parts, describes the function of each part, and predicts what would happen if a part is missing.	Explains ideas about how to best solve the problem, meet the challenge, or answer the inquiry question, but the explanation is a little unclear. Describes why their ideas make sense, but description could be more convincing. Is beginning to use systems thinking in problem solving. Describes the function of the whole system, names all of the parts, and describes the function of each part, but is unable to predict what will happen if a part is missing.	Is beginning to show understanding of how to create ideas regarding how to solve a problem, meet a challenge, or answer an inquiry question; is building the foundation to develop solutions and explain ideas. Is beginning to show understanding how to use systems thinking in problem solving. Describes the function of the whole system and names all of the parts, but is unable to describe the function of each part or predict what will happen if a part is missing.	
<i>Critical comments: Provide your constructive and</i>					

<i>critical comments aiming to improve the activity</i>					
<i>Constructing arguments</i>	Explains opinion with multiple reasons and documented proof in a well-organized, logical order.	Gathers an adequate, acceptable amount of proof from sources to support opinion.	Offers a limited number of supported reasons; supports reasons with facts and details.	Is beginning to show understanding of how to make arguments; is learning how to identify opinions, proof, reasons, facts, and details in arguments.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
<i>Self regulation/reflection</i>	Accurately self-assesses his/her ability to gather and interpret information, make inferences, find solutions, and construct arguments.	Clearly explains the critical thinking skills he/she used in the unit, in his/her own words. Often assesses one's own critical thinking dispositions with accuracy. (Does the student always try hard to understand? Allow enough time and effort for thinking? Reflect on the amount of support that	Defines critical thinking in his/her own words. Explains the critical thinking skills assessed in the unit, in his/her own words, but explanation is somewhat unclear. Sometimes assesses one's own critical thinking dispositions with accuracy. (Does the student always try hard to understand?	Is beginning to show understanding that there are critical thinking skills and that with practice, he/she can improve these skills. Is building a foundation to explain the critical thinking skills assessed in the unit, in his/her own words. Rarely assesses one's own critical thinking dispositions with accuracy. (Does the	

		he/she needs during the critical thinking process?)	Allow enough time and effort for thinking? Reflect on the amount of support that he/she needs during the critical thinking process?)	student always try hard to understand? Allow enough time and effort for thinking? Reflect on the amount of support that he/she needs during the critical thinking process?)	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					



GUIDELINES FOR THE SDGs RUBRIC

In order to develop activities connecting the 17 SDGs with the three key domains of the CCSAFS MSc the following steps should be taken: 1) Use an Internet searching machine such as Google putting the name of the SDG and the domain (ex. End poverty and climate change). This will result in various open access resources that you have to check and decide to download for further review. I attach some of the resources I found useful for SDG1. 2) After reviewing the downloaded resources, suggest activities for each of the three domains in the table below (Climate Change, Sustainable Agriculture and Food Security) in connection to a course module. 2) You have to give full reference of the name of the course and the course module that the activities are relevant. 3) The filled table with activities must be brought at the 3rd National Training Workshop for further discussion, reflection and updating. This work will be done in each partner university and it is the responsibility of each institutional coordinator to fulfil this task.

Prof.Dr. Vassilios Makrakis

Project Coordinator

6/06/2018

SDGs		CLIMATE CHANGE	SUSTAINABLE AGRICULTURE	FOOD SECURITY	COURSE MODULE
1	End poverty in all its forms everywhere				
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture				
3	Ensure healthy lives and promote well-being for all at all ages				
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all				
5	Achieve gender equality and empower all women and girls				
6	Ensure availability and sustainable management of water and sanitation for all				

7	Ensure access to affordable, reliable, sustainable, and modern energy for all				
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all				
9	Build resilient infrastructure, promote inclusive, and sustainable industrialization and foster innovation				
10	Reduce inequality within and among countries				
11	Make cities and human settlements inclusive, safe, resilient, and sustainable				

12	Ensure sustainable consumption and production patterns				
13	Take urgent action to combat climate change and its impacts				
14	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development				
15	Protect, restore, and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation, and halt biodiversity loss				
16	Promote peaceful and inclusive societies for sustainable development, provide				

	access to justice for all, and build effective, accountable, and inclusive institutions at all levels				
17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development				



Guidelines on ECTS Student Workload and a Rubric for Assessing ECTS Integration in CCSAFS Course Curriculum

Developed by:

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University of Crete

The purpose of this guideline is to provide peer-reviewers, external evaluators and course leaders at CCSAFS with tools to better comprehend, calculate and assess student workload when planning, reviewing and revising the CCSAFS courses.

1. Defining workload

Reaching the learning outcomes of a course and course modules, in particular is directly linked with the *workload* of a course. In the context of CCSAFS, workload is based on ECTS (European Credit Transfer System). As pointed in the CCSAFS Toolkit learning outcomes are sets of competencies, expressing what the student will know, understand or be able to do after completion of a course. Workload refers to the expected time an average student might need to complete the required learning outcomes. Student workload covers all educational components of a study programme such as attending lectures, face-to-face and/or online, seminars, reflections, work placements, dissertations, projects, laboratory work, self-study and examinations. Thus, student workload covers all aspects of learning and is not related solely to formal teaching hours. Each of the four CCSAFS full-time academic semesters consists of 30 ECTS. Each ECTS credit stands from 25 to 30 working hours. In a full-time study year, 60 ECTS credits, that is 30 credits each semester. It is critical that all involved in course curriculum development and evaluation as well as teaching are expected to develop a good understanding of what the workload for a particular study programme or unit/module may entail and to relate this workload to the learning outcomes to be achieved as a whole and individually, in the course modules.

2. Defining ECTS and its importance

ECTS is a student-centred approach of describing learning by allocating credits to learning components in line with learning objectives and learning outcomes, based on the workload of the average learner. The allocation of ECTS credits is based on the official length of a study programme cycle. In the case of the MSc in CCSAFS, the total workload necessary to obtain the MSc degree lasts four semesters for full-time students and consists of 90 credits for course work and 30 credits for writing the thesis, making the total 120 credits. In case of the Professional Master degree applied in Egypt that runs in parallel with the research-oriented degree, students are to take only the courses equivalent to 120 ECTS. Thus, a 10 ECTS credit course amounts 250 to 300 hours student work. The implementation of ECTS is very important, not only for students and instructors, but also for employers as it provides a good and transparent measurement of the student work. Usually, employers require detailed information about the qualification and the student and the results achieved. Verified through ECTS Transcripts and the Diploma Supplement becomes a critical instrument for reflecting the learning outcomes entailed in a study programme leading to a qualification degree.

3. Calculating workload

Calculating workload is a critical learning process in understanding the real learning achievements. To ensure students that are in track of their learning, it is important to list up all activities involved in the course modules in line with the learning outcomes in each module. However, it is worthy pointing out that credits are a relative concept and do not express the quality of the academic achievements, but credits express more the quantity of work. The quality of a student's work is assessed through the completion of the learning activities and the outcome is expressed through grades. Calculating the student workload for the whole course components, not only for the teaching hours, is very critical and requires much attention. First, it is essential to identify the learning components that a course consists of, second, to weight each component in line with the learning objectives and outcomes, in total and separately for each course module. Each component should therefore include enough time for deep learning than surface learning. Students should have time to understand the underlying principles, to integrate the learning with previously acquired knowledge and to get a holistic view on the subject. Insufficient time for the course modules components may lead to *surface* learning where students focus on memorizing facts and data. Both the example presented and the rubric provide good means for ensuring proper and effective allocation of the workload.

4. An example

The table below shows the workload calculation for a typical 10 ECTS CCSAFS course. The calculation method used in the table is based on the whole course and in each course module. The workload is divided into a series of learning components, each involving an estimated number of hours of work (time factor). The total workload should match the learning hours indicated by the credit value of the course and be consistent with the rubric, presented in Table 2.

Table 1: An Example of a 10 ECTS Workload Allocation

Learning Components	No	Time Factor	Workload	Course Modules						Workload
				1	2	3	4	5	6	
Lectures (face-to-face)	10	3	30	3	3	6	6	6	6	30
Online	4	3	12	3	-	4	2	-	3	12
Lab work	6	2	12	2	4	-	2	2	2	12
Reading articles (3 pages per hour)	200	0,3	60	7	8	10	10	12	13	60
Reading book chapters (5 per/h)	150	0.2	30	4	5	6	5	5	5	30
Preparing course activities	6	15 (M)	75	11	20	14	30	-	-	75
Project work	1	20	20					5	15	20
Preparation for exam	1	50	50					20	30	50
Writing the exam	1	3	3						3	3
Total			292	30	40	40	55	50	77	292

Table 2: ECTS Assessment Rubric

Name of University:		Title of Course:			
Name of evaluator:					
ECTS/Workload Integration Assessment Domains	Strong Impact (4 points)	Good Impact (3 points)	Some Impact (2 points)	Minimal Impact (1 point)	Grade
Alignment	The allocation of student workload matches up well with learning objectives, outcomes, so students learn what they intend to learn accurately.	The allocation of student workload matches up mostly with learning objectives, outcomes, so students learn what they intend to learn accurately.	The allocation of student workload does not match up well with learning objectives, outcomes, so students learn what they intend to learn accurately.	The allocation of student workload does not match up with learning objectives, outcomes, so students learn what they intend to learn accurately.	
Critical comments: Provide your constructive and critical comments aiming to improve the activity					
Balance	There is strong evidence that the distribution of the working hours is done appropriately between the course modules.	There is not so strong evidence that the distribution of the working hours is done appropriately between the course modules.	There is weak evidence that the distribution of the working hours is done appropriately between the course modules.	There is no evidence that the distribution of the working hours is done appropriately between the course modules.	
Critical comments: Provide your constructive and critical comments aiming to improve the activity					

Coverage	The allocation of student workload matches up well with course activities and assessments.	The allocation of student workload matches up mostly with course activities and assessments.	The allocation of student workload does not match up well with course activities and assessments.	The allocation of student workload does not match up with course activities and assessments.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
Communication	There is strong evidence that the student workload allocation is clearly understood and communicated to students.	There is not so strong evidence that the student workload allocation is clearly understood and communicated to students.	There is weak evidence that the student workload allocation is clearly understood and communicated to students.	There is no evidence that the student workload allocation is clearly understood and communicated to students.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					
Monitoring	There is strong evidence that the way student workload is allocated makes easier to monitor student progress to see whether workload is actually implemented.	There is not so strong evidence that the way student workload is allocated makes easier to monitor student progress to see whether workload is actually implemented.	There is weak evidence that the way student workload is allocated makes easier to monitor student progress to see whether workload is actually implemented.	There is no evidence that the way student workload is allocated makes easier to monitor student progress to see whether workload is actually implemented.	
<i>Critical comments: Provide your constructive and critical comments aiming to improve the activity</i>					

EVALUATION RESULTS OF THE ONLINE COMMUNITY OF PRACTICE

The analysis of the data received for the evaluation of the Online Community of Practice (OnCoP) presented in Graphs 1, 2, 3, 4 and Tables 2, 3, 4, 5. shows that:

1. Between the accessibility of the OnCoP and the development of knowledge and skills on issues related to CCSAFS (59.1%).
2. Between the purpose of the OnCoP and the promotion of CCSAFS through the OnCoP (76.1%)
3. Between the interaction that users of the OnCoP performed among the participants and the promotion of accessibility to the OnCoP (68%). However, although participants' involvement with WEB 2 applications was relatively small (Tables 6 & 7), reporting mainly a few times a month both on a personal level (28.6%) and at a professional level (38.1%). (Tables 6.7), in contrast they have indicated the acquisition of high skills in WEB2 technologies (Table 8). 95% of users consider to a great extent that the online community practice system was easy to use (Table 9). The same high percentages are presented by the other metrics that enhance the usability of the OnCoP. Specifically, they indicated that:

1. They were able to easily navigate by 81% on the materials uploaded in the ONCoP (Table 10).
2. The materials uploaded in the OnCoP were quite understandable (92%) (Table 11), although the ease of access to the materials does not show the same high percentages, but 67% is considered high (Table 12).
4. All agreed that the design of the OnCoP was excellent (Table 13) and the qualitative data collected showed that the OnCoP encouraged participants' fast and reliable communication between with ease sharing and transmission of the materials included. The exchange and sharing of information received positive comments and it was

effective and easy to send and receive information. IT also encouraged interactions among the between members of the OnCoP. Tables 15, 16 and 17 show that all these were substantiated by the fact that most users (90%) of the OnCoP has grasped the purpose and function of the system supporting it and because of the high level of its practicability 90%).

Table 1. Paired Samples T-Test Correlations

		Πλήθος	Συσχέτιση	Sig.
Pair 1	Accessibility of CoP & Sustainable development in COP	20	,591	,001
Pair 2	Purpose of CoP & Sustainable development in COP	20	,761	,001
Pair 3	Accessibility of CoP & Purpose of CoP	21	,685	,001
Pair 4	Interaction in CoP & Accessibility of CoP	20	,680	,001

Table 2. Sustainable development in COP

		Quite a bit	Very much	Not Applicate	Total
Accessibility of CoP	Disagree a little	1	1	0	2
	Agree a little	2	3	0	5
	Agree fairly	0	7	1	8
	Strongly agree	0	3	2	5
Total		3	14	3	20

Graph 1

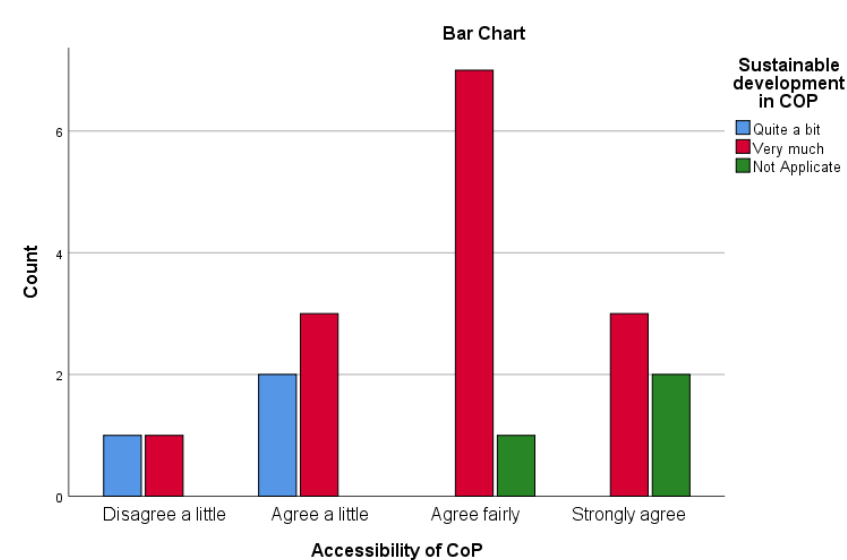


Table 3. Purpose of CoP

		Agree a little	Agree fairly	Strongly agree	Total
Accessibility of CoP	Disagree a little	1	1	0	2
	Agree a little	1	4	0	5
	Agree fairly	0	6	3	9
	Strongly agree	0	1	4	5
Total		2	12	7	21

Graph 2

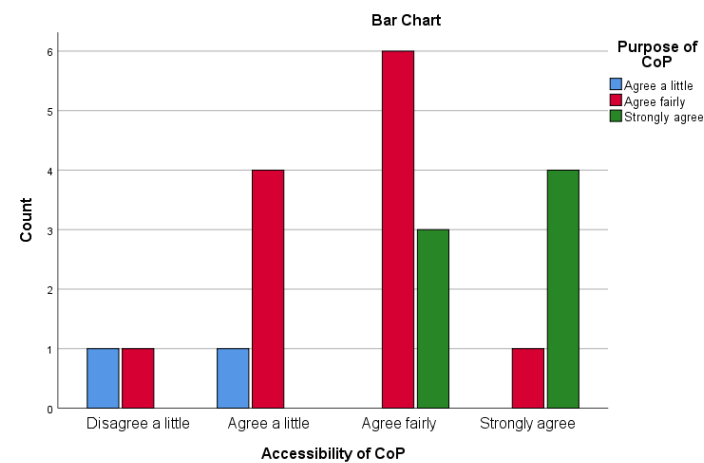
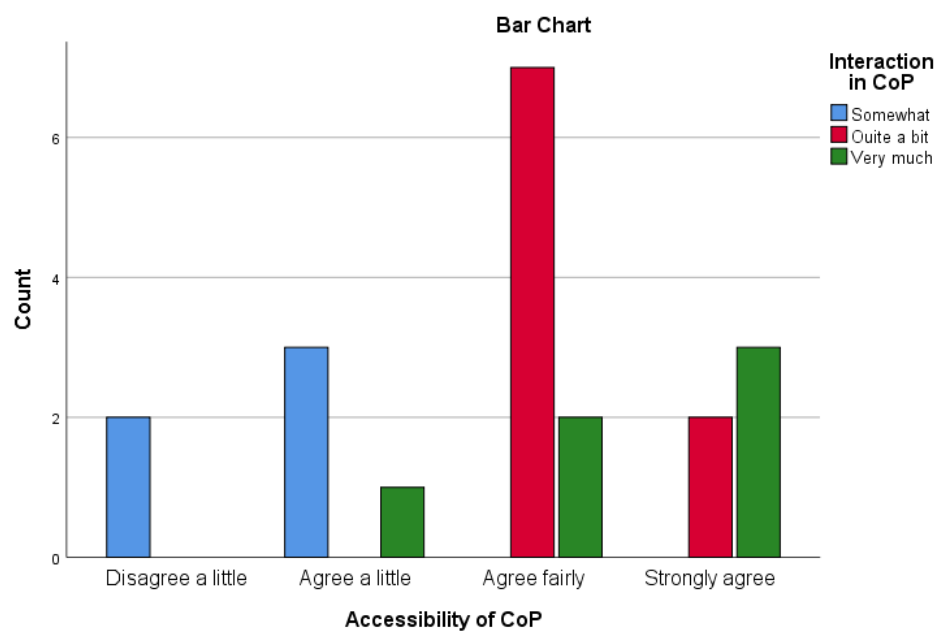


		Table 4. Interaction in CoP			
		Somewhat	Quite a bit	Very much	Total
Accessibility of CoP	Disagree a little	2	0	0	2
	Agree a little	3	0	1	4
	Agree fairly	0	7	2	9
	Strongly agree	0	2	3	5
Total		5	9	6	20



Graph 3

		Table 5. Sustainable development in COP			
		Quite a bit	Very much	Not Applicate	Total
Purpose of CoP	Agree a little	2	0	0	2
	Agree fairly	1	11	0	12
	Strongly agree	0	3	3	6
	Total	3	14	3	20

Graph 4.

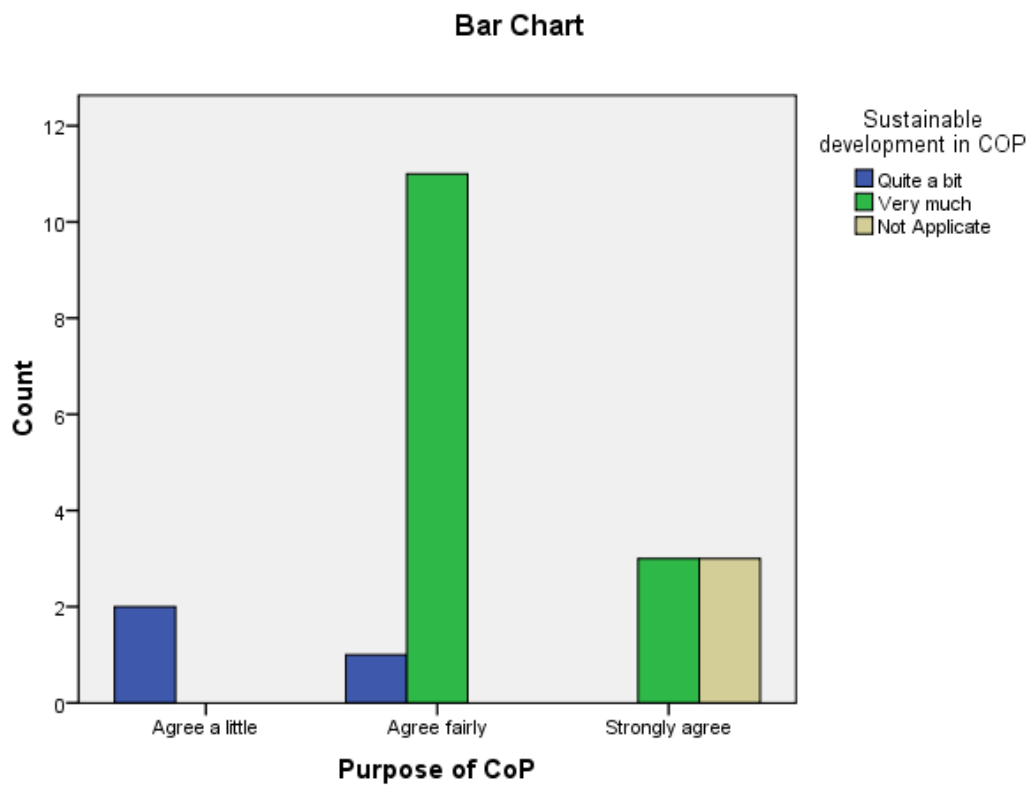


Table 6. Use Web 2 in Work (W)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Once a year	2	9.5	9.5	9.5
	Once per quarter or semester	5	23.8	23.8	33.3
	Monthly	8	38.1	38.1	71.4
	Weekly	3	14.3	14.3	85.7
	Several times per week	3	14.3	14.3	100.0
	Total	21	100.0	100.0	

Table 7. Web 2 in Entertainment (R)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	3	14.3	14.3	14.3
	Once a year	2	9.5	9.5	23.8
	Once per quarter or semester	8	38.1	38.1	61.9
	Monthly	6	28.6	28.6	90.5
	Weekly	1	4.8	4.8	95.2
	Several times per week	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Table 8. Skill Web 2 Technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Limited - Basic	2	9.5	9.5	9.5
	Proficient	8	38.1	38.1	47.6
	Advanced	9	42.9	42.9	90.5
	Expert	2	9.5	9.5	100.0
	Total	21	100.0	100.0	

*(Πίνακας 8)***Table 9. Usability of CoP**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree a little	1	4.8	4.8	4.8
	Agree fairly	13	61.9	61.9	66.7
	Strongly agree	7	33.3	33.3	100.0
	Total	21	100.0	100.0	

Table 10. Navigation of CoP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree a little	4	19.0	19.0	19.0
	Agree fairly	10	47.6	47.6	66.7
	Strongly agree	7	33.3	33.3	100.0
	Total	21	100.0	100.0	

Table 11. Content of CoP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree a little	1	4.8	4.8	4.8
	Agree fairly	16	76.2	76.2	81.0
	Strongly agree	4	19.0	19.0	100.0
	Total	21	100.0	100.0	

Table 12. Accessibility of CoP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree a little	2	9.5	9.5	9.5
	Agree a little	5	23.8	23.8	33.3
	Agree fairly	9	42.9	42.9	76.2
	Strongly agree	5	23.8	23.8	100.0
	Total	21	100.0	100.0	

Table 13. Design of CoP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree fairly	21	100.0	100.0	100.0

Table 14. Sustainable development in COP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Quite a bit	3	14.3	15.0	15.0
	Very much	14	66.7	70.0	85.0
	Not Applicate	3	14.3	15.0	100.0
	Total	20	95.2	100.0	
Missing	System	1	4.8		
Total		21	100.0		

Table 15. Purpose of CoP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree a little	2	9.5	9.5	9.5
	Agree fairly	12	57.1	57.1	66.7
	Strongly agree	7	33.3	33.3	100.0
	Total	21	100.0	100.0	

Table 16. Interaction in CoP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat	5	23.8	25.0	25.0
	Quite a bit	9	42.9	45.0	70.0
	Very much	6	28.6	30.0	100.0
	Total	20	95.2	100.0	
Missing	System	1	4.8		
Total		21	100.0		

Table 17. How Practical was the CoP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Quite a bit	2	9.5	9.5	9.5
	Very much	14	66.7	66.7	76.2
	Not Applicate	5	23.8	23.8	100.0
	Total	21	100.0	100.0	

**INTERNAL FEEDBACK AND PEER-REVIEWING FOR
THE MSc. CCSAFS SYLLABI AND COURSE
MODULES**



(Revision made by Dr Francesco Marinello, Department of TESAF, University of Padova - Italy - 13/03/2018)

COURSE NAME:

Precision Farming

GENERAL COMMENTS

1. GPS makes reference to the Navstar/American satellite system: GNSS (Global Navigation Satellite System) is more generic and suitable for the syllabus.
2. Proposed Optional course Texts and Materials are quite old dated, and other work could be more interesting, as for instance:
 - Precision Agriculture for Grain Production Systems, by Brett Whelan and James Taylor, CSIRO Publishing, 2013.
 - Precision in Crop Farming: Site Specific Concepts and Sensing Methods: Applications and results, edited by Hermann J. Heege, Springer, 2013.
 - Precision agriculture for sustainability and environmental protection, edited by Margaret A. Oliver, Thomas F. A. Bishop and Ben P. Marchant, Routledge, 2013.

COURSE OUTCOMES

1. In the section "Course Content Learning Outcomes" a first initial point is probably missing, addressing the outcome of becoming familiar with terms and definitions typical of precision agriculture.
2. In the section "Course Content Learning Outcomes" I would rewrite points 4 and 5 as follows:
 4. identify current remote sensing and other variability measuring technologies supported by image processing techniques and describe their applications in precision agriculture
 5. knowledge of field guidance systems for exploitation of controlled traffic or variable rate technology approaches

COURSE SCHEDULE

Satellite providing multispectral information (such as Copernicus, Planet or Worldview satellites) are never cited, even though they are (in some cases) available for free. I think it would be important to explicitly cite them.

Variable rate technology is often cited but the syllabus does not mention definition of homogeneous zones. I think it would be important to explicitly cite it in the course schedule.

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

I would give more emphasis to:

- 1) satellites equipped with multispectral cameras,
- 2) vegetation indices
- 3) precision agriculture differences in case of big companies or small farms
- 4) weather

Overview (*Is the module overview clear and appropriate?*)

Yes it is.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

I would suggest more recent bibliography as reported above or even newer publications.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

Activities in agreement with the learning outcomes

Practical field activities carried out with applications available for smartphones (such as for collection of GPS/Glonass/Galileo GNSS coordinates)



It would be interesting to integrate the course with the material or the lessons from other courses to exploit, which could somehow benefit from precision agriculture practices.

Teaching Methods revision made by Prof. Biasutti:

Course: *Precision Farming*

Aswan University,

Faculty of Agriculture and natural Resources

The objectives of the Course are mainly focused on the achievement of concepts and skills related to the main topic, including also some themes about sustainability issues. However, the achievement of more cognitive, psychological, and social skills among students (development of life-learning and transferable skills, promotion of students' active participation in the community, development of students' competence as responsible citizens, etc.) is not considered here. I would suggest to include also and reflect upon these objectives, that are the core of ESD. The teaching methodology seems more based on a traditional approach, more centred on teacher and the transmission of theoretical contents: it is highly advisable to move to a more student-centred methodology, including and integrating activities that can enhance the active role of students in class and promote the achievement of critical thinking, problem-solving skills. In addition, it would be useful to plan activities that can link theory with practice, considering both local and global community.



(Revision made by Prof. Antonio Berti, Department DAFNAE, University of Padova - Italy - 27/03/2018)

COURSE NAME: Research Methods and Advanced Statistical Analyses

GENERAL COMMENTS

The course is well structured and covers all the main subjects required for a proper planning and evaluation of outcomes from experiments. In my opinion, the course is then worth to be included in a Master level program. My only concern is on the internal repartition of the subjects. The part on statistical analyses is compressed in the last part of the course and considers many different approaches. Assuming that 1 ECTS should correspond to 10 class hours, I think that it should be very hard to go in deep on subjects such as multivariate statistics and PCA. My suggestion is then to recalibrate a little bit the time schedule, reserving some hours more to the final part of the course and shortening the first part.

COURSE OUTCOMES

Course outcomes are well defined, and the students will learn all the main techniques related to experimental planning and analysis. A plus of the course is that ethical aspects are considered and that the students will be pushed to analyze in a critic way the findings of experiments.

COURSE SCHEDULE

As said in the general comments, the course schedule is well developed, even if, in my opinion, there is an unbalancement between the general part and the credits reserved to specific statistical tests. I suggest to compress a little bit the first part of the course, to have more time for presenting and give examples of the application of some advanced statistical techniques, such as multivariate analyses and PCA.

MODULES



Apart from the time repartition of class hours, the concepts considered in the course are well defined, overviews are appropriate, and the material proposed is adequate. I only suggest to increase the time reserved for the statistical tests considered and to practical applications of these tests.

Course: Research Methods and Advanced Statistical Analyses

Suez Canal University

Faculty of Agriculture, Faculty of Sciences

The course is based on a student-centered approach, in which many transferable skills, critical thinking, responsible attitudes towards sustainability issues are supported and promoted. The course aims to develop knowledge and abilities in the field of statistical analysis, in order to enhance students' active role in understanding, critically analyzing and solving issues connected to sustainable development, with particular attention to those related to the environment. Since the activities proposed are based on a interdisciplinary approach, the course manages in supporting an holistic view of sustainability among students. Proposed tasks include a variety of practical and reflective activities, such as problem-based learning activities, cooperative learning tasks, research-based learning activities. Many of them are based on examples derived from real world situations, offering opportunities for reflecting upon global and local problems.



(Revision made by Dr. Livio Corain, Department DTG, University of Padova - Italy - 20/03/2018)

COURSE NAME: Risk Analysis in the Food Chain

GENERAL COMMENTS

In my opinion the chosen topics are well designed and all of great importance in the field of risk analysis for food safety. Risk analysis refers to a well-defined sequential set of phases and all of them are properly considered. I also appreciate the proposed learning-by-doing approach and the reference to real case studies.

COURSE OUTCOMES

There is a good coherence between learning objectives and course outcomes. Learning objectives are clearly presented and logically linked to course outcomes.

COURSE SCHEDULE

The course scheduling is thoroughly detailed and all activities are very well organized during a period of 15 week. Anyway, no indication is provided on the actual number of teaching/class hours, so I suggest to add this information.

MODULES

Key Concepts *(Are chosen concepts relevant? Would you suggest to delete or add something?)*

Yes, the chosen key concepts are all relevant. I do not have any remark.

Overview *(Is the module overview clear and appropriate?)*

Yes, this is the Course Syllabus section that I most appreciate, especially as in the form of table in the final part of the document.



Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

Yes, the suggest readings are up-to-date. I do not have any additional suggestion.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

All activities look being in agreement with the learning outcomes, but since the actual number of class hours are not indicated I cannot be more precise. I hope that the actual lesson time is sufficiently wide because the program is very dense and ambitious.

As alternative/additional activities I suggest to spend some more time on practical exercises with the risk analysis software.

Teaching Methods revision made by Prof. Biasutti:

Course: Risk Analysis in the Food Chain

Al-Azhar University,

Faculty of Agriculture

Objectives and learning outcomes of the Course are mainly focused on topic-related aims, without considering transferable and life-long learning skills. I would suggest to also include them, as they represent the core educational goals of ESD. The planned activities are mainly based on a traditional teaching approach: it would advisable to integrate also tasks and assignment base on a more student-centred approach, for stimulating a more active role and critical reflection from students in the class (group discussions may be a good starting point, but they need to be integrate with case study, problem-based activity, workshops, research base tasks, case study, reflection papers and essays, etc.).



SYLLABUS REVISION TEMPLATE

(Revision made by Associate Professor Paolo Tarolli, Department of TESAF, University of Padova - Italy - 12/03/2018)

*****Important Note: Prof. Tarolli was not aware that a full course on GIS is present in the Master******

WATER AREA

COURSE NAME:

Sustainable Management of Soil and Water

GENERAL COMMENTS

This is a really well-organized course. I have just a concern: 15 weeks are enough to provide a full understanding of the several and articulated topics presented? GIS lab and remote sensing data management seem missed in the syllabus. These two aspects are really relevant for a course entitled "Sustainable Management of Soil and Water". I would recommend to add 16hr of GIS exercises using remote sensing data for the management of critical issues related to soil (e.g. erosion) and water (e.g. ponding, irrigation system improvement).

COURSE OUTCOMES

The outcomes of the course are clear and well structured. Just they are a lot (see my previous comment); maybe less weeks, less and more direct outcomes will be make the entire course more suitable in term of understanding.

COURSE SCHEDULE

15 weeks look not so many for such different and articulated topics. My suggestion is to focus (better and with GIS) on less topics and try to organize everything in 12 weeks.

MODULES



Key Concepts – all the key aspect presented are outstanding; they are just too many, I recommend to delete few, making the course more suitable in term of effective understanding.

Overview – the goals of the course are clear.

Readings – nothing to say at this point.

Activity – GIS labs and remote sensing data management seem missed.

(For the SOIL area revision made by Dr. Paolo Carletti, Department of DAFNAE, University of Padova - Italy - 13/03/2018)

SOIL TOPICS

COURSE NAME:

Sustainable Management of Soil and Water

GENERAL COMMENTS

The course covers most important topics regarding soil quality and soil quality management: Soil fertility, nutrients and organic matter, soil biodiversity, soil erosion, soil salinity and pollution. Overall the course is well developed and with clear aims. From the syllabus, it's clear that the teacher is an expert of the topic and has a clear vision of the competences that need to be developed.

Maybe too many topics are intended to be dealt with in the course, in particular in the last module. Soil salinity, soil pollution and soil biodiversity seem a bit compressed in a single module: the study of each of them could require a full module, but of course it is not possible! In my opinion, I would give a bit more room to soil biodiversity (which also relates to nutrients cycling, soil fertility, soil quality and pollution assessment), and devote a little less time to soil erosion (the course schedule counts 3 weeks work on soil erosion related topics). I also think soil pollution is a really big topic and might be a bit compressed in just a week of lectures. I would either give soil pollution more room or leave this topic to the students to examine in depth in the thesis period if interested.

I would strongly recommend to devote a couple of lectures on WATER-SOIL relationship at the end of the course. I would stress the link between the two main areas of the course,



focusing on how soil management can affect water cycle and how water management can impact soil. This would merge the concepts of the different modules and then give the student the perception of the complex natural correlation between these two fundamental resources.

Finally, I would strongly suggest to interact with the teachers of the courses in “Precision Farming” and “Climate Change, Sustainable Agriculture and food security” to foster a reflection on the effects of the different agricultural and agronomic practices on both soil and water. In my opinion, in the master the students must learn the consequences of tillage practices on soil and water resources, to ensure a sustainable agriculture. This is a topic exceeding the boundaries of this course that needs to be addressed in depth, while I couldn’t see it covered in the syllabi I received.

A last suggestion: please be ready to recalibrate the course topics and the activities every year for the first 3-4 years. The course success depends on many factors, some of them are impossible to be predicted not: most probably the syllabus will need further revision based on the students’ opinions and feedbacks.

COURSE OUTCOMES

Please rephrase the outcomes using a verb at the beginning of the sentences for outcomes 4 to 8. Maybe give more room to soil biodiversity, with a bullet point only for this topic.

RECOMMENDED JOURNALS:

These journals could be recommended too:

Agriculture, Ecosystems & Environment

Soil and tillage research

Land degradation and development

Journal of environmental management

Agronomy journal

COURSE SCHEDULE

As suggested, less time could be devoted to soil erosion topics.

MODULES



All the modules on soil are well written, clear with relevant key concepts. Overviews are informative and suggested readings are interesting and appropriate. The activities suggested seem well balanced and effective.

Teaching Methods revision made my Prof. Biasutti:

Course: *Sustainable Management of Soil and Water*
University of Suez Canal,
Faculty of Agriculture, Department of Soil and Water,

The course overview and objectives show great attention to the promotion of critical thinking, problem-solving skills, and awareness about sustainability issues. Planned activities are coherent with a student-centred approach, since they aim not only to present and discuss the main contents of the course, but also to enhance students' ability to reflect, to analyse situation, and to find solution to real-life problem. Also cooperative learning tasks are included.



SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Dr. Paolo Carletti, Department of DAFNAE, University of Padova - Italy - 12/03/2018)

COURSE NAME:

Sustainable Management of Soil and Water

GENERAL COMMENTS

Part on soil management:

The course covers most important topics regarding soil quality and soil quality management: Soil fertility, nutrients and organic matter, soil biodiversity, soil erosion, soil salinity and pollution. Overall the course is well developed and

COURSE OUTCOMES

COURSE SCHEDULE

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

Overview (*Is the module overview clear and appropriate?*)

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

In my opinion, the master the students must learn the consequences of tillage practices on soil and water resources, to ensure a sustainable agriculture. This is a topic exceeding the boundaries of this course that needs to be addressed in deep, while I couldn't see it covered in the syllabi I received. I would strongly suggest the teacher of "Sustainable management of soil and water" to interact with the teachers of the courses in "Precision Farming" and "Climate Change, Sustainable Agriculture and food security" to foster a reflection on the effects of the different agricultural and agronomic practices on both soil and water.

Revising the syllabus I noticed that GIS and GPS topics are addressed both in "precision Agriculture" and in "GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security". More over GIS is also suggested in the "Soil and water management" course. Please pay attention not to overlap the teaching of these systems in the different courses.

Paolo

In my opinion, the master the students must learn the consequences of tillage practices on soil and water resources, to ensure a sustainable agriculture. This is a topic exceeding the boundaries of this course that needs to be addressed in deep, while I couldn't see it covered in the syllabi I received. I would strongly suggest the teacher of "Sustainable management of soil and water" to interact with the teachers of the courses in "Precision Farming" and "Climate Change, Sustainable Agriculture and food security" to foster a reflection on the effects of the different agricultural and agronomic practices on both soil and water.

Revising the syllabus I noticed that GIS and GPS topics are addressed both in "precision Agriculture" and in "GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security". More over GIS is also suggested in the "Soil and water management" course. Please pay attention not to overlap the teaching of these systems in the different courses.

Paolo

Course title: ***Social Entrepreneurship in the Organic Food Industry (UNIPAD)***

Instructors: Ms. Magda Gahrib

Heliopolis University, Faculty of Business & Economics, Management & Human Development

Comments on the syllabus

1. A different format is used
2. The overview is not clear enough
3. The Course Learning Objectives is general description
4. **The syllabus focuses on the marketing and totally ignore the food or organic food industry, food standard, labeling and significant of organic farms**
5. The syllabus does not include teaching and learning methods
6. Some important subjects are missing (see JO description)

Comments on the Module

1. Again the scope of the modules is limited to the marketing and does not include policy of teaching in clear way.
2. The list of References (TO read) list is so long
3. The activity is not clear enough
4. Learning outcome is general
5. Some module are missing

The scope of both the syllabus and the modules should be extended to other sectors.

I think both JO and Egyptian partners should sit together to merge and remove some subjects.

Course title: Course Title: Research Methods and Advanced Statistical Analyses

Instructors: Manal Hefny*, [Nehal Lotfy](#), [Salah Okasha](#), *Suez Canal University, Faculty of Agriculture, Faculty of Sciences*

Comments on the syllabus

1. A different format is used,
2. The objective outcome and learning is so general
3. Student contribution receives little interest
4. Many important issues have been ignored (see description from Jordan)

Comments on the Module

The module is in separate file with different format and unclear photos

Student contribution is not clear enough

Some module are missing

The scope of both the syllabus and the modules should be extended to other sectors. This course should serve as an introductory course to the program and other courses as well. This course is so important to write thesis for student.

I think both JO and Egyptian partners should sit together to merge and remove some subjects.

Response to the Report on the Structure and Course Curriculum of the MSc in CCSAFS

The project's team of SCU discussed the report on the structure of the CCSAFS curriculum kindly provided by Profs. Vassilis Makrakis and Nelly Kostoulas-Makrakis.

General remark:

Course numbers are reduced either for core and optional. The previous proposed courses outline demonstrated much diversification and courses have been expected to cover subjects/issues relevant with the program aims and give students extensive knowledge and skills on the programs' pillars (CC, SA &FS).

The following points are considered by the team members:

1. The core courses provide the basic knowledge and skills for the program and combine its three elements (CC, SA and FS).
2. Optional courses, for some extent, are broad and give the students low opportunity to study in depth except the two courses: "Sustainable and ethical livestock management" & "Sustainable fisheries and food security".
3. Some courses are excluded that we believe are essential for our conditions (Egypt) and were previously considered during the NTW at HU and identified in the first courses outline report (Genetics and Genomics in Sustainable Agriculture, Integrated Pest management for sustainable agriculture and food security, Technologies of sustainable waste recycling). Especially the last one (Technologies of sustainable management waste recycling) that aim at development of strategies for recycling and the management of waste sustainably.
4. The course "Sustainability Justice and Food Security" must be waved into courses not being a separate course. Especially that it has 10 ECTS (250 working hours), which requires heavy work for preparation and teaching. This course can be substituted by "Technologies of sustainable management waste recycling"

5. The course “Economics of Climate Change, Sustainable Agriculture and Food Security” may be changed to “Socio-Economics of Climate Change, Sustainable Agriculture and Food Security”
6. The course “Unsaturated Soil in Arid and Semi-arid Region” is not clear for us, what are the objective and aims of this course, topics to be taught?. Is it possible to integrate it into the course “**Sustainable Management of Soil and Water**”?
7. As there are some equivalent courses in the MSc on SA, Padova University, can we adopt the Academic Standards (AS) of this master (MSc in SA)?. If so, we do not need to depend on our NARS, therefore this will save efforts of revision and validation from MoHE, because AS from Padova are higher than our NARS (in Egypt).
8. Can we use syllabi of those courses (MSc on Sustainable Agriculture), and add some modifications according to the local conditions?
9. Regarding thesis, the supervision committee defines the dissertation as an extended piece of the master in which students have the opportunity to study in some depth a topic/subject of their own choosing and interest and what relevant staff is able to supervise. The dissertation may vary in the breadth of coverage. Since the time available for this work is short, it is not expected that the dissertation should report notable or original contributions to knowledge. The point is that it must have a clear focus with definable objectives and boundaries, achievable in the time and word length available.

With best regards
SCU Team

SEM	CORE COURSES	CH	ECTS	OPTIONAL COURSES (CHOOSE ONE)	CH	ECTS
1	Climate Change, Sustainable Agriculture and Food Security (Sustainable Agriculture-UNIPAD)	3	10	Sustainability Justice and Food Security <u>substituted by</u> <u>(Technologies of sustainable management waste recycling)</u>	3	10
				Small Scale Farming. Indigenous Knowledge and Local Food Supply	3	10
				Social Entrepreneurship in the Organic Food Industry (UNIPAD)	3	10
	Climate Change Adaptation and Mitigation	3	10	To be chosen one		
2	Sustainable Management of Soil and Water (Water Resources Management-UNIPAD)	3	10	Risk Analysis in the Food Chain	3	10
				Precision Farming (UNIPAD)	3	10
				Consumer Behaviour, Food Security and Marketing	3	10
	Research Methods and Advanced Statistics Analysis (Advanced statistics-UNIPAD)	3	10	To be chosen one		
3	Economics of Climate Change, Sustainable Agriculture and Food Security (Agrifood Economics and Policy-UNIPAD). <u>Changed to</u> Socio-Economics of Climate Change, Sustainable Agriculture and Food Security	3	10	Sustainable and Ethical Livestock Management (Sustainable livestock systems-UNIPAD)	3	10
				Sustainable Fisheries and Food Security	3	10
				Unsaturated Soil in Arid and Semi-arid Region	3	10
	GIS Applications in Climate Change, Sustainable Agriculture and Food Security	3	10	To be chosen one		
	Total	18	60	Three optional courses	9	30
4	Thesis	9	30	Total for the MSc CCSAFS	36	120

Report on State of internal review for CCSAFS MSc programme Courses

[illegible]

Sustainability Justice and Food Security	O	HU	Delivered	√	Pending*	√	Not completed	Completed to some extent	
Small Scale Farming, and Indigenous Knowledge	O	ASU	Delivered	√	Pending*	√	x	Completed to some extent	
Social Entrepreneurship in the Organic Food Industry		HU	Delivered	√	Pending*	√	Not completed	Completed to some extent	
Risk Analysis in the Food Chain		AZU	Delivered	√	√	√	To some extent	To some extent	
Precision Farming	O	ASU	Delivered	√	√	√	To some extent	To some extent	Activities are missing PBL, Project based Learning.
Consumer Behaviour, Food Security and Marketing	O	HU	Delivered	X	Pending*	√	Not completely	To some extent	
GIS and remote sensing Applications in Climate Change, Sustainable Agriculture and Food Security	O	SCU	Delivered	√	√	√	√	√	Done
Sustainable Fisheries and Food Security	O	AZU	Delivered	X	Not yet*	√	Not yet	X	Waiting reviewing report from UNIPD
Genetics and Genomics in Sustainable Agriculture	O	ASU	Delivered	√	√	√	Not Yet	Not Yet	Many corrections in the prepared course, (Module ILO's and units, linking

									Overview with the course title). Some comments are included in the template.
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** The following courses will not be reviewed by UNIPD Team as have pointed out:

- 1) Climate Change Adaptation and Mitigation
- 2) Sustainability Justice and Food Security
- 3) Small Scale Farming and Indigenous Knowledge
- 4) Consumer Behaviour, Food Security and Marketing

** The course Sustainable Fisheries and FS still under revision by Padova team

Report on State of internal review for CCSAFS MSc programme Courses

[illegible]

Sustainability Justice and Food Security	O	HU	Delivered	√	Pending*	√	Not completed	Completed to some extent	
Small Scale Farming, and Indigenous Knowledge	O	ASU	Delivered	√	Pending*	√	x	Completed to some extent	
Social Entrepreneurship in the Organic Food Industry		HU	Delivered	√	Pending*	√	Not completed	Completed to some extent	
Risk Analysis in the Food Chain		AZU	Delivered	√	√	√	To some extent	To some extent	
Precision Farming	O	ASU	Delivered	√	√	√	To some extent	To some extent	Activities are missing PBL, Project based Learning.
Consumer Behaviour, Food Security and Marketing	O	HU	Delivered	X	Pending*	√	Not completely	To some extent	
GIS and remote sensing Applications in Climate Change, Sustainable Agriculture and Food Security	O	SCU	Delivered	√	√	√	√	√	Done
Sustainable Fisheries and Food Security	O	AZU	Delivered	X	Not yet*	√	Not yet	X	Waiting reviewing report from UNIPD
Genetics and Genomics in Sustainable Agriculture	O	ASU	Delivered	√	√	√	Not Yet	Not Yet	Many corrections in the prepared course, (Module ILO's and units, linking

									Overview with the course title). Some comments are included in the template.
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- 1) Climate Change Adaptation and Mitigation
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- 3) Small Scale Farming and Indigenous Knowledge
- 4) Consumer Behaviour, Food Security and Marketing

** The course Sustainable Fisheries and FS still under revision by Padova team

SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Laura Secco, Department of TESAF, University of Padova - Italy – 27/02/2018)

COURSE NAME:

The course name is very attractive, using key words that are getting a growing attention worldwide (namely, “social entrepreneurship” and “organic food”). Consider to complete the name by introducing the key word “well-being”.

GENERAL COMMENTS

The scope of the course as identified by the name sounds narrow (“social entrepreneurship” and “organic food” being very specific) compared with the course contents’ description/overview. The section on “Course Description/Overview” reports several very general concepts that are not clearly and directly linked to the core topic. For example, the term “organic” is never used; the term “social entrepreneurship” is mentioned only once at the end of the section, while they both should be at the core of the overview and contents description. This section should be more consistent and coherent with respect to the name of the course. This unclear focus is visible also in the section “Course Learning Objectives”, where for example it is stated “a) ...and scaling a sustainable business” and “b)... pressing sustainability challenges, ...” without explaining that “sustainable business” and/or “sustainability challenges” are not necessarily and not always perfect synonymous of “social entrepreneurship” and/or “societal challenges”.

Moreover, the stated “objective of incubating a series of food ventures through the course of the semester that have the potential to be viable businesses and positively impact public health outcomes” seems to be too ambitious. If this is one of the aim, the time of the course allocated on “history of entrepreneurship, the role of entrepreneurs and entrepreneurs in the 21st century global economy” should be kept as much shorter as possible, and more focus should be given on operational tools and strategies for developing businesses from ideas to practice. The term “health” can be complemented by the term “well-being”, that is



broader and more and more used to refer to social outcomes. Finally, something about the market demand for social-oriented businesses, products and services should be stated more explicitly; something about monitoring and evaluation of social business from its design, to its implementation and results/impacts should be included, as well as something about the role of investors and investments (especially of “impact investments” in supporting newly created social-oriented businesses).

COURSE OUTCOMES

Similarly, the outcomes are also too generic. There is a need to better focus on the specific topics of social issue and organic food industry. Other expected learning outcomes can be, for example: i) understand and adopt the concept of social entrepreneurship in the field of organic food industry and market; ii) identify and use appropriate tools for creating and/or supporting social entrepreneurship in different contexts, with a focus on organic food systems; iii) adopt problem-solving strategies in identifying and developing entrepreneurial opportunities in the organic food sector; iv) design a monitoring and evaluation strategy for assessing the business project and its impacts on social well-being in advance, during its implementation and after a certain period of time; v) identify and design strategies to attract investors/investments and get funds to transform their ideas into business practices. By the way, what is reported in the table of Appendix II is much more clear and coherent with respect to what described in the text (p. 2).

COURSE SCHEDULE

The course schedule is very generic. More clear connections and focus on the core elements/key words of the course should be included (e.g., social entrepreneurship, organic food, societal challenges, social outcomes on health and well-being).

The lecture number 10 on “Marketing mix” can be anticipated (as for example the customer segments should be identified at the very beginning and used to design the business idea). Again, what reported in the Appendix II (from p. 7) is more clear and coherent with the course title with respect to what described in the text (pp. 5-6).

However, it is difficult to comment on the course schedule without an explanation of the number of hours (or ECTS) allocated to each lecture/module. For some of them, 2 hours can be enough; for others, 4 hours or even 8 are the minimum required.

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*): monitoring and assessment of projects should be included; more focus on organic food sector; more focus on social challenges (categorization and discussion of implications of doing business in relation to different societal challenges); a short overview about investors, investments trends (e.g., on the emerging issue of the “impact investing”) and on possible sources of funds is needed, as new entrepreneurs often need to attract funds/donors/investors to create their businesses, as they do not have enough own resources.

Overview (*Is the module overview clear and appropriate?*): see previous suggestions in the section “General comments”.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*): to include something on impact investing can be useful (e.g. https://www.mitpressjournals.org/doi/pdf/10.1162/INOV_a_00077); moreover, in order to be coherent with the course’s name and expected contents, something about organic food industry and market demand for organic food should also be included.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*): the proposed activities, very much oriented towards active learning techniques and tools, are expected to be very effective and appreciated by students; some additional session of plenary discussion and/or discussion in pairs between students on specific issues (e.g., commenting/providing feedback on final presentations) in order to stimulate a problem-solving approach during the activities can be mentioned. If resources are available and at least one example of a social-oriented business in organic food is close to the teaching site, one visit to the company in the field might be very useful to understand also the “physical implications” of doing social businesses.

SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Laura Secco, Department of TESAF, University of Padova - Italy – 27/02/2018)

COURSE NAME:

The course name is very attractive, using key words that are getting a growing attention worldwide (namely, “social entrepreneurship” and “organic food”). Consider to complete the name by introducing the key word “well-being”.

GENERAL COMMENTS

The scope of the course as identified by the name sounds narrow (“social entrepreneurship” and “organic food” being very specific) compared with the course contents’ description/overview. The section on “Course Description/Overview” reports several very general concepts that are not clearly and directly linked to the core topic. For example, the term “organic” is never used; the term “social entrepreneurship” is mentioned only once at the end of the section, while they both should be at the core of the overview and contents description. This section should be more consistent and coherent with respect to the name of the course. This unclear focus is visible also in the section “Course Learning Objectives”, where for example it is stated “a) ...and scaling a sustainable business” and “b)... pressing sustainability challenges, ...” without explaining that “sustainable business” and/or “sustainability challenges” are not necessarily and not always perfect synonymous of “social entrepreneurship” and/or “societal challenges”.

Moreover, the stated “objective of incubating a series of food ventures through the course of the semester that have the potential to be viable businesses and positively impact public health outcomes” seems to be too ambitious. If this is one of the aim, the time of the course allocated on “history of entrepreneurship, the role of entrepreneurs and entrepreneurs in the 21st century global economy” should be kept as much shorter as possible, and more focus should be given on operational tools and strategies for developing businesses from ideas to practice. The term “health” can be complemented by the term “well-being”, that is



broader and more and more used to refer to social outcomes. Finally, something about the market demand for social-oriented businesses, products and services should be stated more explicitly; something about monitoring and evaluation of social business from its design, to its implementation and results/impacts should be included, as well as something about the role of investors and investments (especially of “impact investments” in supporting newly created social-oriented businesses).

COURSE OUTCOMES

Similarly, the outcomes are also too generic. There is a need to better focus on the specific topics of social issue and organic food industry. Other expected learning outcomes can be, for example: i) understand and adopt the concept of social entrepreneurship in the field of organic food industry and market; ii) identify and use appropriate tools for creating and/or supporting social entrepreneurship in different contexts, with a focus on organic food systems; iii) adopt problem-solving strategies in identifying and developing entrepreneurial opportunities in the organic food sector; iv) design a monitoring and evaluation strategy for assessing the business project and its impacts on social well-being in advance, during its implementation and after a certain period of time; v) identify and design strategies to attract investors/investments and get funds to transform their ideas into business practices. By the way, what is reported in the table of Appendix II is much more clear and coherent with respect to what described in the text (p. 2).

COURSE SCHEDULE

The course schedule is very generic. More clear connections and focus on the core elements/key words of the course should be included (e.g., social entrepreneurship, organic food, societal challenges, social outcomes on health and well-being).

The lecture number 10 on “Marketing mix” can be anticipated (as for example the customer segments should be identified at the very beginning and used to design the business idea). Again, what reported in the Appendix II (from p. 7) is more clear and coherent with the course title with respect to what described in the text (pp. 5-6).

However, it is difficult to comment on the course schedule without an explanation of the number of hours (or ECTS) allocated to each lecture/module. For some of them, 2 hours can be enough; for others, 4 hours or even 8 are the minimum required.

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*): monitoring and assessment of projects should be included; more focus on organic food sector; more focus on social challenges (categorization and discussion of implications of doing business in relation to different societal challenges); a short overview about investors, investments trends (e.g., on the emerging issue of the “impact investing”) and on possible sources of funds is needed, as new entrepreneurs often need to attract funds/donors/investors to create their businesses, as they do not have enough own resources.

Overview (*Is the module overview clear and appropriate?*): see previous suggestions in the section “General comments”.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*): to include something on impact investing can be useful (e.g. https://www.mitpressjournals.org/doi/pdf/10.1162/INOV_a_00077); moreover, in order to be coherent with the course’s name and expected contents, something about organic food industry and market demand for organic food should also be included.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*): the proposed activities, very much oriented towards active learning techniques and tools, are expected to be very effective and appreciated by students; some additional session of plenary discussion and/or discussion in pairs between students on specific issues (e.g., commenting/providing feedback on final presentations) in order to stimulate a problem-solving approach during the activities can be mentioned. If resources are available and at least one example of a social-oriented business in organic food is close to the teaching site, one visit to the company in the field might be very useful to understand also the “physical implications” of doing social businesses.

Prima – Section 2

Thematic area 1: Sustainable water management for arid and semi-arid Mediterranean area

Topic 1.1.3. Irrigation technologies and practices

SUSTAINABLE IRRIGATION IN MEDITERRANEAN AGRICULTURE (SIMA)

Main Project Challenge

In the Mediterranean basin, agriculture is by far the main user of water resources, and irrigation is a crucial field practice influencing crop productivity and product quality. In addition, irrigation is a major driver for solutes transport in arid and semi-arid environments, having an important role in the possible negative impacts of improper water management on soil salinization and aquifers pollution. Therefore, the challenge is to improve irrigation water productivity while minimizing the potential environmental risks associated with irrigation. In this regard, a more efficient use of water in agriculture is mandatory. This requires the development of water management strategies to optimize the use of water resources, through the valorization of low-quality waters, the improvement of irrigation practices and the increase in plant water availability and water use efficiency.

Within the framework of the PRIMA call, we would like to create a partnership and develop a joint proposal.

Three main aims have been initially identified that can be developed (just one, or more than one, depending on the expertise and skills of each potential partner):

- a. The exploitation of low-quality water for irrigation: in the context of increasing water withdrawals and of climate change, different territorial contexts (arid and semi-arid regions, continental climates of Europe, etc.) are called to face a more efficient use and re-use of water resources, especially in agriculture.
- b. The improvement of irrigation management in the context of fresh water scarcity: it is hypothesized, for example, the implementation of deficit irrigation strategies, the use of plant-water stress indicators.
- c. The improvement of crop-water management: within the project proposal, Mediterranean countries at different latitudes may develop crop-water management strategies, e.g. by testing innovative crops/varieties in water-stress conditions, salt-tolerant crops, high-productivity crops to increase the water use efficiency.

Expected impacts

- a. Improving on-farm water use efficiency while maintaining crop productivity
- b. To determine irrigation protocols tailored to low-quality water availability and, particularly, high salinity water
- c. New climate-proof crops with reduced water requirements.



SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Samuele Trestini, Department of TESAF, University of Padova - Italy – 09/03/2018)

COURSE NAME: Economics of Climate Change, Sustainable Agriculture and Food Security

GENERAL COMMENTS

The objective of the course is quite ambitious. The provision of the contents described by the syllabus would require at least 100 hours of teaching.

COURSE OUTCOMES

The description of the outcomes is adequate. It is suggested to improve the correspondence between the objectives and the outcomes.

COURSE SCHEDULE

The description of the course schedule does not seem to be consistent with the description of the modules. The schedule associates large disciplinary macro-areas with each week (e.g. microeconomics, agricultural economics). These would represent courses alone. It is suggested to propose a brief description referring to the contents described in the modules.

MODULES



Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

The concepts chosen are generally adequate. They should be updated with reference to following indications for Module 2.

Overview (*Is the module overview clear and appropriate?*)

The overview of the modules are generally adequate. Questions to be addressed are missed in Module 3.

It is suggested to introduce some principles of Economics Policy, discussing how a Policy can be developed and the tools that can be applied. Particular attention should be given to policy tools aiming to reduce market failure as in the case of commons (e.g. natural resources) or negative externalities (e.g. pollution, GHG emission).

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

Suggested readings are up-to-date

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

Activity are adequate.

Teaching Methods revision made by Prof. Biasutti:

Course: Economics of Climate Change, Sustainable Agriculture and Food Security)
Heliopolis University for Sustainable Development, Faculty of Business and Economics

The course includes learning objectives from an ESD approach; more specifically, they include the promotion and development of critical thinking and problem-solving skills. In addition, the course aims to support interaction between students and sustain team working. The planned assignments are representative of a learner centred approach, including discussion and research-



based learning. They are also characterized by a particular attention both to a local and a global dimension of didactic themes, supporting students' reflection on real issues of sustainability.



SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Francesco Pirotti, Department of TESAF, University of Padova - Italy – 22/02/2018)

COURSE NAME:

GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security

GENERAL COMMENTS

- English can be improved in several parts, e.g. see first point in “course learning objectives”. , “Climate of Change” in pg. 10 module title, etc...
- I strongly support using open source software for teaching – there are excellent free and open source software that can cover GIS and RS , for example QGIS, SAGA etc... ArcGIS is an excellent software, but will force students in a “vendor lock-in” scenario which is detrimental in the first phase of a career (requires significant economic investment). Another aspect supporting this case is that governments are trying to foster the use of open data and open source solutions, for the same reasons mentioned above. Of course the final decision of what software to use belongs to the lecturer.
- “This course requires the use of the following software: ArcGIS Pro” what about Remote Sensing? It looks from the websites of the course that ENVI will be included, should students also install ENVI? Please clarify in the syllabus.

COURSE OUTCOMES



Knowledge and concepts part should be a bit more specific. The range of attainable knowledge regarding GIS and RS is extremely large, so the points should clarify which parts will be addressed in the course. Some keywords on what students will learn about would help (e.g. raster and vector models, cartographic reference systems, geoprocessing problems, sampling design with GIS, vegetation indices in RS, optical RS, classification)

I also suggest to keep the same format throughout the list – e.g.

- Apply good practices in GIS and RS.
- ~~The student will~~ demonstrate basic proficiency in map creation and design principles, including thematic map display, employment
- Etc...

COURSE SCHEDULE

It is not very clear (for me) how tables in pg. 5 and pg. 6 are compatible. The former has 16 weeks, the latter 15 with examination on the 15th week. It should be made clearer what the two tables represent. Also the different modules have different titles with respect to the schedule, it is a bit confusing. I suggest a clearer definition of schedule.

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

Below modules and key concepts with comments afterwards.

1. Introduction and definitions of key concepts
 - a. Geoscience, Climate change, Sustainable agriculture, Food security
2. Climate of Change
 - a. GIS, Climate variability, Climate data, Climate change survey, Data collection
3. Water Resources for Agricultural Sustainability
 - a. Water resource, Freshwater availability, Virtual water amounts, Water footprints, Geographic variability, Irrigation, Groundwater mining, Ecosystem impacts
4. Soil Resources for Sustainable Agriculture



- a. Soil Characteristics, Land Use Practices, Climate Change, Soil Loss
- 5. Overview of the Wicked Problem of Food Security Module
 - a. Food security, Food (in)security, Global food system, ArcGIS Online, Earth system, Systems thinking

Overall the key concepts are relevant and actual, I do not suggest additions or deletions, only some minor changes on terminology. E.g. in module 3 and 4 you use “agricultural sustainability” and then “sustainable agriculture”, I suggest to use the same term.

Overview (*Is the module overview clear and appropriate?*)

Overview for all 5 modules is clear and appropriate.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

For module 3 the number of references is quite large, are they all mandatory ? In three weeks will students be able to read and understand all those pages plus keep up with other assignments?

For other modules the readings are fit in number and quality.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

Activities are interesting, varied and well distributed across the schedule. They are in agreement with proposed learning outcomes.

Teaching Methods revision made by Prof. Biasutti:

Course: GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security Suez Canal University, Faculty of Agriculture
The Course learning outcomes includes a section focused on the promotion general and transferable skills, which is coherent with an ESD approach. The teaching methodology is based



on a student-centred approach, supporting an active role of students in classrooms, providing opportunities for formative assessment and self-evaluation, encouraging the exchange of ideas and experiences among class-mates. Cooperative learning is also promote with assignments in small groups.



SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Laura Secco, Department of TESAF, University of Padova - Italy – 27/02/2018)

COURSE NAME:

The course name is very attractive, using key words that are getting a growing attention worldwide (namely, “social entrepreneurship” and “organic food”). Consider to complete the name by introducing the key word “well-being”.

GENERAL COMMENTS

The scope of the course as identified by the name sounds narrow (“social entrepreneurship” and “organic food” being very specific) compared with the course contents’ description/overview. The section on “Course Description/Overview” reports several very general concepts that are not clearly and directly linked to the core topic. For example, the term “organic” is never used; the term “social entrepreneurship” is mentioned only once at the end of the section, while they both should be at the core of the overview and contents description. This section should be more consistent and coherent with respect to the name of the course. This unclear focus is visible also in the section “Course Learning Objectives”, where for example it is stated “a) ...and scaling a sustainable business” and “b)... pressing sustainability challenges, ...” without explaining that “sustainable business” and/or “sustainability challenges” are not necessarily and not always perfect synonymous of “social entrepreneurship” and/or “societal challenges”. Moreover, the stated “objective of incubating a series of food ventures through the course of the semester that have the potential to be viable businesses and positively impact public health outcomes” seems to be too ambitious. If this is one of the aim, the time of the course allocated on “history of entrepreneurship, the role of entrepreneurs and entrepreneurs in the 21st century global economy” should be kept as much shorter as possible, and more focus should be given on



operational tools and strategies for developing businesses from ideas to practice. The term “health” can be complemented by the term “well-being”, that is



broader and more and more used to refer to social outcomes. Finally, something about the market demand for social-oriented businesses, products and services should be stated more explicitly; something about monitoring and evaluation of social business from its design, to its implementation and results/impacts should be included, as well as something about the role of investors and investments (especially of “impact investments” in supporting newly created social-oriented businesses).

COURSE OUTCOMES

Similarly, the outcomes are also too generic. There is a need to better focus on the specific topics of social issue and organic food industry. Other expected learning outcomes can be, for example: i) understand and adopt the concept of social entrepreneurship in the field of organic food industry and market; ii) identify and use appropriate tools for creating and/or supporting social entrepreneurship in different contexts, with a focus on organic food systems; iii) adopt problem-solving strategies in identifying and developing entrepreneurial opportunities in the organic food sector; iv) design a monitoring and evaluation strategy for assessing the business project and its impacts on social well-being in advance, during its implementation and after a certain period of time; v) identify and design strategies to attract investors/investments and get funds to transform their ideas into business practices. By the way, what is reported in the table of Appendix II is much more clear and coherent with respect to what described in the text (p. 2).

COURSE SCHEDULE

The course schedule is very generic. More clear connections and focus on the core elements/key words of the course should be included (e.g., social entrepreneurship, organic food, societal challenges, social outcomes on health and well-being). The lecture number 10 on “Marketing mix” can be anticipated (as for example the customer segments should be



identified at the very beginning and used to design the business idea). Again, what reported in the Appendix II (from p. 7) is more clear and coherent with the course title with respect to what described in the text (pp. 5-6). However, it is difficult to comment on the course schedule without an explanation of the number of hours (or ECTS) allocated to each lecture/module. For some of them, 2 hours can be enough; for others, 4 hours or even 8 are the minimum required.



MODULES Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add*

something?): monitoring and assessment of projects should be included; more focus on organic food sector; more focus on social challenges (categorization and discussion of implications of doing business in relation to different societal challenges); a short overview about investors, investments trends (e.g., on the emerging issue of the “impact investing”) and on possible sources of funds is needed, as new entrepreneurs often need to attract funds/donors/investors to create their businesses, as they do not have enough own resources.

Overview (*Is the module overview clear and appropriate?*): see previous suggestions in the section “General comments”.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*): to include something on impact investing can be useful (e.g. https://www.mitpressjournals.org/doi/pdf/10.1162/INOV_a_00077); moreover, in order to be coherent with the course’s name and expected contents, something about organic food industry and market demand for organic food should also be included.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*): the proposed activities, very much oriented towards active learning techniques and tools, are expected to be very effective and appreciated by students; some additional session of plenary discussion and/or discussion in pairs between students on specific issues (e.g., commenting/providing feedback on final presentations) in



order to stimulate a problem-solving approach during the activities can be mentioned. If resources are available and at least one example of a social-oriented business in organic food is close to the teaching site, one visit to the company in the field might be very useful to understand also the “physical implications” of doing social businesses.

Teaching Methods revision made by Prof. Biasutti:

Course: *Social Entrepreneurship in the Organic Food Industry*

Heliopolis University, Faculty of Business & Economics, Management & Human Development Department

In the *Overview section*, several ESD learning outcomes have been introduced (e.g. supporting students’ creativity, developing students’ critical thinking and problem-solving skills, to promote individual and group skills among students). Since all these goals represent the core of education for sustainable development, I would suggest to include them also in the *Course learning objectives section* as life-long learning skills. Considering teaching methodologies, the course presented in the current syllabus is based on a learner-centred approach: it includes strategies and activity that are based on students’ active participation, e.g. group discussions, community problem solving assignments, and teamwork projects. In addition, activities that linked the theoretical lectures with the local entrepreneurial situation are planned in the course.

Course: <i>Consumer behavior, Food Security, and Marketing</i> Heliopolis University for Sustainable Development, Faculty of Business and Economics
In this course there is a good balance between theoretical and practical activities, allowing students to both enlarge their knowledge about sustainability issues and to develop their sustainable skills. The assignments are based on a learner centred approach, including project-based learning activities and research-based learning activities. Cooperative learning is promoted, since the planned assignments are often based on working in team, and the promotion of skills connected to group collaboration is also considered one of the main learning outcomes of this course.
Course: <i>Economics of Climate Change, Sustainable Agriculture and Food Security</i> Heliopolis University for Sustainable Development, Faculty of Business and Economics
The course includes learning objectives from an ESD approach; more specifically, they include the promotion and development of critical thinking and problem-solving skills. In addition, the course aims to support interaction between students and sustain team working. The planned assignments are representative of a learner centred approach, including discussion and research-based learning. They are also characterized by a particular attention both to a local and a global dimension of didactic themes, supporting students' reflection on real issues of sustainability.
Course: <i>Social Entrepreneurship in the Organic Food Industry (UNIPAD)</i> Heliopolis University, Faculty of Business & Economics, Management & Human Development Department
In the <i>Overview section</i>, several ESD learning outcomes have been introduced (e.g. supporting students' creativity, developing students' critical thinking and problem-solving skills, to promote individual and group skills among students). Since all these goals represent the core of education for sustainable development, I would suggest to include them also in the <i>Course learning objectives section</i> as life-long learning skills. Considering teaching methodologies, the course presented in the current syllabus is based on a learner-centred approach: it includes strategies and activity that are based on students' active participation, e.g. group discussions, community problem solving assignments, and teamwork projects. In addition, activities that linked the theoretical lectures with the local entrepreneurial situation are planned in the course.
Course: <i>Sustainability Justice and Food Security</i> Suez Canal University
In the presentation of the course, the planned learning outcomes take into account only the achievement of knowledge about sustainability issues, without mentioning the improvement of more cognitive, psychological, and social skills among students: the development of life-learning skills, the promotion of students' active participation in the community, the development of students' competence as responsible citizens. I would suggest to include them in the course objectives, in accord with the main topics of the course. For similar reason, the proposed teaching methodology needs to be more focused on a learner-centred approach, including practical activities: discussions and forum discussions are important for promoting students' involvement, but they are not sufficient for supporting the achievement of ESD skills. My suggestion is to plan learner-centred activities that could promote active participation, critical thinking, problem-solving

and life-learning skills among students (e.g. role-playing, project-based activities, research-based activities,...)
Course: <i>Climate Change Mitigation and Adaptation</i> Suez Canal University, Faculty of Agriculture
The objectives of the Course are mainly focused on the achievement of concepts related to sustainability issues, with particular reference to climate changes. However, in this syllabus are not clearly stated the achievement of more cognitive, psychological, and social skills among students (development of life-learning skills, promotion of students' active participation in the community, development of students' competence as responsible citizens, etc.). I would suggest to include also and reflect upon these objectives, that are the core of ESD. Teaching methodology clearly reflects a student-centred approach, and enhances an active role of pupils in class, engaging them in a variety of practical activities, workshops, problem-solving assignments, mental maps, and research-based activities. There can be also recognized a good balance between theoretical explanations and practical activities during lessons.
Course: <i>Climate Change, Sustainable Agriculture, and Food Security</i> Suez Canal University, Faculty of Agriculture
The Course planned learning objectives that are connected with sustainability and properly linked them with the main content of the discipline. The planned activities reflect a student-centred approach and aim to sustain critical thinking about sustainability issues with essay report, presentations, discussions, case studies, group activities. Enquiry learning is also addressed as a tool for promote sustainability in school curriculum.
Course: <i>GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security</i> Suez Canal University, Faculty of Agriculture
The Course learning outcomes includes a section focused on the promotion general and transferable skills, which is coherent with an ESD approach. The teaching methodology is based on a student-centred approach, supporting an active role of students in classrooms, providing opportunities for formative assessment and self-evaluation, encouraging the exchange of ideas and experiences among class-mates. Cooperative learning is also promote with assignments in small groups.
Course: <i>Precision Farming</i> Aswan University, Faculty of Agriculture and natural Resources
The objectives of the Course are mainly focused on the achievement of concepts and skills related to the main topic, including also some themes about sustainability issues. However, the achievement of more cognitive, psychological, and social skills among students (development of life-learning and transferable skills, promotion of students' active participation in the community, development of students' competence as responsible citizens, etc.) is not considered here. I would suggest to include also and reflect upon these objectives, that are the core of ESD. The teaching methodology seems more based on a traditional approach, more centred on teacher and

the transmission of theoretical contents: it is highly advisable to move to a more student-centred methodology, including and integrating activities that can enhance the active role of students in class and promote the achievement of critical thinking, problem-solving skills. In addition, it would be useful to plan activities that can link theory with practice, considering both local and global community.
Course: <i>Risk Analysis in the Food Chain</i> Al-Azhar University, Faculty of Agriculture
Objectives and learning outcomes of the Course are mainly focused on topic-related aims, without considering transferable and life-long learning skills. I would suggest to also include them, as they represent the core educational goals of ESD. The planned activities are mainly based on a traditional teaching approach: it would be advisable to integrate also tasks and assignment based on a more student-centred approach, for stimulating a more active role and critical reflection from students in the class (group discussions may be a good starting point, but they need to be integrated with case study, problem-based activity, workshops, research based tasks, case study, reflection papers and essays, etc.).
Course: <i>Small Scale Farming, Indigenous Knowledge and Local Food Supply</i> Aswan University, Faculty of Agriculture and natural Resources
The course includes objectives and learning outcomes that show a great attention to the local situation and, at the same time, to global issues. However, transferable and life-long learning skills are not considered enough: I would suggest to improve and discuss more in detail the impact that the course can have on these skills. The teaching methodology seems more based on a traditional approach, more centred on the transmission of theoretical contents: it is highly advisable to move to a more student-centred methodology, including and integrating activities that can enhance the active role of students in class and promote the achievement of critical thinking, problem-solving skills. Also the promotion of a more practical approach would be highly recommended.
Course: <i>Sustainable and Ethical Livestock Management</i>, Suez Canal University, Faculty of Veterinary Medicine
Course objectives include the discussion and reflection about several sustainability issues; however, I would suggest to explain more in detail the impact of the course on students' transferable skills, life-long learning skills, and responsible attitudes. Course activities manage to integrate practice into lessons; however, it would be highly advisable to also introduce activities and assignments that imply a more active and central role of students in class: debates, case study, research project, collaborative tasks, etc.
Course: <i>Sustainable Fisheries and Food Security</i> Al-Azhar University, Faculty of Agriculture
The course overview clearly stated the student-centred approach that will be used during the lessons, including participatory methodologies, critical reflection on real cases, promotion of problem solving abilities, and team work skills. The planned activities properly reflect this approach, stimulating students' participation and reflection on sustainability issues connected to

the main topic of the course. In order to promote a more awareness about these features, it would be useful to address all these aspects also in the learning outcomes section.
Course: <i>Sustainable Management of Soil and Water</i> University of Suez Canal, Faculty of Agriculture, Department of Soil and Water,
The course overview and objectives show great attention to the promotion of critical thinking, problem-solving skills, and awareness about sustainability issues. Planned activities are coherent with a student-centred approach, since they aim not only to present and discuss the main contents of the course, but also to enhance students' ability to reflect, to analyse situation, and to find solution to real-life problem. Also cooperative learning tasks are included.
Course: <i>Genetics and Genomics in Sustainable Agriculture</i> Aswan University, Faculty of Agriculture and Natural Resources
In this course, the teaching methodology seems more based on a traditional approach, more centred on the transmission of theoretical contents: it is highly advisable to move to a more student-centred methodology, including and integrating activities that can enhance the active role of students in class and promote the achievement of critical thinking, problem-solving skills. Practical activities are included but they need to be integrated in a more student-centred perspective, stated more clearly how transferable and life long skills can be promoted through them.
Course: <i>Research Methods and Advanced Statistical Analyses</i> Suez Canal University Faculty of Agriculture, Faculty of Sciences
The course is based on a student-centered approach, in which many transferable skills, critical thinking, responsible attitudes towards sustainability issues are supported and promoted. The course aims to develop knowledge and abilities in the field of statistical analysis, in order to enhance students' active role in understanding, critically analyzing and solving issues connected to sustainable development, with particular attention to those related to the environment. Since the activities proposed are based on a interdisciplinary approach, the course manages in supporting an holistic view of sustainability among students. Proposed tasks include a variety of practical and reflective activities, such as problem-based learning activities, cooperative learning tasks, research-based learning activities. Many of them are based on examples derived from real world situations, offering opportunities for reflecting upon global and local problems.



CCSAFS COURSE SYLLABUS TEMPLATE

Course Syllabus

Course Number:

Genetics and Genomics in Sustainable Agriculture
Aswan University, Faculty of Agriculture and Natural Resources
Semester,

Instructor Information

Instructor: Dr. Mohamed Ahmed Abou-Ellail
Office Location: Aswan University, Sahari Campus
Telephone: office - +20 973 480 245
Office hours: Sunday-Wednesday 09.00 – 14.00
E-mail: mohamed.abouellail@agr.aswu.edu.eg
Website:

Course Identification

Course Number:
Course Name: Genetics and Genomics in Sustainable Agriculture
Course Location: Aswan University
Class Times:
Prerequisites:
Faculty Web Page: <http://agr.aswu.edu.eg>

Course Description/Overview

This course is designed to introduce the most important and basic concepts, methods and techniques in using genomics and genetic engineering for sustainable agriculture. Lectures and practicals will address concepts dealing with plant cellular organization plant reproduction, and genome structure and organization, plant reproduction, genetic variation, genetic resources, transcriptome analysis molecular marker, marker assisted selection and genomic selection, cell and tissue culture with particular emphasis on production of secondary metabolites, genetic transformation and genome editing in plants and animals, marker assisted selection, mutations and microarrays, the role of biotechnology to enhance crop productivity and quality.

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Course Learning Objectives

- To develop a sufficient background on basic Plant cellular organization and genetic structure



- To provide good understanding ~~inwith~~ Plant reproduction, genetic variation ~~and~~, genetic resources
- To learn the fundamental, theoretical and applied aspects of molecular marker techniques, marker assisted selection and genomic selection
- To discuss using molecular marker and genomic selection in sustainable agriculture
- To analyze molecular marker data and evaluate genetic diversity and phylogenetic tree
- To learn basic techniques for transcriptome analysis.
- To describe plant cell and tissue cultures and their applications for production of secondary metabolites
- To demonstrate ~~and~~ understanding ~~of~~ genetic transformation and genome editing in plants and animals, ~~marker assisted selection,~~
~~mutations and microarrays-~~
- To understand the role of biotechnology to enhance crop productivity and quality
- To acquire knowledge on specific groups, as well as to solve problems
- To know regulatory and legal issues as well as how to apply regulation and legislation laws.

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Course Content Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Explain the strategies for improving qualities and production crops
2. Explain ~~the various~~ molecular markers and their used in artificial selection and Plant genetic resources for plant breeding.
3. Explain the various steps taken to establish and optimize some molecular marker techniques
4. Explain the various methods used to obtain the genetic diversity
5. Explain and perform transformation the genetic engineering in plants and animals.
6. Explain and assess the genetic relationships among individuals ~~and~~ populations
7. Explain the QTLs ~~analysis and microarrays.~~
8. Explain and perform barcoding for animals and plant.
9. Define some techniques used in biodiversity and evaluation of technological characteristics.
10. Collect scientific facts to interpret some phenomena and problems related to sustainable agriculture.
11. Propose solutions to sustainable agriculture problems based on genetics.

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Course Resources

Course Website(s)

Required Course Texts and Materials



Hand-out prepared by the instructor for the class

Optional course Texts and Materials

- Principles of Plant Genetics and Breeding (Second Edition 2012), George Acquaah, John Wiley & Sons, Ltd
- Plant biotechnology and transgenic plants (2002) Kirsi-Marja Oksmah-Caldentey and Wolfgang H. Barz; Marcel Dekker, Inc
- Advances in Plant Breeding Strategies: Breeding, Biotechnology and Molecular Tools (2015), Jameel M. Al-Khayri • Shri Mohan Jain and Dennis V. Johnson, Springer International Publishing Switzerland
- Molecular Markers in Plants (First Edition 2013), R. J. Henry (ed.), John Wiley & Sons, Inc
- Plant Genotyping : The DNA Fingerprinting of Plants (2001), R. J. Henry (ed.), CABI Publishing
- Molecular Ecology (Second Edition, 2011), J. R. Freeland and H. Kirk; and S. Petersen. John Wiley & Sons, Ltd. Published
- Molecular markers, natural history, and evolution (Second Edition, 2004) J. C. Avise, Sinauer Associates, Inc
- Plant Conservation Biotechnology (2003), E.E. Benson, CRC Press
- Microarrays and Related Genomics Techniques: Design, Analysis, and Interpretation of Experiments DNA, 2006. Allison et al (Editors). Chapman & Hall/CRC
- Molecular Tools for Screening Biodiversity: Plants and Animals 2011. Angela Karp, Peter G. Isacc and David S. Ingram (eds.). Chapman & Hall
- Plant DNA Fingerprinting and Barcoding: Methods and Protocols (Methods in Molecular Biology) 2012. Nikolaus J. Sucher, James R. Hennell and Maria C. Carles (eds.). Humana Press
12. Molecular Cloning: A Laboratory Manual, (4th Edition) By Michael R. Green and Joseph Sambrook, © 2012 by Cold Spring Harbor Laboratory Press.

Assignments and Grading Scheme

Grading System

0 to 10 (where 5 is the least pass mark)

Grading policy

Grades can be based on the following:

Activities: Assignments, Presentations, Seminars	20
Practical exam	30
Final Exams	50
Total Points	100

Course policies



Late Assignment

It is important that papers and other assignments be completed and submitted on time. Once the due date is past, without notice and justification, the submission is not accepted.

Classroom Protocol

This is a seminar type of course, which means that students are expected to come ALL classes. You cannot pass the class under any circumstances if you miss more than three classes. Students are expected to arrive at on time and stay until the class period ends. If you know that you have to leave early, you should notify me before class starts. You are expected to treat faculty and other students with respect. During class students are obliged to not disrupt class by making noise and/or leaving and re-entering during class. Students who violate these minimal expectations will be asked to leave and counted as absent. You are expected to have read and thought about the assigned material before you come to class. I expect active class participation.

Disability

Students who have disabilities should have a confidential appointment to discuss their need for accommodations. Establishing reasonable accommodations should be considered on a case-by-case basis.

Important Dates to Remember



Course schedule

Week	Date	Topics, Reading, Assignments and Deadline (details on assignments and more bibliography are available in the course modules)
1		Course overview: Plant cellular organization and genetic structure: an overview
2		Plant reproductive Systems
3		Variation: types, origin, and scale
4		Plant genetic resources for plant breeding
5		Plant Cell Cultures as Producers of Secondary Compounds
6		Genetic transformation of plants and their cells
7		Marker assisted selection.
8		Improved productivity of economic plants
9		Mutants as a Genetic Resource for Future Crop Improvement
10		Biotechnology to enhance crop productivity & quality1
11		Biotechnology to enhance crop productivity & quality2
12		Animal Reproductive and molecular technology
13		Technology to improve livestock production through gene transfer
14		Transgenic animals
15		Studying QTL analysis and microarrays (1)



The CCSAFS Course Modules Template

Course	Genetics and Genomics in Sustainable Agriculture
Module 1	General biological concepts and germplasm issues
Key Concepts	Cell components and function, Plant pollination and fertilization , crossing, male sterility and genetic variability
Overview	It is essential for students to develop a fundamental understanding of Plant cell structure and organization, DNA structure and function, Phenotype and genotype, and of genetic linkage in plant breeding. Questions to be addressed in this module include the following: what does it mean pollination, fertilization and genetic variability? What are the implications of genetics and breeding of self- and cross-pollination? What is the role of male sterility in breeding?
Aim	The overriding aim of this module is increase student's general biological concepts and genetic resources with particular attention to sustainable agriculture
Learning Outcomes	More importantly, the student should be able to - discuss the role of these plant structures and processes in plant breeding - discuss the types of plant life cycles and their implication in breeding. - describe the basic types of floral morphology. - discuss the mechanisms of pollination and fertilization. - determine the role of genetics and sterility in breeding - describe the constraints to pollination and their implication in breeding - discuss the types, origins and scale of genetic variation. - distinguish between qualitative and quantitative variation. - discuss the rules of plant classification - discuss the types of germplasm for plant breeding. - discuss the mechanisms for conservation of germplasm.
Units	- Plant cellular organization and genetic structure: an overview - Plant reproductive systems - Variation: types, origin, and scale - Plant genetic resources for plant breeding
Readings	George Acquaah (2012). Principles of Plant Genetics and Breeding (Second Edition), John Wiley & Sons, Ltd
Activity	• Students prepare seminars in the traditional plant breeding methods and their application in sustainable agriculture
Module 2	Modern genetics and genetic engineering role in sustainable agriculture
Key Concepts	Tissue culture, secondary metabolite production, phytochemicals and secondary metabolite production, plant transformation, marker assisted selection, mutations and crop Improvement.



Overview	In this module, students will have sufficient knowledge about establishing small farm, managing the tools and resources, awareness with regulations and challenges as well as marketing techniques.
Aim	The aim of this module is turn student's able to use the genetics and genetic engineering techniques in sustainable agriculture.
Learning Outcomes	The students should be able to: - describe plant cell cultures for production of secondary metabolites, how cell cultures can be established, and which factors affect producibility of the metabolites and present several case studies of cell culture production of pigments and clinically used antineoplastic compounds. - discuss the technology available for gene transfer to plants, focusing particularly on recent advances, and discusses the constraints that must still be overcome to realize the full potential of plant transformation. - analyze marker assisted selection techniques. - define mutation and mutagenesis. - discuss mutagenic agents. - discuss the steps in a mutation breeding program. - discuss the limitations of mutation breeding.
Units	- Plant genetic resources for plant breeding - Plant Cell Cultures as Producers of Secondary Compounds - Genetic transformation of plants and their cells - Marker assisted selection - Mutants as a Genetic Resource for Future Crop Improvement
Readings	Kirsi-Marja Oksmah-Caldentey and Wolfgang H. Barz (2002). Plant biotechnology and transgenic plants. Marcel Dekker, Inc. Jameel M. Al-Khayri • Shri Mohan Jain and Dennis V. Johnson (2015). Advances in Plant Breeding Strategies: Breeding, Biotechnology and Molecular Tools, , Springer International Publishing Switzerland. Henry R. J. (2013). Molecular Markers in Plants (First Edition), John Wiley & Sons, Inc. Henry R. J. (2001). Plant Genotyping: The DNA Fingerprinting of Plants. CABI Publishing Freeland J. R., Kirk H. and S. Petersen (2011). Molecular Ecology (Second Edition),. John Wiley & Sons, Ltd. Published. Avise C. (2004). Molecular markers, natural history, and evolution (Second Edition), Sinauer Associates, Inc. Benson E.E. (2003). Plant Conservation Biotechnology. CRC Press.
Activity	Collective questions will be prepared to measure the students' basic knowledge



Module 3	Improving agricultural productivity and food quality, with emphasis on biotechnology
Key Concepts	biotic and abiotic stress tolerance, qualitative parameters improvement and biotechnology
Overview	In this module, students will have sufficient knowledge and understanding about production systems. They will be able to analysis opportunities, threats, and trends.so, they be able to recommend strategies for facing challenges when starting new farm business.
Aim	The overriding aim of this module is turn student's able to improve the production and quality of economic plants based on biotechnology approaches.
Learning Outcomes	The students should be able to: - analyze productivity of the economic plants - use biotechnological tools to enhance crop productivity and quality - know the impact of biotechnology on the food quality - to know the relationship between animal reproductive and molecular technology
Units	- Biotechnology to enhance crop productivity & quality - Improved productivity of economic plants - Animal Reproductive and molecular technology
Readings	Allison et al (Editors) (2006). Microarrays and Related Genomics Techniques: Design, Analysis, and Interpretation of Experiments DNA,.. Chapman & Hall/CRC Angela Karp, Peter G. Isacc and David S. Ingram (2011). Molecular Tools for Screening Biodiversity: Plants and Animals. Chapman & Hall. Nikolaus J. Sucher, James R. Hennell and Maria C. Carles (2012). Plant DNA Fingerprinting and Barcoding: Methods and Protocols (Methods in Molecular Biology). Humana Press. Michael R. Green and Joseph Sambrook (2012). Molecular Cloning: A Laboratory Manual, (4th Edition). Cold Spring Harbor Laboratory Press.
Activity	Student will be requested to prepare a project for Application of agricultural biotechnology to improve a product quality
Module 4	Improving animal production and molecular biology
Key Concepts	livestock improvement techniques, quantitative genetics endocrine therapeutics, embryo biotechnology, super ovulation methodology, reproductive technologies, molecular biology , vitro fertilization, embryo culture and micromanipulation, recombinant DNA, genome analysis of animals, transgenic animals, gene transfer, animal cloning, QTL analysis and microarrays
Overview	In this module, students will have sufficient knowledge and understanding about livestock production improvement and animal genetics. In addition to increase their awareness Molecular biological aspects of animal production.

Aim	Demonstrate an ability discuss the principles and practices of molecular biology in livestock improvement.
Learning Outcomes	The students should be able to: - know the relationship between animal reproductive and molecular technology - understand technology to improve livestock production through gene transfer - compare between normal and transgenic animals - define the terminology of microarrays QTLs, cDNA and ESTs and analyze QTL
Units	- Technology to improve livestock production through gene transfer - Transgenic animals - Studying QTL analysis and microarrays
Readings	Animal Biotechnology: Science Based Concerns. 2002. Committee on Defining Science-Based Concerns Associated with Products of Animal Biotechnology. M. Engelhard K. Hagen . M. Boysen (2009). Genetic Engineering in L ivestock New Applications and Interdisciplinary Perspectives. Springer-Verlag Berlin Heidelberg Allison et al (Editors) (2006). Microarrays and Related Genomics Techniques: Design, Analysis, and Interpretation of Experiments DNA,.. Chapman & Hall/CRC Angela Karp, Peter G. Isacc and David S. Ingram (2011). Molecular Tools for Screening Biodiversity: Plants and Animals. Chapman & Hall.
Activity	Students will do field visits for genetic engineering labs

Teaching Methods revision made my Prof. Biasutti:

Course: Genetics and Genomics in Sustainable Agriculture
Aswan University,
Faculty of Agriculture and Natural Resources

In this course, the teaching methodology seems more based on a traditional approach, more centred on the transmission of theoretical contents: it is highly advisable to move to a more student-centred methodology, including and integrating activities that can enhance the active role of students in class and promote the achievement of critical thinking, problem-solving skills. Practical activities are included but they need to be integrated in a more student-centred perspective, stated more clearly how transferable and life long skills can be promoted through them.

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SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

Revision made by Prof. Maurizio Borin, Department of DAFNAE, University of Padova - Italy - 12/03/2018)

COURSE NAME:

Climate Change, Sustainable Agriculture, and Food Security

GENERAL COMMENTS

The Course outcomes appear too ambitious respect the contents given in the units

The Syllabus is not clear, the terminology and the schemes are not coherent. The Course schedule section is organized in units, the following section in Modules and Units within the Modules. It is difficult to understand and have a comprehensive vision. In addition the headings are not uniform, some times in bold, other no, it is difficult to understand the hierarchy.

COURSE OUTCOMES

I suggest to re-arrange the outcomes, grouping in some few core outcomes and subpoints. Select the outcomes really related to the units.

COURSE SCHEDULE

Sufficiently balanced among the three pillars of the course (climate change, sustainable agriculture, food security)

MODULES



Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*) Difficult to understand for the reasons before explained. I suggest to add some unit on water

Overview (*Is the module overview clear and appropriate?*) The descriptions of the contents are too vague, too oriented in describing principles but do not give enough information on the abilities gained by the student

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*) OK

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*) To be improved, in some cases they are given as a simple list of items, without specifying what is done in the activity

Teaching Methods revision made my Prof. Biasutti:

Course: <i>Climate Change, Sustainable Agriculture, and Food Security</i> Suez Canal University, Faculty of Agriculture

The Course planned learning objectives that are connected with sustainability and properly linked them with the main content of the discipline. The planned activities reflect a student-centred approach and aim to sustain critical thinking about sustainability issues with essay report, presentations, discussions, case studies, group activities. Enquiry learning is also addressed as a tool for promote sustainability in school curriculum.
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SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Samuele Trestini, Department of TESAF, University of Padova - Italy - 09/03/2018)

COURSE NAME: Economics of Climate Change, Sustainable Agriculture and Food Security

GENERAL COMMENTS

The objective of the course is quite ambitious. The provision of the contents described by the syllabus would require at least 100 hours of teaching.

COURSE OUTCOMES

The description of the outcomes is adequate. It is suggested to improve the correspondence between the objectives and the outcomes.

COURSE SCHEDULE

The description of the course schedule does not seem to be consistent with the description of the modules. The schedule associates large disciplinary macro-areas with each week (e.g. microeconomics, agricultural economics). These would represent courses alone. It is suggested to propose a brief description referring to the contents described in the modules.

MODULES



Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

The concepts chosen are generally adequate. They should be updated with reference to following indications for Module 2.

Overview (*Is the module overview clear and appropriate?*)

The overview of the modules are generally adequate. Questions to be addressed are missed in Module 3.

It is suggested to introduce some principles of Economics Policy, discussing how a Policy can be developed and the tools that can be applied. Particular attention should be given to policy tools aiming to reduce market failure as in the case of commons (e.g. natural resources) or negative externalities (e.g. pollution, GHG emission).

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

Suggested readings are up-to-date

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

Activity are adequate.

Teaching Methods revision made my Prof. Biasutti:

Course: <i>Economics of Climate Change, Sustainable Agriculture and Food Security</i> Heliopolis University for Sustainable Development, Faculty of Business and Economics
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The course includes learning objectives from an ESD approach; more specifically, they include the promotion and development of critical thinking and problem-solving skills. In addition, the course aims to support interaction between students and sustain team working. The planned assignments are representative of a learner centred approach, including discussion and research-based learning. They are also characterized by a particular attention both to a local and a global



dimension of didactic themes, supporting students' reflection on real issues of sustainability.



SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Francesco Pirotti, Department of TESAF, University of Padova - Italy - 22/02/2018)

COURSE NAME:

GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security

GENERAL COMMENTS

- English can be improved in several parts, e.g. see first point in “course learning objectives”. , “Climate of Change” in pg. 10 module title, etc...
- I strongly support using open source software for teaching – there are excellent free and open source software that can cover GIS and RS , for example QGIS, SAGA etc... ArcGIS is an excellent software, but will force students in a “vendor lock-in” scenario which is detrimental in the first phase of a career (requires significant economic investment). Another aspect supporting this case is that governments are trying to foster the use of open data and open source solutions, for the same reasons mentioned above. Of course the final decision of what software to use belongs to the lecturer.
- “This course requires the use of the following software: ArcGIS Pro” what about Remote Sensing? It looks from the websites of the course that ENVI will be included, should students also install ENVI? Please clarify in the syllabus.

COURSE OUTCOMES

Knowledge and concepts part should be a bit more specific. The range of attainable knowledge regarding GIS and RS is extremely large, so the points should clarify which parts will be addressed in the course. Some keywords on what students will learn about would help (e.g. raster and vector models, cartographic reference systems, geoprocessing problems, sampling design with GIS, vegetation indices in RS, optical RS, classification)

I also suggest to keep the same format throughout the list – e.g.

- Apply good practices in GIS and RS.
- ~~The student will~~ demonstrate basic proficiency in map creation and design principles, including thematic map display, employment
- Etc...

COURSE SCHEDULE

It is not very clear (for me) how tables in pg. 5 and pg. 6 are compatible. The former has 16 weeks, the latter 15 with examination on the 15th week. It should be made clearer what the two tables represent. Also the different modules have different titles with respect to the schedule, it is a bit confusing. I suggest a clearer definition of schedule.

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

Below modules and key concepts with comments afterwards.

1. Introduction and definitions of key concepts
 - a. Geoscience, Climate change, Sustainable agriculture, Food security
2. Climate of Change
 - a. GIS, Climate variability, Climate data, Climate change survey, Data collection
3. Water Resources for Agricultural Sustainability
 - a. Water resource, Freshwater availability, Virtual water amounts, Water footprints, Geographic variability, Irrigation, Groundwater mining, Ecosystem impacts
4. Soil Resources for Sustainable Agriculture
 - a. Soil Characteristics, Land Use Practices, Climate Change, Soil Loss

5. Overview of the Wicked Problem of Food Security Module

- a. Food security, Food (in)security, Global food system, ArcGIS Online, Earth system, Systems thinking

Overall the key concepts are relevant and actual, I do not suggest additions or deletions, only some minor changes on terminology. E.g. in module 3 and 4 you use “agricultural sustainability” and then “sustainable agriculture”, I suggest to use the same term.

Overview (Is the module overview clear and appropriate?)

Overview for all 5 modules is clear and appropriate.

Readings (Are suggested readings up-to-date? Would you suggest more or different sources?)

For module 3 the number of references is quite large, are they all mandatory ? In three weeks will students be able to read and understand all those pages plus keep up with other assignments?

For other modules the readings are fit in number and quality.

Activity (Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?)

Activities are interesting, varied and well distributed across the schedule. They are in agreement with proposed learning outcomes.

Teaching Methods revision made by Prof. Biasutti:

Course: GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security
Suez Canal University,
Faculty of Agriculture

The Course learning outcomes includes a section focused on the promotion general and transferable skills, which is coherent with an ESD approach. The teaching methodology is based on a student-centred approach, supporting an active role of students in classrooms, providing opportunities for formative assessment and self-evaluation, encouraging the exchange of ideas and experiences among class-mates. Cooperative learning is also promote with assignments in



small groups.



(Revision made by Dr Francesco Marinello, Department of TESAF, University of Padova - Italy - 13/03/2018)

COURSE NAME:

Precision Farming

GENERAL COMMENTS

1. GPS makes reference to the Navstar/American satellite system: GNSS (Global Navigation Satellite System) is more generic and suitable for the syllabus.
2. Proposed Optional course Texts and Materials are quite old dated, and other work could be more interesting, as for instance:
 - Precision Agriculture for Grain Production Systems, by Brett Whelan and James Taylor, CSIRO Publishing, 2013.
 - Precision in Crop Farming: Site Specific Concepts and Sensing Methods: Applications and results, edited by Hermann J. Heege, Springer, 2013.
 - Precision agriculture for sustainability and environmental protection, edited by Margaret A. Oliver, Thomas F. A. Bishop and Ben P. Marchant, Routledge, 2013.

COURSE OUTCOMES

1. In the section "Course Content Learning Outcomes" a first initial point is probably missing, addressing the outcome of becoming familiar with terms and definitions typical of precision agriculture.
2. In the section "Course Content Learning Outcomes" I would rewrite points 4 and 5 as follows:
 4. identify current remote sensing and other variability measuring technologies supported by image processing techniques and describe their applications in precision agriculture
 5. knowledge of field guidance systems for exploitation of controlled traffic or variable rate technology approaches

COURSE SCHEDULE

Satellite providing multispectral information (such as Copernicus, Planet or Worldview satellites) are never cited, even though they are (in some cases) available for free. I think it would be important to explicitly cite them.

Variable rate technology is often cited but the syllabus does not mention definition of homogeneous zones. I think it would be important to explicitly cite it in the course schedule.

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

I would give more emphasis to:

- 1) satellites equipped with multispectral cameras,
- 2) vegetation indices
- 3) precision agriculture differences in case of big companies or small farms
- 4) weather

Overview (*Is the module overview clear and appropriate?*)

Yes it is.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

I would suggest more recent bibliography as reported above or even newer publications.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

Activities in agreement with the learning outcomes

Practical field activities carried out with applications available for smartphones (such as for collection of GPS/Glonass/Galileo GNSS coordinates)



It would be interesting to integrate the course with the material or the lessons from other courses to exploit, which could somehow benefit from precision agriculture practices.

Teaching Methods revision made by Prof. Biasutti:

Course: *Precision Farming*

Aswan University,

Faculty of Agriculture and natural Resources

The objectives of the Course are mainly focused on the achievement of concepts and skills related to the main topic, including also some themes about sustainability issues. However, the achievement of more cognitive, psychological, and social skills among students (development of life-learning and transferable skills, promotion of students' active participation in the community, development of students' competence as responsible citizens, etc.) is not considered here. I would suggest to include also and reflect upon these objectives, that are the core of ESD. The teaching methodology seems more based on a traditional approach, more centred on teacher and the transmission of theoretical contents: it is highly advisable to move to a more student-centred methodology, including and integrating activities that can enhance the active role of students in class and promote the achievement of critical thinking, problem-solving skills. In addition, it would be useful to plan activities that can link theory with practice, considering both local and global community.



(Revision made by Prof. Antonio Berti, Department DAFNAE, University of Padova - Italy - 27/03/2018)

COURSE NAME: Research Methods and Advanced Statistical Analyses

GENERAL COMMENTS

The course is well structured and covers all the main subjects required for a proper planning and evaluation of outcomes from experiments. In my opinion, the course is then worth to be included in a Master level program. My only concern is on the internal repartition of the subjects. The part on statistical analyses is compressed in the last part of the course and considers many different approaches. Assuming that 1 ECTS should correspond to 10 class hours, I think that it should be very hard to go in deep on subjects such as multivariate statistics and PCA. My suggestion is then to recalibrate a little bit the time schedule, reserving some hours more to the final part of the course and shortening the first part.

COURSE OUTCOMES

Course outcomes are well defined, and the students will learn all the main techniques related to experimental planning and analysis. A plus of the course is that ethical aspects are considered and that the students will be pushed to analyze in a critic way the findings of experiments.

COURSE SCHEDULE

As said in the general comments, the course schedule is well developed, even if, in my opinion, there is an unbalancement between the general part and the credits reserved to specific statistical tests. I suggest to compress a little bit the first part of the course, to have more time for presenting and give examples of the application of some advanced statistical techniques, such as multivariate analyses and PCA.

MODULES



Apart from the time repartition of class hours, the concepts considered in the course are well defined, overviews are appropriate, and the material proposed is adequate. I only suggest to increase the time reserved for the statistical tests considered and to practical applications of these tests.

Course: Research Methods and Advanced Statistical Analyses

Suez Canal University

Faculty of Agriculture, Faculty of Sciences

The course is based on a student-centered approach, in which many transferable skills, critical thinking, responsible attitudes towards sustainability issues are supported and promoted. The course aims to develop knowledge and abilities in the field of statistical analysis, in order to enhance students' active role in understanding, critically analyzing and solving issues connected to sustainable development, with particular attention to those related to the environment. Since the activities proposed are based on a interdisciplinary approach, the course manages in supporting an holistic view of sustainability among students. Proposed tasks include a variety of practical and reflective activities, such as problem-based learning activities, cooperative learning tasks, research-based learning activities. Many of them are based on examples derived from real world situations, offering opportunities for reflecting upon global and local problems.



(Revision made by Dr. Livio Corain, Department DTG, University of Padova - Italy - 20/03/2018)

COURSE NAME: Risk Analysis in the Food Chain

GENERAL COMMENTS

In my opinion the chosen topics are well designed and all of great importance in the field of risk analysis for food safety. Risk analysis refers to a well-defined sequential set of phases and all of them are properly considered. I also appreciate the proposed learning-by-doing approach and the reference to real case studies.

COURSE OUTCOMES

There is a good coherence between learning objectives and course outcomes. Learning objectives are clearly presented and logically linked to course outcomes.

COURSE SCHEDULE

The course scheduling is thoroughly detailed and all activities are very well organized during a period of 15 week. Anyway, no indication is provided on the actual number of teaching/class hours, so I suggest to add this information.

MODULES

Key Concepts (Are chosen concepts relevant? Would you suggest to delete or add something?)

Yes, the chosen key concepts are all relevant. I do not have any remark.

Overview (Is the module overview clear and appropriate?)

Yes, this is the Course Syllabus section that I most appreciate, especially as in the form of table in the final part of the document.



Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

Yes, the suggest readings are up-to-date. I do not have any additional suggestion.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

All activities look being in agreement with the learning outcomes, but since the actual number of class hours are not indicated I cannot be more precise. I hope that the actual lesson time is sufficiently wide because the program is very dense and ambitious.

As alternative/additional activities I suggest to spend some more time on practical exercises with the risk analysis software.

Teaching Methods revision made by Prof. Biasutti:

Course: Risk Analysis in the Food Chain

Al-Azhar University,

Faculty of Agriculture

Objectives and learning outcomes of the Course are mainly focused on topic-related aims, without considering transferable and life-long learning skills. I would suggest to also include them, as they represent the core educational goals of ESD. The planned activities are mainly based on a traditional teaching approach: it would advisable to integrate also tasks and assignment base on a more student-centred approach, for stimulating a more active role and critical reflection from students in the class (group discussions may be a good starting point, but they need to be integrate with case study, problem-based activity, workshops, research base tasks, case study, reflection papers and essays, etc.).



SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Associate Professor Laura Secco, Department of TESAF, University of Padova - Italy - 27/02/2018)

COURSE NAME:

The course name is very attractive, using key words that are getting a growing attention worldwide (namely, “social entrepreneurship” and “organic food”). Consider to complete the name by introducing the key word “well-being”.

GENERAL COMMENTS

The scope of the course as identified by the name sounds narrow (“social entrepreneurship” and “organic food” being very specific) compared with the course contents’ description/overview. The section on “Course Description/Overview” reports several very general concepts that are not clearly and directly linked to the core topic. For example, the term “organic” is never used; the term “social entrepreneurship” is mentioned only once at the end of the section, while they both should be at the core of the overview and contents description. This section should be more consistent and coherent with respect to the name of the course. This unclear focus is visible also in the section “Course Learning Objectives”, where for example it is stated “a) ...and scaling a sustainable business” and “b)... pressing sustainability challenges, ...” without explaining that “sustainable business” and/or “sustainability challenges” are not necessarily and not always perfect synonymous of “social entrepreneurship” and/or “societal challenges”. Moreover, the stated “objective of incubating a series of food ventures through the course of the semester that have the potential to be viable businesses and positively impact public health outcomes” seems to be too ambitious. If this is one of the aim, the time of the course allocated on “history of entrepreneurship, the role of entrepreneurs and entrepreneurs in the 21st century global economy” should be kept as much shorter as possible, and more



focus should be given on operational tools and strategies for developing businesses from ideas to practice. The term “health” can be complemented by the term “well-being”, that is



broader and more and more used to refer to social outcomes. Finally, something about the market demand for social-oriented businesses, products and services should be stated more explicitly; something about monitoring and evaluation of social business from its design, to its implementation and results/impacts should be included, as well as something about the role of investors and investments (especially of “impact investments” in supporting newly created social-oriented businesses).

COURSE OUTCOMES

Similarly, the outcomes are also too generic. There is a need to better focus on the specific topics of social issue and organic food industry. Other expected learning outcomes can be, for example: i) understand and adopt the concept of social entrepreneurship in the field of organic food industry and market; ii) identify and use appropriate tools for creating and/or supporting social entrepreneurship in different contexts, with a focus on organic food systems; iii) adopt problem-solving strategies in identifying and developing entrepreneurial opportunities in the organic food sector; iv) design a monitoring and evaluation strategy for assessing the business project and its impacts on social well-being in advance, during its implementation and after a certain period of time; v) identify and design strategies to attract investors/investments and get funds to transform their ideas into business practices. By the way, what is reported in the table of Appendix II is much more clear and coherent with respect to what described in the text (p. 2).

COURSE SCHEDULE

The course schedule is very generic. More clear connections and focus on the core elements/key words of the course should be included (e.g., social entrepreneurship, organic food, societal challenges, social outcomes on health and well-being). The lecture number 10 on “Marketing mix” can be anticipated (as for example the customer segments



should be identified at the very beginning and used to design the business idea). Again, what reported in the Appendix II (from p. 7) is more clear and coherent with the course title with respect to what described in the text (pp. 5-6). However, it is difficult to comment on the course schedule without an explanation of the number of hours (or ECTS) allocated to each lecture/module. For some of them, 2 hours can be enough; for others, 4 hours or even 8 are the minimum required.



MODULES Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add*

something?): monitoring and assessment of projects should be included; more focus on organic food sector; more focus on social challenges (categorization and discussion of implications of doing business in relation to different societal challenges); a short overview about investors, investments trends (e.g., on the emerging issue of the “impact investing”) and on possible sources of funds is needed, as new entrepreneurs often need to attract funds/donors/investors to create their businesses, as they do not have enough own resources.

Overview (*Is the module overview clear and appropriate?*): see previous suggestions in the section “General comments”.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*): to include something on impact investing can be useful (e.g. https://www.mitpressjournals.org/doi/pdf/10.1162/INOV_a_00077); moreover, in order to be coherent with the course’s name and expected contents, something about organic food industry and market demand for organic food should also be included.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*): the proposed activities, very much oriented towards active learning techniques and tools, are expected to be very effective and appreciated by students; some additional session of plenary discussion and/or discussion in pairs between students on specific issues (e.g., commenting/providing feedback on final



presentations) in order to stimulate a problem-solving approach during the activities can be mentioned. If resources are available and at least one example of a social-oriented business in organic food is close to the teaching site, one visit to the company in the field might be very useful to understand also the “physical implications” of doing social businesses.

Teaching Methods revision made by Prof. Biasutti:

Course: *Social Entrepreneurship in the Organic Food Industry*

Heliopolis University, Faculty of Business & Economics, Management & Human Development Department

In the *Overview section*, several ESD learning outcomes have been introduced (e.g. supporting students’ creativity, developing students’ critical thinking and problem-solving skills, to promote individual and group skills among students). Since all these goals represent the core of education for sustainable development, I would suggest to include them also in the *Course learning objectives section* as life-long learning skills. Considering teaching methodologies, the course presented in the current syllabus is based on a learner-centred approach: it includes strategies and activity that are based on students’ active participation, e.g. group discussions, community problem solving assignments, and teamwork projects. In addition, activities that linked the theoretical lectures with the local entrepreneurial situation are planned in the course.



(Revision made by Dr Francesco Marinello, Department of TESAF, University of Padova - Italy - 13/03/2018)

COURSE NAME:

Precision Farming

GENERAL COMMENTS

1. GPS makes reference to the Navstar/American satellite system: GNSS (Global Navigation Satellite System) is more generic and suitable for the syllabus.
2. Proposed Optional course Texts and Materials are quite old dated, and other work could be more interesting, as for instance:
 - Precision Agriculture for Grain Production Systems, by Brett Whelan and James Taylor, CSIRO Publishing, 2013.
 - Precision in Crop Farming: Site Specific Concepts and Sensing Methods: Applications and results, edited by Hermann J. Heege, Springer, 2013.
 - Precision agriculture for sustainability and environmental protection, edited by Margaret A. Oliver, Thomas F. A. Bishop and Ben P. Marchant, Routledge, 2013.

COURSE OUTCOMES

1. In the section "Course Content Learning Outcomes" a first initial point is probably missing, addressing the outcome of becoming familiar with terms and definitions typical of precision agriculture.
2. In the section "Course Content Learning Outcomes" I would rewrite points 4 and 5 as follows:
 4. identify current remote sensing and other variability measuring technologies supported by image processing techniques and describe their applications in precision agriculture
 5. knowledge of field guidance systems for exploitation of controlled traffic or variable rate technology approaches

COURSE SCHEDULE

Satellite providing multispectral information (such as Copernicus, Planet or Worldview satellites) are never cited, even though they are (in some cases) available for free. I think it would be important to explicitly cite them.

Variable rate technology is often cited but the syllabus does not mention definition of homogeneous zones. I think it would be important to explicitly cite it in the course schedule.

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

I would give more emphasis to:

- 1) satellites equipped with multispectral cameras,
- 2) vegetation indices
- 3) precision agriculture differences in case of big companies or small farms
- 4) weather

Overview (*Is the module overview clear and appropriate?*)

Yes it is.

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

I would suggest more recent bibliography as reported above or even newer publications.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

Activities in agreement with the learning outcomes

Practical field activities carried out with applications available for smartphones (such as for collection of GPS/Glonass/Galileo GNSS coordinates)



It would be interesting to integrate the course with the material or the lessons from other courses to exploit, which could somehow benefit from precision agriculture practices.

Teaching Methods revision made by Prof. Biasutti:

Course: *Precision Farming*

Aswan University,

Faculty of Agriculture and natural Resources

The objectives of the Course are mainly focused on the achievement of concepts and skills related to the main topic, including also some themes about sustainability issues. However, the achievement of more cognitive, psychological, and social skills among students (development of life-learning and transferable skills, promotion of students' active participation in the community, development of students' competence as responsible citizens, etc.) is not considered here. I would suggest to include also and reflect upon these objectives, that are the core of ESD. The teaching methodology seems more based on a traditional approach, more centred on teacher and the transmission of theoretical contents: it is highly advisable to move to a more student-centred methodology, including and integrating activities that can enhance the active role of students in class and promote the achievement of critical thinking, problem-solving skills. In addition, it would be useful to plan activities that can link theory with practice, considering both local and global community.



(Revision made by Prof. Antonio Berti, Department DAFNAE, University of Padova - Italy - 27/03/2018)

COURSE NAME: Research Methods and Advanced Statistical Analyses

GENERAL COMMENTS

The course is well structured and covers all the main subjects required for a proper planning and evaluation of outcomes from experiments. In my opinion, the course is then worth to be included in a Master level program. My only concern is on the internal repartition of the subjects. The part on statistical analyses is compressed in the last part of the course and considers many different approaches. Assuming that 1 ECTS should correspond to 10 class hours, I think that it should be very hard to go in deep on subjects such as multivariate statistics and PCA. My suggestion is then to recalibrate a little bit the time schedule, reserving some hours more to the final part of the course and shortening the first part.

COURSE OUTCOMES

Course outcomes are well defined, and the students will learn all the main techniques related to experimental planning and analysis. A plus of the course is that ethical aspects are considered and that the students will be pushed to analyze in a critic way the findings of experiments.

COURSE SCHEDULE

As said in the general comments, the course schedule is well developed, even if, in my opinion, there is an unbalancement between the general part and the credits reserved to specific statistical tests. I suggest to compress a little bit the first part of the course, to have more time for presenting and give examples of the application of some advanced statistical techniques, such as multivariate analyses and PCA.

MODULES



Apart from the time repartition of class hours, the concepts considered in the course are well defined, overviews are appropriate, and the material proposed is adequate. I only suggest to increase the time reserved for the statistical tests considered and to practical applications of these tests.

Course: Research Methods and Advanced Statistical Analyses

Suez Canal University

Faculty of Agriculture, Faculty of Sciences

The course is based on a student-centered approach, in which many transferable skills, critical thinking, responsible attitudes towards sustainability issues are supported and promoted. The course aims to develop knowledge and abilities in the field of statistical analysis, in order to enhance students' active role in understanding, critically analyzing and solving issues connected to sustainable development, with particular attention to those related to the environment. Since the activities proposed are based on a interdisciplinary approach, the course manages in supporting an holistic view of sustainability among students. Proposed tasks include a variety of practical and reflective activities, such as problem-based learning activities, cooperative learning tasks, research-based learning activities. Many of them are based on examples derived from real world situations, offering opportunities for reflecting upon global and local problems.



(Revision made by Dr. Livio Corain, Department DTG, University of Padova - Italy - 20/03/2018)

COURSE NAME: Risk Analysis in the Food Chain

GENERAL COMMENTS

In my opinion the chosen topics are well designed and all of great importance in the field of risk analysis for food safety. Risk analysis refers to a well-defined sequential set of phases and all of them are properly considered. I also appreciate the proposed learning-by-doing approach and the reference to real case studies.

COURSE OUTCOMES

There is a good coherence between learning objectives and course outcomes. Learning objectives are clearly presented and logically linked to course outcomes.

COURSE SCHEDULE

The course scheduling is thoroughly detailed and all activities are very well organized during a period of 15 week. Anyway, no indication is provided on the actual number of teaching/class hours, so I suggest to add this information.

MODULES

Key Concepts *(Are chosen concepts relevant? Would you suggest to delete or add something?)*

Yes, the chosen key concepts are all relevant. I do not have any remark.

Overview *(Is the module overview clear and appropriate?)*

Yes, this is the Course Syllabus section that I most appreciate, especially as in the form of table in the final part of the document.



Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

Yes, the suggest readings are up-to-date. I do not have any additional suggestion.

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

All activities look being in agreement with the learning outcomes, but since the actual number of class hours are not indicated I cannot be more precise. I hope that the actual lesson time is sufficiently wide because the program is very dense and ambitious.

As alternative/additional activities I suggest to spend some more time on practical exercises with the risk analysis software.

Teaching Methods revision made by Prof. Biasutti:

Course: Risk Analysis in the Food Chain

Al-Azhar University,

Faculty of Agriculture

Objectives and learning outcomes of the Course are mainly focused on topic-related aims, without considering transferable and life-long learning skills. I would suggest to also include them, as they represent the core educational goals of ESD. The planned activities are mainly based on a traditional teaching approach: it would advisable to integrate also tasks and assignment base on a more student-centred approach, for stimulating a more active role and critical reflection from students in the class (group discussions may be a good starting point, but they need to be integrate with case study, problem-based activity, workshops, research base tasks, case study, reflection papers and essays, etc.).



SYLLABUS REVISION TEMPLATE

(Revision made by Associate Professor Paolo Tarolli, Department of TESAF, University of Padova - Italy - 12/03/2018)

*****Important Note: Prof. Tarolli was not aware that a full course on GIS is present in the Master******

WATER AREA

COURSE NAME:

Sustainable Management of Soil and Water

GENERAL COMMENTS

This is a really well-organized course. I have just a concern: 15 weeks are enough to provide a full understanding of the several and articulated topics presented? GIS lab and remote sensing data management seem missed in the syllabus. These two aspects are really relevant for a course entitled "Sustainable Management of Soil and Water". I would recommend to add 16hr of GIS exercises using remote sensing data for the management of critical issues related to soil (e.g. erosion) and water (e.g. ponding, irrigation system improvement).

COURSE OUTCOMES

The outcomes of the course are clear and well structured. Just they are a lot (see my previous comment); maybe less weeks, less and more direct outcomes will be make the entire course more suitable in term of understanding.

COURSE SCHEDULE

15 weeks look not so many for such different and articulated topics. My suggestion is to focus (better and with GIS) on less topics and try to organize everything in 12 weeks.

MODULES



Key Concepts – all the key aspect presented are outstanding; they are just too many, I recommend to delete few, making the course more suitable in term of effective understanding.

Overview – the goals of the course are clear.

Readings – nothing to say at this point.

Activity – GIS labs and remote sensing data management seem missed.

(For the SOIL area revision made by Dr. Paolo Carletti, Department of DAFNAE, University of Padova - Italy - 13/03/2018)

SOIL TOPICS

COURSE NAME:

Sustainable Management of Soil and Water

GENERAL COMMENTS

The course covers most important topics regarding soil quality and soil quality management: Soil fertility, nutrients and organic matter, soil biodiversity, soil erosion, soil salinity and pollution. Overall the course is well developed and with clear aims. From the syllabus, it's clear that the teacher is an expert of the topic and has a clear vision of the competences that need to be developed.

Maybe too many topics are intended to be dealt with in the course, in particular in the last module. Soil salinity, soil pollution and soil biodiversity seem a bit compressed in a single module: the study of each of them could require a full module, but of course it is not possible! In my opinion, I would give a bit more room to soil biodiversity (which also relates to nutrients cycling, soil fertility, soil quality and pollution assessment), and devote a little less time to soil erosion (the course schedule counts 3 weeks work on soil erosion related topics). I also think soil pollution is a really big topic and might be a bit compressed in just a week of lectures. I would either give soil pollution more room or leave this topic to the students to examine in depth in the thesis period if interested.

I would strongly recommend to devote a couple of lectures on WATER-SOIL relationship at the end of the course. I would stress the link between the two main areas of the course,



focusing on how soil management can affect water cycle and how water management can impact soil. This would merge the concepts of the different modules and then give the student the perception of the complex natural correlation between these two fundamental resources.

Finally, I would strongly suggest to interact with the teachers of the courses in "Precision Farming" and "Climate Change, Sustainable Agriculture and food security" to foster a reflection on the effects of the different agricultural and agronomic practices on both soil and water. In my opinion, in the master the students must learn the consequences of tillage practices on soil and water resources, to ensure a sustainable agriculture. This is a topic exceeding the boundaries of this course that needs to be addressed in depth, while I couldn't see it covered in the syllabi I received.

A last suggestion: please be ready to recalibrate the course topics and the activities every year for the first 3-4 years. The course success depends on many factors, some of them are impossible to be predicted not: most probably the syllabus will need further revision based on the students' opinions and feedbacks.

COURSE OUTCOMES

Please rephrase the outcomes using a verb at the beginning of the sentences for outcomes 4 to 8. Maybe give more room to soil biodiversity, with a bullet point only for this topic.

RECOMMENDED JOURNALS:

These journals could be recommended too:

Agriculture, Ecosystems & Environment

Soil and tillage research

Land degradation and development

Journal of environmental management

Agronomy journal

COURSE SCHEDULE

As suggested, less time could be devoted to soil erosion topics.

MODULES



All the modules on soil are well written, clear with relevant key concepts. Overviews are informative and suggested readings are interesting and appropriate. The activities suggested seem well balanced and effective.

Teaching Methods revision made my Prof. Biasutti:

Course: *Sustainable Management of Soil and Water*
University of Suez Canal,
Faculty of Agriculture, Department of Soil and Water,

The course overview and objectives show great attention to the promotion of critical thinking, problem-solving skills, and awareness about sustainability issues. Planned activities are coherent with a student-centred approach, since they aim not only to present and discuss the main contents of the course, but also to enhance students' ability to reflect, to analyse situation, and to find solution to real-life problem. Also cooperative learning tasks are included.



SYLLABUS REVISION TEMPLATE

Please revise the attached syllabus according to your expertise focusing on 1) the chosen topics in terms of importance (highlight possible missing themes) 2) logical coherence of the course in terms of correspondence among learning outcomes and objectives and the modules/schedule contents and activity. Please write your comments and suggestions in the following fields.

(Revision made by Dr. Paolo Carletti, Department of DAFNAE, University of Padova - Italy - 12/03/2018)

COURSE NAME:

Sustainable Management of Soil and Water

GENERAL COMMENTS

Part on soil management:

The course covers most important topics regarding soil quality and soil quality management: Soil fertility, nutrients and organic matter, soil biodiversity, soil erosion, soil salinity and pollution. Overall the course is well developed and

COURSE OUTCOMES

COURSE SCHEDULE

MODULES

Key Concepts (*Are chosen concepts relevant? Would you suggest to delete or add something?*)

Overview (*Is the module overview clear and appropriate?*)

Readings (*Are suggested readings up-to-date? Would you suggest more or different sources?*)

Activity (*Are activities in agreement with the learning outcomes? Would you suggest different or additional activities?*)

In my opinion, the master the students must learn the consequences of tillage practices on soil and water resources, to ensure a sustainable agriculture. This is a topic exceeding the boundaries of this course that needs to be addressed in deep, while I couldn't see it covered in the syllabi I received. I would strongly suggest the teacher of "Sustainable management of soil and water" to interact with the teachers of the courses in "Precision Farming" and "Climate Change, Sustainable Agriculture and food security" to foster a reflection on the effects of the different agricultural and agronomic practices on both soil and water.

Revising the syllabus I noticed that GIS and GPS topics are addressed both in "precision Agriculture" and in "GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security". More over GIS is also suggested in the "Soil and water management" course. Please pay attention not to overlap the teaching of these systems in the different courses.

Paolo

In my opinion, the master the students must learn the consequences of tillage practices on soil and water resources, to ensure a sustainable agriculture. This is a topic exceeding the boundaries of this course that needs to be addressed in deep, while I couldn't see it covered in the syllabi I received. I would strongly suggest the teacher of "Sustainable management of soil and water" to interact with the teachers of the courses in "Precision Farming" and "Climate Change, Sustainable Agriculture and food security" to foster a reflection on the effects of the different agricultural and agronomic practices on both soil and water.

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Paolo



Regarding the courses from the Egyptian side:

- 1- Precision farming is accepted and it contains the main modules needed in this course.
- 2- The course of GIS and RS is a disaster and has nothing to do with its title. All the topics are away from GIS and seems that these are research areas of the instructor. I suggest that they refer to my course which includes the main modules of GIS:
 - a- introduction, components of GIS and application areas with emphasis on CCSAFS.
 - b- Data models in GIS
 - c- Data entry and editing in GIS
 - d- Attribute management and geospatial databases with their roles in CCSAFS
 - e- Spatial analysis

Since the course includes remote sensing, I suggest the following modules

- Remote sensing system and earth observation systems
- Electromagnetic radiation and spectral reflectance as basis for applications
- Digital image processing: geometric and radiometric corrections, image classification
- Image transformations: vegetation indices

Course title: Climate change, mitigation and adaptation

Instructors: Khalid El-Sayed Abd El-Hamed Ibraheim, Mohammed Wasfi Elwan, Marwa Samir Kamel, Suez Canal University

Comments on the syllabus

1. A different format is used,
2. The syllabus focuses on the agricultural sector, as mentioned in the course learning objectives and in the course content learning outcomes. The scope of the course should be extended to all sectors as there is another specific course for the agricultural sector which is ***climate change, sustainable agriculture and food security***,
3. The syllabus does not include teaching and learning methods
4. The syllabus does not include policy section.

Comments on the Module

Again the scope of the module is limited to the agricultural sector,

Module 3 which is about sustainable agriculture and food security interferes with the **course on climate change, sustainable agriculture and food security**,

The link between module 4, ***production of healthy grain and fruits by application of organic fertilizers and other safe treatments using modern irrigation***, and climate change is not clear,

The different sections of module 4 don't look harmonized to me. The title and overview do not talk at all about climate change or extreme temperatures; while the other sections (aim and learning outcomes) mention extreme temperatures,

Modules 5, 6 and 7 are focused on agriculture,

The scope of both the syllabus and the modules should be extended to other sectors and not be limited to the agricultural sector. This course should serve as an introductory course to the program and other courses as well.

We (project's team at SCU) have discussed the Course Selection Report kindly provided by Prof. Makrakis. Accordingly, the following distribution of the courses on the three semesters was suggested:

Semester 1

Core courses

{ Climate Change, Sustainable Agriculture, Nutrition and Health Climate Change, Sustainable Agriculture and Local Food Security }	Can be merged in one course
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- Climate Change Adaptation and Mitigation
- Economics of Sustainable Agriculture and Food Security (Social dimensions of climate change must be also considered)
- Research Methods and Advanced Statistical Analyses

Optional courses

- Climate Change, Poverty and Food Security
- “Sustainable Home-grown Feed, Climate Change and Food Security” can be substituted with “Agro-ecosystem Services and Sustainability of Farming Practices”
- Agri-Food Value Chains
- Sustainability and Agricultural Legislations

Semester 2

Core courses

- “Irrigation Management and Water Resources” : Deleted and cab be integrated in the course:
- “Sustainable Management of Soil and Water”
- Food Processing, Preservation and quality controls (modified)
- Ethics in Agricultural Production
- Renewable Energy: Sources, Technology & Applications (NEW)

Optional courses

- GIS for Agro-(Environmental) biodiversity Studies (modified)
- Small Scale Farming, Indigenous Knowledge and Local Food Supply
- Consumer Behaviour, Food Security and Marketing
- Sustainable Grassland Systems and Food Security

Semester 3

Core courses

- Integrated pest management, sustainable agriculture and food security
- Risk analysis in food chain security
- Sustainable livestock, fisheries and food security
- Genetics and Genomics in sustainable agriculture

Optional courses

- Sustainable and Ethical Livestock management
- Sustainable waste management (New)
- Social Entrepreneurship in the organic food industry
- Sustainability and soil less culture (New)

Kind regards

Comments on Structure and Course Curriculum of the MSc in CCSAFS

University of Padova

Padova team discussed the report on structure of the CCSAFS Course curriculum and agreed on the following comments:

1. It's not clear what kind of professional profile is intended to be the outcome of the course. We suggest either a manager-type of professionalism or a technical-type figure. Courses more focused on practical and technical topics (i.e. "Precision farming", "Sustainable fisheries and Food security"...) stand beside courses dedicated to higher level managerial approach such as "Sustainability Justice and Food Security", "Social Entrepreneurship in the Organic Food Industry". We suggest to propose different curricula either management oriented (for future employment in Ministry, NGOs, etc) or technical oriented (to work in the field at close contact with enterprises etc).
2. Considering the topics of optional courses, we note that student can freely mix thematic areas, for example food, farming and economics. We advise that it could be more fruitful to orient the student's choices towards only one area for their curriculum, to consolidate knowledge and competencies in a specific field.
3. For future syllabus development, we would propose to begin considering the courses to be divided in modules (2 or 3 according to the topics described in the course title), in particular core courses. Single modules could be held by different teachers.
4. We also suggest to move "GIS Applications in Climate Change, Sustainable Agriculture and Food Security" from the core courses to the optional ones, as GIS technology might not be useful to all the professional profiles developed within the course. On the other hand, courses like "Sustainability Justice and Food Security" or "Consumer Behavior, Food Security and Marketing" could be elected as core.

Although it is very interesting for the internationalization of our University, at present time it is difficult to progress towards the definition of a Dual Degree course. Main reason is that thematic areas are partially or not at all overlapping. The University of Padova degree in Sustainable Agriculture does provide courses neither on Climate change nor on Food security, thus there is not a full correspondence between CCSAFS and our MSc Course. Our course scheme could provide, however, a basis for the CCSAFS syllabus development, in particular in the area of sustainable agriculture. Beside this, the University of Padova may offer to CCSAFS students opportunities for mobility and exchange, and the attendance of summer/winter schools organized by the University in this field, possibly in collaboration with the Universities participating to the CCSAFS degree.

Course title: Sustainability Justice and Food Security

Instructors: Mr. Omar Hamdy El Dahan

Comments on the syllabus

1. The syllabus focuses on the food production (quality and quantity) from producers to consumers in sustainable manner as well as how achieving sustainability justice.
2. The syllabus course learning objectives focuses on understanding of sustainability justice (social, cultural, environmental, and economic) and its major role for achieving food security, course objectives should be extended to political sustainability justices.
3. The syllabus course learning objectives focus on understanding of **sustainable justice** and its major role for achieving food security.
4. The course learning outcomes should include sustainability justice in terms of political aspects
5. The course learning outcomes should include the role of sustainable justice to achieve food security

Comments on the Module

Module 1 should include the political Pillar of sustainability justice.

Module 2 should include the food production chain from producers till consumers in terms of sustainability justice

Module 3 should include the sustainability justice in terms of political aspects

Module 4 should include Food Security & the political of Sustainability Justice

Module 5 should include cases study (success story) related to Sustainability Justice for Food Security.

Course title: Sustainable Fisheries and Food Security

Instructors: Prof. Mamdouh Ahmed Omar

Suez Canal University

Comments on the syllabus

1. The objectives should include Understanding of fisheries systems
2. The objectives should include fundamentals of marine ecology
3. The objectives should include Fisheries management for Food Security in sustainable way to maintain the natural resources for next generations.
4. The objectives should include marketing chain from producers to consumers that ensure high quantity with high quality.
5. The learning outcomes should include discussion important factors for performing a sustainable fishery and a sustainable aquaculture.

Comments on the Module

Module 1 Sustainable Fisheries and Seasonal Variations should include fundamentals of marine ecology and Understanding of fisheries systems.

Module 2 Climate Changes and Sustainable Fisheries should include Fisheries practices for Food Security in sustainable way (adaptation of fisheries with climate change).

Module 3 Dynamics of Fisheries Development should include Fisheries managements

Module 4 High Value Fisheries should include fish marketing process in a sustainable way to achieve food security



CCSAFS COURSE SYLLABUS TEMPLATE

Course Syllabus

Course Number:
Risk Analysis in the Food Chain
Al-Azhar University, Faculty of Agriculture
Semester,

Instructor Information

Instructor: Prof. Khaled A.M.H. El-Khawass
Office Location: Al-Azhar University, Cairo
Telephone: 00201060367744
Office hours: Sunday-Wednesday 09.00 – 14.00
E-mail: khaledk5912@yahoo.com
Website:

Course Identification

Course Number:
Course Name: Risk Analysis in the Food Chain
Course Location: Al-Azhar University
Class Times:
Prerequisites:
Faculty Web Page:

Course Description/Overview

Risk Analysis in the Food Chain introduces you to the principles and practices of ensuring the safety of food across the entire breadth of the industry, including its importance to producers, manufacturers, distributors and retailers. You will explore the key components of risk analysis: risk assessment, risk management and risk communication, all building to a well-developed sense of how to identify and manage food-related risks. In order to properly appreciate the application of these tools, one key exercise will see you acting in the role of a national food control authority, investigate a real case of food risk and develop an appropriate management strategy.

As a result of completing this course, you will obtain a detailed understanding of Risk Analysis as it pertains to the food chain, and with a set of pragmatic tools that will allow you to apply these principles to your own practice. Risk analysis is a vital and vibrant discipline within the modern agri-food sector, and would, therefore, be of use to professionals from across the industry.

Nearly the same for both but it was written :Commented [KS1]
in different words The risk communication was not mentioned in
Jerash prepared syllabus..

Grades can be based on the following:



Assignments	20
Class attendance/participation	20
Final Exams	60
Total Points	100

Commented [KS10]: Assignments should be increased 40%
Other midterm exams should be 20%
And the final 20% only

Course policies

Late Assignment

It is important that papers and other assignments be completed and submitted on time. Once the due date is past, without notice and justification, the submission is not accepted.

Classroom Protocol

This is a seminar type of course, which means that students are expected to come ALL classes. You cannot pass the class under any circumstances if you miss more than three classes. Students are expected to arrive at on time and stay until the class period ends. If you know that you have to leave early, you should notify me before class starts. You are expected to treat faculty and other students with respect. During class students are obliged to not disrupt class by making noise and/or leaving and re-entering during class. Students who violate these minimal expectations will be asked to leave and counted as absent. You are expected to have read and thought about the assigned material before you come to class. I expect active class participation.

Disability

Students who have disabilities should have a confidential appointment to discuss their need for accommodations. Establishing reasonable accommodations should be considered on a case-by-case basis.

Important Dates to Remember



Course schedule

week	date	Topics, Reading, Assignments and Deadline (details on assignments and more bibliography are available in the course modules)
1		Course overview: Discussion of syllabus and assignments, course requirements and prerequisites, criteria for student selection
2		Risk Management
3-4		Risk Communication
5-6		Principles of risk communication
7-8		Strategies for risk communication
9-10		Principles for risk analysis
11-12		National Food Safety Control - Risk Analysis by Governments
13		Risk Assessment and the Role of Science
14		Chemical vs Microbial Risk Analysis Methodology
15		The Role of Risk Analysis in the Food Industry

Commented [KS11]: There is no need for a week for this topic only one quarter of an hour.
Add risk analysis and types

Commented [KS12]: And formulating decision

Commented [KS13]: I think one week is enough for that topic, we can add principles and strategies in the same week.

Commented [KS14]: Instead we can add climate change risk assessment.



The CCSAFS Course Modules Template

Course	Risk Analysis and Food Chain
Module 1	Introduction to Risk Analysis in Health and Food Safety
Key Concepts	Definition, theories, and concepts
Overview	The module focuses on the principles, concepts, guidelines and regulations governing risk analysis in H&FS, on the key steps and methods of qualitative risk assessment, and on the basic principles of quantitative risk assessment (QRA). The interactive teaching approach aims to develop the students' ability to apply the concepts and principles covered to real world problem situations, while being consistent with published guidelines and regulations governing risk analysis in H&FS
Aim	The module will provide students with knowledge and understanding of key principles of risk analysis in health and food safety (H&FS) and its main applications. Candidates will learn the main steps of the risk assessment process, and gain the skills required to conduct qualitative risk assessments and to correctly identify data and key stochastic processes to use while performing quantitative risk assessments
Learning Outcomes	• The key principles of risk analysis in H&FS; the main international legal frameworks, guidelines and regulations governing risk analysis in H&FS; and the importance of risk communication and risk management in risk analysis; • The key steps and methods used in qualitative risk assessment in H&FS; the main steps of QRAs in H&FS • The common types of information used and potential sources of data for risk assessments in H&FS; the factors influencing the quality of data for use in risk assessment in H&FS • Basic risk assessment modeling principles; stochastic processes most commonly used in QRAs in H&FS; and the relationship between stochastic processes and H&FS data. • Identify situations involving H&FS in which risk analysis is useful; identify the most appropriate risk assessment strategy (qualitative vs. quantitative) for specific situations and risk questions in H&FS • Critically review qualitative risk assessments in H&FS • Design and conduct qualitative risk assessments in H&FS that are appropriate and relevant • Design simple QRA models in H&FS; correctly identify H&FS data and stochastic processes to use in QRAs; effectively identify simple risk assessment modeling methods to address quantitative risk questions and implement them in a risk assessment modeling software • Communicate effectively during the risk assessment process; present qualitative risk assessments to technical and non-technical audiences; and

Commented [KS15]: Food chains definition and systems.
Risk types



	interpret results of qualitative risk assessments to provide coherent and logical arguments in support of decision-making
Units	• Introduction Risk Management. • Understanding risk management • The risk management process
Readings	• FAO/WHO. 1999. The application of risk communication to food standards and safety matters. Report of a Joint FAO/WHO Expert Consultation in Rome, Italy, 2–6 February 1998. FAO Food and Nutrition Paper No. 70 (available at: http://www.fao.org/DOCREP/005/X1271E/X1271E00.htm#TOC). • Fischhoff, B. 1995. Risk perception and communication unplugged: twenty years of process. Risk Analysis, 15: 137-145. Harvard Center for Risk Analysis. Risk in Perspective. June 2003. Volume 11, Issue 2 (available at: http://www.hcra.harvard.edu/pdf/June2003.pdf).
Activity	Each week there will be a quiz at the beginning of class. Material on quizzes will be from required readings for that week. Active listening and participation are very important to engaging with the course, the intellectual content, and the classroom community. Each student will be responsible for serving as a class discussion leader twice during the quarter. Assignment of class leader responsibilities will occur during the first class session. Discussion leadership will entail two parts, 1) A brief opening oral presentation (including a set of between 4 and 7 slides) highlighting the most important two or three points of the chapters/articles under consideration. Please note that all readings in a particular session are thematically related so the opening oral presentation should seek to succinctly synthesize some of the material. Creativity in presenting/augmenting the material is encouraged. 2) Development of two or three questions intended to stimulate class discussion after the brief opening oral presentation
Module 2	Advanced Quantitative Risk Assessment
Key Concepts	Definition, theories, practices and concepts
Overview	This module enables students to develop an in-depth knowledge and understanding of advanced quantitative risk assessment (QRA) methods used in health and food safety (H&FS) through a combination of theoretical and practical activities including real-world examples and critical review of published QRAs,. Both practical aspects on how to implement QRAs and advanced risk assessment modeling methods will be covered.
Aim	The aim of this module is to provide students with knowledge and understanding of advanced QRA methods. Students will gain the skills required for conducting scientifically robust QRAs that also satisfy international QRA standards.
Learning Outcomes	By the end of this module, students should be able to demonstrate knowledge and understanding of: • Stochastic processes used in QRAs in H&FS;

Commented [KS16]: -Food chain definition and systems.
-Types of risks facing agriculture under climate change

Commented [KS17]: Add the following readings:
Kahn B., Larson M., Norris C. and Young B., 2005. The Food Chain Instruction Plan. University of Maryland, USA.
http://www.rcsnc.org/UserFiles/Servers/Server_4702937/File/lynne%20huskey/FoodChainGang.pdf
ALL ABOUT FOOD CHAINS.
<http://mrnussbaum.com/pdfs/All%20About%20Food%20Chains.pdf>
Kunreuther H., 2002. "Risk Analysis and Risk Management in an Uncertain World." Risk Analysis, 22(4):655-664.

Commented [KS18]: And Statistics



	• Specialized food safety modeling methods; • Methods for fitting distributions to data and expert opinion; • Methods to perform sensitivity analysis; • Methods used to model uncertainty; • Methods for model verification and validation; • Good risk assessment modeling practices and common modeling mistakes to avoid; • The importance of documenting QRA models and the communication of QRA results to scientific audiences and risk managers; • Correctly identify the modeling methods and data to be used in QRAs; summarize and synthesize information from a wide range of current and relevant sources to be used as inputs in a QRA; • Effectively design and implement QRA models of moderate complexity in H&FS; • apply and integrate the risk assessment modeling methods into real world H&FS situations following the main steps of QRAs in H&FS; • Critically review QRAs in H&FS; • Interpret results of QRAs to provide coherent and logical arguments in support of decision-making.
Units	• Risk Assessment • Introduction to this chapter • Understanding risk assessment • The food safety risk assessment process • Chemical and microbial risk • Techniques used in food safety risk assessment • Characteristics of a good risk assessment
Readings	Joint Institute for Food Safety and Applied Nutrition. Food safety risk communication resources. A joint project between the University of Maryland and the United States Food and Drug Administration (available at: http://www.foodriskclearinghouse.umd.edu/risk_comm_foodsafety.cfm). Sandman, P.M. 1994. Risk communication. In: Encyclopedia of the Environment, Eblen, R.A. & Eblen, W.R. (eds.). 1994. Boston, MA: Houghton Mifflin, pp. 620-623. University of Maryland. Food safety risk communication primer.
Activity	Participants will be assessed by formative in-course assessment and summative unseen examination (open book exam) on the last day of the 3-week module. 3 During directed learning sessions, students are encouraged to work together with classmates, and talk to the instructor about their work and issues. We are convinced it is very beneficial to share and discuss ideas. However, students must work independently during exams.
Module 3	Practical Module



Key Concepts	Definition, theories, practices and concepts
Overview	The module focuses on practical activities and hands-on learning: students are guided through the main steps of a QRA and have to apply the concepts and methods previously taught to a selected topic of their choice to produce a QRA model and accompanying concise report. Regular online support ensures students get regular constructive feedback and guidance on their progression through the risk assessment process. The module also provides many opportunities for inter-learner discussions and collaborative learning.
Aim	The aim of this module is to further develop the students' knowledge and understanding of risk assessment modeling methods and provide students with the practical skills to conduct and present QRA in H&FS that satisfy international standards.
Learning Outcomes	By the end of this module, students should be able to: • Frame risk analysis problems in H&FS; • Demonstrate and apply in-depth knowledge and understanding of the main steps and methods for conducting and presenting QRA in H&FS; • Apply and integrate the previously learnt risk assessment modeling methods to real world H&FS situations; • Design appropriate and scientifically robust QRA models of moderate to advanced complexity, and correctly and effectively implement them in a risk assessment modeling software; • Apply and integrate good modeling practices relevant to QRA in H&FS and avoid common mistakes in QRA; • correctly identify the data and modeling methods to address quantitative risk questions; • Identify data gaps and model assumptions and critically assess their impact on the results of a QRA; • Communicate effectively the model design, summarize and interpret results of QRA models, and communicate the conclusions to scientific audiences and risk managers;
Units	The Practical Module will be based upon work-based directed tasks following the main steps and methods taught in Modules 1 and 2, and self-directed and independent study. In addition, weekly online seminars, discussion forums and asynchronous discussion boards will facilitate collaborative learning and allow students to discuss their work and risk assessment modeling methods with the teachers as well as with their peers.
Readings	<i>Therivel et al. (1992). Strategic Environmental Assessment. Earthscan. Gilg, A.W. (1996). Countryside Planning. Routledge. HMSO (1994). Sustainable Development: The UK Strategy. Harris, J. (2001). A Survey of Sustainable Development: Social and Economic Dimensions. OECD (2001). OECD Environmental Indicators: Towards Sustainable Development, OECD</i>



Activity	Participants will be assessed formatively by in-course assessment. The module mark will be based on the report (50%) and QRA model (50%) submitted upon completion of Module 3. During online seminars, discussion forums and on the discussion board, students are encouraged to discuss their work and issues together with classmates, talk to the course instructors and their tutors. We believe it is very beneficial to share and discuss ideas. However, students have to develop their QRA model on their own and may not present other people's work as their own.
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Commented [KS19]: Module 4:Applying Decision analysis
 Module 5: Tecnological and climate change risk.
 Module 6: Health risk Assessment
 Module 7: Valuation of Risk.

Course title: Climate change, mitigation and adaptation

Instructors: Khalid El-Sayed Abd El-Hamed Ibraheim, Mohammed Wasfi Elwan, Marwa Samir Kamel, Suez Canal University

Comments on the syllabus

1. A different format is used,
2. The syllabus focuses on the agricultural sector, as mentioned in the course learning objectives and in the course content learning outcomes. The scope of the course should be extended to all sectors as there is another specific course for the agricultural sector which is ***climate change, sustainable agriculture and food security***,
3. The syllabus does not include teaching and learning methods
4. The syllabus does not include policy section.

Comments on the Module

Again the scope of the module is limited to the agricultural sector,

Module 3 which is about sustainable agriculture and food security interferes with the **course on climate change, sustainable agriculture and food security**,

The link between module 4, ***production of healthy grain and fruits by application of organic fertilizers and other safe treatments using modern irrigation***, and climate change is not clear,

The different sections of module 4 don't look harmonized to me. The title and overview do not talk at all about climate change or extreme temperatures; while the other sections (aim and learning outcomes) mention extreme temperatures,

Modules 5, 6 and 7 are focused on agriculture,

The scope of both the syllabus and the modules should be extended to other sectors and not be limited to the agricultural sector. This course should serve as an introductory course to the program and other courses as well.



CCSAFS COURSE SYLLABUS TEMPLATE

Course Syllabus

Course Number:

Small Scale Farming, Indigenous Knowledge and Local Food Supply
Aswan University, Faculty of Agriculture and natural Resources
Semester,

Instructor Information

Instructor: Dr. Wagdi Saber Soliman
Office Location: Aswan University, Sahari Campus
Telephone: office - +20 973 480 245
Office hours: Sunday-Wednesday 09.00 – 14.00
E-mail: wagdi79@agr.aswu.edu.eg
Website:

Course Identification

Course Number:
Course Name: Small Scale Farming, Indigenous Knowledge and Local Food Supply
Course Location: Aswan University
Class Times:
Prerequisites:
Faculty Web Page: <http://agr.aswu.edu.eg>

Course Description/Overview

This course provides an adequate understanding of the fundamentals that apply to starting and managing a small farm business. Students will examine the basics of traditional and organic farming systems and learn about resources and strategies to get started running their own farm business. The information and understanding gained from this course will prepare students to look at indigenous knowledge and local food supply chains from a holistic and realistic perspective.

Course Learning Objectives

- Students will gain a valuable understanding of the myriad of economic and regulatory issues involved in starting and managing a small farm.
- achieve in-depth knowledge of local and indigenous farms and peoples including their collective knowledge and the challenges they face

Commented [KS1]: Building the farmers capacities in their field in order to keep their up to date knowledge in their specialty in order to sustain productivity under changing climate conditions.

Commented [KS2]: Also gaining knowledge of the whole farm planning for a wide variety of enterprises and small farming business.

Commented [KS3]: -To gain skills assessing the feasibility of sustainable small scale farming systems.



- Engage and collaborate with local, small farms and their entire ecosystem (e.g. local supply chains, farmers' markets, farming communities, etc.)

Course Content Learning Outcomes

Upon successful completion of this course, students will be able to:

- Identify the principles and practices of small-scale organic farming
- Analyze contemporary food and agricultural issues, opportunities, threats, and trends
- Demonstrate effective oral and written communication skills as well as the ability to work in teams.
- Manage resources available to help establish a small farm business
- Describe the primary agricultural production systems for small farms
- Map the entire local, agricultural supply chain from production to retail
- Develop strategies for overcoming basic challenges in new farm business start-ups.
- Investigate local, indigenous knowledge on agricultural practices and local supply chains
- Synthesize between qualitative research methods for identifying indigenous knowledge

Course Resources

Course Website(s)

Required Course Texts and Materials

Hand-out prepared by the instructor for the class

Optional course Texts and Materials

Wolfenson KDM. 2013. Coping with the food and agriculture challenge: smallholders' agenda Preparations and outcomes of the 2012 United Nations Conference on Sustainable Development (Rio+20).

http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Coping_with_food_and_agriculture_challenge_Smallholders_agenda_Final.pdf

Quan J. Science review: SR25. A future for small-scale farming. part of the UK Government's Foresight Project on Global Food and Farming Futures.
<https://www.nri.org/images/documents/news2011/11-570-sr25-future-for-small-scale-farming.pdf>

Irshad H. 2010. Local Food - A rural opportunity.
[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/ba3468a2a8681f69872569d60073fde1/593337cbd907813a8725782c0058ae97/\\$FILE/Local-Food-A-Rural-Opp.pdf](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/ba3468a2a8681f69872569d60073fde1/593337cbd907813a8725782c0058ae97/$FILE/Local-Food-A-Rural-Opp.pdf)

Murphy, S (2012) Changing Perspectives: Small-scale farmers, markets and globalisation (revised edition), IIED/Hivos, London/The Hague

Ruben R., Slingerland M., Nijhoff H. (eds.). 2006. Agro-food chains and networks for development. Exclusion of small-scale farmers from coordinated supply chains. pp. 209-217. Springer. Netherlands.

Commented [KS4]: Add the following:

- Know the principle of small farming and its effect on the sustainability of food production and welfare.
- Knowledge about the systems used in sustainable food production with small farming.
- To know how sustainable food production can be done using environmental safe systems of production.

Commented [KS5]: Synchronize

Commented [KS6]: Add the following:

Lynn Bycznski, 2013. Market Farming Success : The Business of Growing and Selling Local Food, 2nd Edition. Chelsea Green Publishing.
Elliot Coleman, 1995. The New Organic Grower : A Master's Manual of Tools and Techniques for the Home and Market Gardener, 2nd Edition. Chelsea Green Publishing.

Commented [KS7]: Add the following:

<http://extension.wsu.edu/skagit/wp-content/uploads/sites/29/2014/09/Market-Garden-Whole-Farm-Plan.pdf>
<http://extension.wsu.edu/skagit/wp-content/uploads/sites/29/2014/09/Mushrooms-Whole-Farm-Plan.pdf>
<http://extension.wsu.edu/skagit/wp-content/uploads/sites/29/2014/09/Raspberry-Whole-Farm-Plan.pdf>
<http://extension.wsu.edu/skagit/wp-content/uploads/sites/29/2014/09/Raw-Milk-Dairy-Whole-Farm-Plan.pdf>
<http://extension.wsu.edu/skagit/wp-content/uploads/sites/29/2014/09/Sustainable-Agriculture--An-Introduction.pdf>

Commented [KS8]: Add the following web resources:

<http://agr.wa.gov/FoodAnimal/Organic/#CertificationServiceshttp://smallfarms.wsu.edu/>
<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
<http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateO&navID=ViewU.S.TerminalMarketPriceReports&rightNav1=ViewU.S.TerminalMarketPriceReports&topNav&leftNav&page=FVMarketNewsTerminalMarketReportsMorehttp://agr.wa.gov/foodanimal/organics/>
<http://www.marketfarm.com/>
<http://www.charliesproduce.com/>
"Fresh Produce Facts" at http://postharvest.ucdavis.edu/post_harvest_Agriculture_Handbook_Number_66
<https://pubs.wsu.edu/> <http://www.tractorhouse.com/>
WSU WSU Organic Ag



Assignments and Grading Scheme

Grading System

0 to 10 (where 5 is the least pass mark)

Grading policy

Grades can be based on the following:

Assignments	20
Class attendance/participation	20
Final Exams	60
Total Points	100

Commented [KS9]: the table is suggested to be as below:
Assignments

Course policies

Late Assignment

It is important that papers and other assignments be completed and submitted on time. Once the due date is past, without notice and justification, the submission is not accepted.

Classroom Protocol

This is a seminar type of course, which means that students are expected to come ALL classes. You cannot pass the class under any circumstances if you miss more than three classes. Students are expected to arrive at on time and stay until the class period ends. If you know that you have to leave early, you should notify me before class starts. You are expected to treat faculty and other students with respect. During class students are obliged to not disrupt class by making noise and/or leaving and re-entering during class. Students who violate these minimal expectations will be asked to leave and counted as absent. You are expected to have read and thought about the assigned material before you come to class. I expect active class participation.

Disability

Students who have disabilities should have a confidential appointment to discuss their need for accommodations. Establishing reasonable accommodations should be considered on a case-by-case basis.

Important Dates to Remember



Course schedule

Week	Date	Topics, Reading, Assignments and Deadline (details on assignments and more bibliography are available in the course modules)
1		Course overview: Discussion of syllabus and assignments, course requirements and prerequisites, criteria for student selection
2		Introduction and Concepts of Small-Scale Farming
3		Challenges to small-scale agricultural production
4		Basics of Farm Business Management
5		Farm Management Tools for Success
6		Farm Management regulations and challenges
7		Production systems overview
8-9		Action Research & Participatory Action Research in the context of local farms
10-11		Design and structure of local food supply chains
12-13		Basics of rural sociology

Commented [KS10]: This does need the entire week. I think one half an hour is more than enough.
You can then start with the second week topics.

Commented [KS11]: With equipment and modern facilities.

Commented [KS12]: Wk 14: Presentations of some reports and homework.



The CCSAFS Course Modules Template

Course	Small Scale Farming, Indigenous Knowledge and Local Food Supply
Module 1	Agriculture Production and Small Farming
Key Concepts	Concepts of small farming, indigenous knowledge, and local food supply
Overview	It is essential for students to develop a fundamental understanding of small-scale farming, indigenous knowledge, and local food supply concepts. Questions to be addressed in this module include the following: What is the nature of small-scale farming? Why is small-scale farming important to food supply? What are the current applications of small-scale farming?
Aim	The overriding aim of this module is increase student's agricultural literacy with particular attention to sustainability and local food systems
Learning Outcomes	- Demonstrate an ability discuss the principles and practices of small-scale organic farming - Describe the primary agricultural production systems for small farms
Units	- Introduction and Concepts of Small-Scale Farming, indigenous knowledge, and local food supply - Challenges to Agricultural Production
Readings	Quan J. Science review: SR25. A future for small-scale farming. part of the UK Government's Foresight Project on Global Food and Farming Futures. https://www.nri.org/images/documents/news2011/11-570-sr25-future-for-small-scale-farming.pdf Irshad H. 2010. Local Food - A rural opportunity. http://www1.agric.gov.ab.ca/\$Department/deptdocs.nsf/ba3468a2a8681f69872569d60073fde1/593337cbd907813a8725782c0058ae97/\$FILE/Local-Food-A-Rural-Opp.pdf Ruben R., Slingerland M., Nijhoff H. (eds.). 2006. Agro-food chains and networks for development. Exclusion of small-scale farmers from coordinated supply chains. pp. 209-217. Springer. Netherlands.
Activity	Collective questions will be prepared to measure the students' basic knowledge
Module 2	Farm Management
Key Concepts	Farm management and its regulations and challenges
Overview	In this module, students will have sufficient knowledge about establishing small farm, managing the tools and resources, awareness with regulations and challenges as well as marketing techniques
Aim	The overriding aim of this module is turn student's able to manage their own small farms
Learning Outcomes	- Identify resources available to help establish a small farm business - Describe the primary agricultural production systems for small farms - Describe basic retail and wholesale marketing techniques

Commented [KS13]: Add the following:

- Provide a basic understanding of the global trends of greenhouse gases and pollution.
- Provide students with climate change mitigation methods using small farming concepts.

Commented [KS14]: Add the following:L

- Archer, "The Perturbed Carbon Cycle."
- Schneider, "What Is 'Dangerous' Climate Change?"
- Forster et al., "Changes in Atmospheric Constituents and in Radiative Forcing."
- Kolbert, "The Curse of Akkad."
- Surowiecki, "Better and Better: The Myth of Inevitable Progress."
- Pew, "The Causes of Global Climate Change."

Commented [KS15]: Add to the module:
Developing the whole farm plan and Evaluation of Resources and Enterprise Assessment



Units	- Basics of Farm Business Management - Farm Management Tools for Success - Farm Management Regulations and Challenges - Production systems overview
Readings	Wolfenson KDM. 2013. Coping with the food and agriculture challenge: smallholders' agenda Preparations and outcomes of the 2012 United Nations Conference on Sustainable Development (Rio+20). http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Coping_with_food_and_agriculture_challenge_Smallholder_s_agenda_Final.pdf Murphy, S (2012) Changing Perspectives: Small-scale farmers, markets and globalisation (revised edition), IIED/Hivos, London/The Hague Ruben R., Slingerland M., Nijhoff H. (eds.). 2006. Agro-food chains and networks for development. Exclusion of small-scale farmers from coordinated supply chains. pp. 209-217. Springer. Netherlands.
Activity	Student will be requested to prepare and discuss farm management regulation and tools
Module 3	The context of local food supply
Key Concepts	Local food supply, action research, local farms
Overview	In this module, students will have sufficient knowledge and understanding about local food supply chains. They will be able to analysis and apply action research and particularly action research in local farms, they be able to design and structure local food supply chains.
Aim	The overriding aim of this module is turn student's able to analysis, design and structure local food supply chains
Learning Outcomes	- Apply a systems approach to analyzing the context of local farms - Describe strategies for designing and structuring local food supply chains
Units	- Action Research & Participatory Action Research in the context of local farms - Design and structure of local food supply chains

Commented [KS16]: Add the following:

- Farm size and relation to sustainability of agricultural production.
- Feasibility study of farms.
- Planning of farm in plant production.
- Planning farms of Animal production.

Commented [KS17]: Add the following reading:

- Stott D., Lee E. and Nichols E., 2014. Feasibility Study of Small/Medium Farm Product Distribution System In the Lower Mainland. http://www.farmfolkcityfolk.ca/PDFs_& Docs/Distribution/Report%206_Small_Medium%20Farm%20Product%20Distribution%20System%20Development.pdf
- Feasibility Study Rural Household Biogas & Conservation Tillage CDM Project Development. <http://www.un-csam.org/publication/CDMFinalReport.pdf>
- Saša Slijepevid Amela Dosovid – Medid, 2011. Goat Farm Feasibility Study; Sustainable Business and Inclusive Markets. www.ba.undp.org/content/dam/bosnia.../BiH_Goat-Farm-Feasibility-Study.pdf
- Feasibility Study on Priority Projects and Programs. http://open_jicareport.jica.go.jp/pdf/11752524_02.pdf
- FAO, 2005. Guidelines for the Design of Agricultural IY Projects. <http://www.fao.org/3/a-v4810e.pdf>
- Jordan Investment Commission, 2017. Pre-Feasibility Study -Establishing a Cut Flowers Farm Madaba. <https://jic.gov.jo/esfwebadmin/upload/%D8%A7%D9%84%D8%AE%D8%A7%D8%B1%D8%B7%D8%A9%20%D8%A7%D9%84%D8%A7%D8%B3%D8%AA%D8%AB%D9%85%D8%A7%D8%B1%D9%8A%D8%A9%201/A%20Cut%20Flowers%20Farm-%20Madaba.pdf>

Commented [KS18]: add:

- Farm plan.
- A feasibility study of a small farm.
- Compare the feasibility and sustainability measures.

Commented [KS19]: Add: and Sustainable Crop Production, Sustainable Livestock and Poultry, and Grazing Management on Small Acreages



Readings	- IPCC Fourth Assessment Report: Climate Change 2007: Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability: Indigenous knowledge systems. https://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch9s9-6-2.html - T., M. Velandia, R. Holcomb, R. Dunning, and E. Bendfeldt. 2013. "Local Food Systems Markets and Supply Chains". Choices. Quarter 4. Available online: http://choicesmagazine.org/choices-magazine/theme-articles/developing-local-food-systems-in-the-south/local-food-systems-markets-and-supply-chains - Holcomb, R.B., M.A. Palma, and M.M. Velandia. 2013. "Food Safety Policies and Implications for Local Food Systems". Choices. Quarter 4. Available online: http://choicesmagazine.org/choices-magazine/theme-articles/developing-local-food-systems-in-the-south/food-safety-policies-and-implications-for-local-food-systems
:Activity	Students will visit small farms. They will be asked for collecting and analyzing data as well as designing and structuring local food supply.
Module 4	Rural Sociology
Key Concepts	Rural sociology, indigenous knowledge
Overview	In this module, students will have sufficient knowledge and understanding about rural sociology and indigenous knowledge
Aim	Demonstrate an ability discuss the principles and practices of rural sociology and indigenous knowledge
Learning Outcomes	- Identify basic elements for small farmers associations - Gain an understanding of indigenous knowledge
Units	- Basics of rural sociology
Readings	- Rural Sociology: Meaning, Scope, Importance and Origin. http://www.sociologydiscussion.com/rural-sociology/rural-sociology-meaning-scope-importance-and-origin/2599 - The Rural Sociological Society (RSS). http://www.ruralsociology.org/ - Research in Rural Sociology and Development. http://www.emeraldinsight.com/series/rrsd
Activity	Students will visit small farmer and indigenous knowledge associations. They will be asked for collecting data, highlighting problem, and recommending solutions.

Commented [KS20]: Instead, add:
Equipment and Facilities for sustainable production

Commented [KS21]: Module 5: Small scale farming and food security
Module 6: Marketing strategies and enterprise budget.
Module 7: Improving indigenous knowledge in small scale farming

Procedures applied about peer reviewing

The revision process depended on two elements, scientific content and teaching methodologies. Mainly, Dr. Nehal Lotfy was responsible for reviewing teaching methodologies and providing intensive clarifications on how to include activities for each module due to her deep experiences in this field.

Scientific content was somehow checked by SCU team, but mainly we relied heavily on Padova University Team because of their strong experiences.

The following criteria was generally used for reviewing the courses:

- 1- the relevance of the course content to the scope of the master (climate change, sustainable agriculture and food security).
- 2- The objectives of the course must be SMART.
- 3- The activities are explained in details with the steps of implementation and the used assessment technique.
- 4- The suitability of the course content and number of modules to the duration of the course.
- 5- The presence of the references and supporting reading material.
- 6- The use of blended learning techniques.
- 7- The link between the course content and the SDGs.
- 8- the use of effective learning and teaching methodologies (active learning).

Impact of the quality of course modules

After reviewing the course content, some modifications were required from the staff members who developed the courses.

The modifications and suggestions of adapting active learning techniques, and other effective teaching and learning methodologies helped enhancing the content of the courses as well as the adapted teaching methodologies.

Better description of the assignments and activities would make it easier for other staff members to implement the courses during the master program.

After peer-reviewing and modifications from the staff members, the courses are better described, more up to date in references and suggested readings, offer engaging activities and use various active learning techniques, provide better description of the used assessment techniques during and after teaching.

It is very important to highlight the importance of course syllabus and modules templates provided by Prof. Makrakis that enabled us to not only develop the CCSAFS MSc curriculum, but also formulate our courses which we are already taught.

Prepared by

Manal Hefny, Nehal Lotfy

CCSAFS COURSE: Climate Change Adaptation and Mitigation

Similarities and Differences Report

SCU, Egypt vs. Jordan University, Jordan

	Similarities	
	Suez Canal University, Egypt	Jordan University, Jordan
Overview and scope	The course stress why adaptation and mitigation measures are needed urgently to reduce the adverse impacts of climate change This course is designed to provide students with comprehensive knowledge and skills concerning climate change adaptation and mitigation approaches	Similar
Outcomes	huge number of outcomes which are too ambitious	Similar number and content
	Differences	
Overview	More related to agriculture	Less related
Objectives	General objectives	Specific objectives
Content	focused on mitigation and adaptation in relation to agriculture	Some focus on International convention on climate change (Kyoto protocol- Paris agreement)
Teaching and reading materials	Similar but not identical	
Assessment	Based mainly on exams (final, oral, practical, midterm)	Some evaluation is oriented to projects and homework
Schedule	Several weeks are focused on adaptation and mitigation in agriculture field (plants, insects....)	The schedule is oriented to the general science of climate change adaptation and mitigation
Modules	7 modules	6 modules

Similarities and Differences Report

HU, Egypt Versus Jerash University, Jordan- CCSAFS COURSE “Consumer Behaviour and Food Security and Marketing”

	Similarities	Differences	
		Heliopolis University	Jerash University
Objectives	Both course syllabuses aim - To provide an overview on consumer behavior. - Explain and analyze individuals, group or organizations making a consumption-related decision.	- Understand the social and environmental responsibility and ethical issues associated with consumer behavior in light of Transformative Consumer Research. - Apply the concepts and theories covered in the course to devise effective solutions in enhancing business performance in the context of consumer behavior.	- Learn to use economic concepts to analyze world food problems. - Become familiar with world food problems in general and their relationship to agricultural production, development, and policies. - Develop basic food policy analysis skills.
Modules	None	- Green Consumption and Consumer behavior - Consumer attitude and Influences - Consumer decision making process - Sustainable Consumption Behaviors - Sustainable Consumption & Production Success Stories	- Consumer Behavior as individuals and decision makers. - Food Security and Marketing - Food Security and Sustainability

Assessment Tools	• Assignments • Class attendance/participation	• Group Project • Midterm Exam • Final Exam	• N/A
Practice and theoretical		• Case Studies • Project • Class Activities	• Lectures • Group exam task with presentations • write critical summaries on the lectures content

Literature		• Hawkins, Del I. Consumer behavior: building marketing strategy / Del I. Hawkins, David L. Mothersbaugh.—11th ed. • João Pedro Pereira Luzio, Fred Lemke, (2013) "Exploring green consumers' product demands and consumption processes: The case of Portuguese green consumers", European Business Review, Vol. 25 Issue: 3, pp.281-300, https://doi.org/10.1108/09555341311314825 • do Paço, A., Alves, H., Shiel, C. and Filho, W. L. (2013), Development of a green consumer behaviour model. International Journal of Consumer Studies, 37: 414–421. doi:10.1111/ijcs.12009	• Leon Schiffman, Leslie Kanuk, and Mallika Das. Consumer Behaviour. Canadian (1st) edition. Pearson Education, 2006. • https://repository.up.ac.za/bitstream/handle/2263/29162/03chapter3-1.pdf?sequence=4. • Bryan L. McDonald ,2010, Food Security, 1st Edition. • Philip Kotler ,1974, Marketing Decision Making: A Model-building Approach. • Gary L. Lilien, Philip Kotler,1983. Marketing decision making: a model-building approach. • Beddington J., Asaduzzaman M., Cndez A., Guillou M., Jahn M., Erda L., Mamo T., Van Bo N., Nobre C.A., Scholes R., Sharma R. andWakhungu J. (2012)Achieving Food Security in the Face of
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		• Policies to encourage sustainable consumption Dr. Pierre Sonigo, Mr. Jonathan Bain • http://u4614432.fsdata.se/wp-content/uploads/2013/09/120629SuccessStoryNamibia.pdf • http://www.whysgbs.org/responsible-consumption/	Climate Change: Final Report from the Commission on Sustainable Agriculture and Climate Change. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark, Available online at: www.ccafs.cgiar.org • Giovannucci D., Scherr S., Nierenberg D., Hebebrand C., Shapiro J., Milder J. and Wheeler K. (2012) Food and Agriculture: The Future of Sustainability, A Strategic Input to the Sustainable Development in the 21st Century (SD21) Project, New York: United Nations Department of Economic and Social Affairs, Division for Sustainable Development. http://www.un.org/esa/dsd/dsd_sd21st/21_pdf/agriculture_and_food_the_future_of_sustainability_web.pdf . • National Research Council (2012) A Sustainability Challenge: Food Security for All, Report of Two Workshops. Washington, DC: The National Academies Press. http://www.nap.edu/catalog.php?record_id=13378#toc • Marketing management, de essentie. Kotler, Robben & Geuens (2003). Pearson Education Benelux Agro-food marketing. Padberg, Ritson & Albisu (1997). CAB International Verbeke, W. (2005). Consumer acceptance of functional foods: socio-demographic, cognitive and attitudinal determinants. Food Quality and Preference, 16 (1), 45-57. • W. D. Perreault, Jr., J.P Cannon, and E. J. McCarthy (2009), Basic Marketing: A Marketing Strategy and Planning Approach, 17th ed., Irwin/McGraw Hill.t/commission. • Christopher Barrett, "Measuring Food Security" 2010
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			• M S Swaminathan, Science and Sustainable Food Security, 2009 http://www.worldscientific.com/worldscibooks/10.1142/7414. • David Barling, Advances in Food Security and Sustainability, 2017, Volume 2, 1st Edition.
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Similarities and Differences Report

HU, Egypt Versus Jerash University, Jordan- CCSAFS COURSE Economics of Climate Change, Sustainable Agriculture and Food Security (Agrifood Economics and Policy- UNIPAD)

Item	HU, Egypt	Jerash University, Jordan
Objectives & ILOs	Balance between the Economics of Climate Change, and Sustainable Agriculture and Food Security.	Focus on the Economics of Climate Change.
Topics Covered and Modules	Accordingly, balance between the Economics of Climate Change, and Sustainable Agriculture and Food Security.	Accordingly, focus on the Economics of Climate Change.
Assessment Methods	Variety of assessment methods designed with a broad distribution of assessment weights.	Very limited assessment method with a biased weight of 80% on assignments only. Exams are completely neglected, which does not fit with these types of economic courses.
Focus on Practice Versus Theoretical Approach	Balance between the necessary theoretical approach to serve applications and practices.	Focus on the theoretical approach.
Literature Used	Updated.	Relatively old for a post graduate course.
Overall	Detailed in 12 pages.	Relatively short in 8 pages.

Comparison Between Two Courses Prepared by Jordanian and Egyptian for CCSAFS Program

Items	Course prepared by Jordanian partner	Course prepared by Egyptian partner	Comments
Course title	<i>Climate Change, Sustainable Agriculture, and Food Security</i>	<i>Economics of Climate Change, Sustainable Agriculture and Food Security</i>	The titles of the two courses are completely different. These are two separate courses.
Prepared by	Prof. Nezar Samarah Jordan University of Science and Technology, Irbid, Jordan	Assoc. Prof. Karim Badr El-Din Egypt	The courses are prepared by different instructors.
Course description	This course aims to address climate change and global warming and how climate change has an impact on crop production, food supply, and food security. It also describes the trend in world population and how sustainable agricultural practices can meet the rising demand on food.	This course focuses on the country decision-making processes and the internal and external influences on the food security process in the context of sustainable economic development.	The course prepared by the Jordanian partner focuses on the issues related to climate change and the best agricultural practices to enhance food security, while the course prepared by the Egyptian partner deals with the economics, policies, and regulations related with climate change and food security.
Course objectives and outcomes	Provides knowledge about food supply, food security and climate change and how	Identify and explain factors which influence governments' behavior and the business sector's	The objectives and outcomes of the two courses tackle different concepts

	sustainable agricultural practices are needed to secure food.	behavior as related to the sustainability of food security.	and different topics to deal with food security.
Teaching approach	Lecture, assignments, discussions etc.	Lecture, assignments, discussions etc.	Both courses are using diverse teaching approaches
Required Course Texts and Materials:			The courses textbooks are different.
Grading policy	More grades are allocated for the exams as required by the university policy	More grades are allocated for the project assignment.	The grading policy is different.
Course Modules	• Course overview: Discussion of syllabus and assignments • General introduction about world population and food supply • Food security • Climate change: Principles and impacts • Concepts and practices of sustainable agriculture • Sustainable marketing and community vitality • Rotational grazing • Conservation tillage • Cover crops • Crop rotation • Sustainable management of nutrients and water • Organic farming • Sustainability at the whole-farm	• Course Overview: Discussion of syllabus and assignments, course requirements and prerequisites; Criteria for student selection • Microeconomics • Macroeconomics • Agriculture Economics • Environmental Economics • The Economics of Sustainable Development • The Economics of Food Security • The Economics of Climate change • The Economics of Sustainable Agriculture • Agrifood Economics and Policy- UNIPAD	The modules of the two courses are completely different.

Final comment:

The two courses prepared by the Jordanian and Egyptian partners are completely two different courses with different objectives and outcomes. The course prepared by the Jordanian partner focuses on the concepts, trends, and impacts of climate change on agriculture and how sustainable agricultural practices are needed to reduce these negative impacts. The course prepared by the Egyptian partner focuses on the governmental policies related to food security.

Comparison Between Two Courses Prepared by Jordanian and Egyptian Partners for CCSAFS Program

Items	Course prepared by Jordanian partner	Course prepared by Egyptian partner	Comments
Course title	<i>Sustainable Management of Soil and Water</i>	<i>Sustainable Management of Soil and Water</i>	The titles of the two courses are similar.
Prepared by	Prof. Saeb A. Khresat Jordan University of Science and Technology, Irbid, Jordan	Dr. Samy Abd El-Malik Mohamed Abd El-Azeem Egypt	The courses are prepared by different instructors.
Course description	This course aims to provide an understanding of important soil physical, chemical and biological properties and of water quality.	This course seeks to evaluate the sustainability of existing and proposed systems for managing soil and water in the agricultural environment.	Both courses focus on sustainable practices of soil and water.
Course objectives and outcomes	This course is designed to promote critical thinking about agricultural production practices, agricultural sustainability, limitations to agricultural production and agricultural impacts on the environment. So students will be able to explain relationships among soil, water and air as they relate to environmental quality and agriculture.	This course aims to develop knowledge and skills relating to the sustainable management of soil and water resources. So students will be able to evaluate the sustainability of systems for managing the soil resource.	The objectives and outcomes of the two courses tackle similar concepts and topics to deal with sustainable management of soil and water.

Teaching approach	Lecture, assignments, discussions etc.	Lecture, assignments, discussions etc.	Both courses are using diverse teaching approaches
Required Course Texts and Materials:	Frederick R. Troeh, J. Arthur Hobbs, and Roy L. Donahue. 2003. Soil and Water Conservation for Productivity and Environmental Protection Fourth Edition.	More than 10 teaching materials	The courses textbooks and teaching materials are different.
Grading policy		More grade is allocated to final exam (70%)	The grading policy is different.
Course Modules	• Soil and Water Conservation • Soil Resilience and Conservation • Erosion Control and Soil Quality • Integrated Water Resources Management	• Course Overview: Discussion of syllabus and assignments, course requirements. • Overview of water sustainability approaches and it is challenges • Basics of the hydrologic cycle • Climate change concepts and it is impacts on water resources • Hydroclimate and water resources • Integrated water resource management, water rights and pricing • Water, food, and the global trade of virtual water	The similar modules are the ones related to soil and water conservation, soil degradation and quality, and the integrated water resources managements. The course prepared by the Egyptian partner contains further modules related to basic science of water hydrology, impacts of climate change on water, water food and global trade, soil pollution and mediation, and soil biodiversity.

		• Production and decomposition of organic matter • Organic matter and management of soil fertility • Processes of soil erosion • Factors affecting soil erosion and how to manage • Modelling soil erosion • Soil pollution and remediation • Soil salinization and sodicity • Loss of soil biodiversity and how to manage	
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Final comment:

The two courses prepared by the Jordanian and Egyptian partners are similar in the concepts related to soil and water sustainability and factors related to soil and water degradation and quality. The course prepared by the Egyptian partner focuses on additional modules such as modules related to basic science of water hydrology, impacts of climate change on water, the relationship among water, food and global trade, soil pollution and mediation, and soil biodiversity.

Comments on **Jordan course** title “GIS Applications in Climate Change, Sustainable Agriculture and Food Security” prepared by Professor El-Sayed Ewis Omran - Soil and Water Department, Faculty of Agriculture, Suez Canal University , 41522, Ismailia, Egypt

First, the course title is without the remote sensing applications as in our course.

Jordan course title: GIS Applications in Climate Change, Sustainable Agriculture and Food Security.

SCU course title: GIS & RS Applications in Climate Change, Sustainable Agriculture and Food Security

Second, topics, which may be included in the **Course Description/Overview** are missing.

Third, too much units in all Modules. Overall, the key concepts are relevant and actual; I do not suggest additions or deletions, only some minor changes on terminology. **Finally and the most important comment is that the specific activities are missing from all modules.**

In my opinion, the Jordan course is very good. It is highly potential course after add more specific activities. It is more oriented toward GIS applications. However, remote sensing applications are missing from the course. I strongly support using open source software for teaching – there are excellent free and open source software that can cover GIS and RS, for example QGIS, SAGA etc... ArcGIS is excellent software, but will force students in a “vendor lock-in” scenario which is detrimental in the first phase of a career (requires significant economic investment). Another aspect supporting this case is that governments are trying to foster the use of open data and open source solutions, for the same reasons mentioned above. Of course, the final decision of what software to use belongs to the lecturer. Also, this course requires the use of the following software: ArcGIS Pro” what about Remote Sensing? ENVI should be included, should students also install ENVI? Please clarify in the syllabus.

Precision Farming

Aswan University Team

In general, the course description, learning objectives and learning outcomes are very similar to each other between the Egyptian and Jordanian one. Both focus on precision farming and its application in agriculture as well as its technologies; GIS, GPS, remote sensing systems, ...etc. Each team handles the syllabi on his point of view.

The similarities:

- the course syllabi for Egyptian and Jordanian team is 95% same

The differences:

- The Egyptian team focus on Global Navigation Satellite System (GNSS) instead of GPS; this is as a result of recommendation of Padova team as GNSS is more globally that GPS which is American style.
- The Jordanian team add other technologies which is not involved in the Egyptian syllabi; UAV and Drone technologies area used
- the Jordanian team gave the activities in more details than the Egyptian one
- Topics arrangement and their view throughout the semester

How to tackle with:

In my opinion, the main body of the course is similar and the differences are not significance, so we have two options;

- each team can teach the course by his point of view
- or the internal/external reviewer can adjust the syllabi and unify the topics arrangement

Small Scale Farming, Indigenous Knowledge and Local Food Supply

In general, there is a great similarity in the course syllabi between the Egyptian and Jordanian teams, with different wording of the topics. There is no balance of three topics (small scale farming – indigenous knowledge – food supply) of the course prepared by the Jordanian team, so they have to make the balance.

Similarities:

- both teams deal with small farming by their point of view taking into account the economic and environmental aspects
- also, both teams focus on food supply chain and marketing
- 9 more deeply in the

Differences:

- The Egyptian team involved the indigenous knowledge as a main topic in the end of the course, which the Jordanian team did not mention it throughout the course
- “Sustainable Livestock and Poultry & Grazing Management on Small Acreages” is added by the Jordanian team which is not involved in the Egyptian course syllabi
- The Jordanian team focuses mainly on the agricultural practices, but the Egyptian team focuses mainly on the farm business management

How to tackle:

- Share the course between the Egyptian and Jordanian team to unify the syllabi and make the balance among course topics
- or the internal/external reviewer can adjust the syllabi, unify the topics and make the balance

**Table illustrating the main differences between Egyptian and Jordanian proposals in
CCSAFS Course Syllabus (*Risk Analysis in the Food Chain*)**

Prepared by

Professors Khaled El-Khawass & Esam A. Hussein

Points of dissimilarities	Egypt	Jordan
Semester 2 nd	Not mentioned	Mentioned
Instructor Information	Mentioned	Not mentioned
Course Location	Mentioned	Not mentioned
Faculty Web Page	Mentioned	Not mentioned
Course Description/Overview	Detailed	Summarized
Course Learning Objectives	7 points	5 points
Course Content Learning Outcomes	9 points	6 points
Course Resources:	Summarized	Detailed
Optional Course Texts and Materials	-----	Detailed
Grading System	Mentioned	Not mentioned
Grading Policy	Practical exams are included	Not included
Grading Policy Assignments. Exams, Class attendance/participation. Practical exam	20 60 10 10	40 40 20 --
Late Assignments	Mentioned	Not
Classroom Protocol	Mentioned	Not
Disability	Mentioned	Not
Course Schedule	Some minor differences	
Modules	5 modules	7 modules

Note: Points which are not mentioned in the present table are almost similar.

**Table illustrating the main differences between Egyptian and Jordanian proposals in
CCSAFS Course Syllabus (*Sustainable Fisheries and Food Security*)**

Prepared by

Professors Khaled El-Khawass & Esam A. Hussein

Points of dissimilarities	Egypt	Jordan
Instructor Information	Not mentioned	Mentioned
Faculty Web Page	Mentioned	Not mentioned
Course Learning Objectives	7 points	6 points
Course Content Learning Outcomes	Summarized	Detailed
Course Resources	Not mentioned	Mentioned
Optional Course Texts and Materials	Detailed	-----
Grading System	Mentioned	Not mentioned
Grading Policy	Practical exams are included	Not included
Grading Policy Assignments. Exams, Class attendance/participation.	20 60 20	80 00 20 Exams are not included !!!!
Course Schedule	Some minor differences	
Modules	5 modules	7 modules

Note: Points which are not mentioned in the present table are almost similar.

Report on he developed course” Research Methods and Advanced Statistical Analyses”

Prepared by” Manal Hefny

Instructor (s) Information	Similarities		Differences	
Course Syllabus				
	SCU	JU	JU	SCU
Course title			Not Correct	Correct
Course Instructor	Office location is included	Office location and website are included	Instructor name/s and e-mails are missed	Instructor name/s and e-mails are included
Course identification	Location and website are included		Time and prerequisite are included	Time and Prerequisite are missed
Course overview	Outline for research terminology, ethics, research application		• Concentrates on research in the field of Science and Engineering, • Advanced statistical analyses are not addressed, although is part of the course title. • The overview missed brief outlines around the course contents to students/reader. • Connecting climate change, SA and FS is missed	• Summaries variety of theoretical understanding and practical skills students from different specializations will acquire, • Role of research methodologies and statistical methods in

			exploring the potential climate effects, SA and FS, • Brief on course contents/topics,
Course Learning Objectives	Not similar	• Too many • Does not show how the course builds multidisciplinary nature of the programme, and linking with the three CCSAFS MSc strands. • Skills of data processing and analyses to address real-life problems and effects of climate change are missed.	Less and combine theoretical, intellectual and personal skills that students will gain and apply to design and analyze real-life problems.
Course content learning outcomes	• Similarity is limited in ability to prepare report and interact with others	• Neglect measures how research methods and designs, and statistical methods would reflect on the student's ability to address climate problems and report it. • Acquire skills on using statistical methods accurately to perform analyses for data and experiments relevant with CCSAFS issues.	• Building students capacity to design and perform multidisciplinary research, • Follow ethical regulations during the research process steps, • Use different data types to interpret and report.
Grading policy	Assignments & attendance are included	• Missing Exams (Written, practical, oral) • Assessment depends only on assignments and class	• All assessment methods are included (exams, course assignments: reports,

		attendance/participation which is not logic. Assignments are not well elaboration.	presentation, field work, scientific reports)
Course Schedule	There are similarities between some taught subjects.	- The course plan is very heavy, and exhaustive. I think one semester is not enough to cover all the proposed subjects. - It is not possible to distinguish taught units within a week. - There is not consistency between distribution of units /week, number of course modules and units within proposed modules. - No evidence on using specific statistical package for performing requested analyses. - Study duration must be 15 weeks including practical exam.	- Units are distributed practically over study weeks - There is symmetrical distribution of units on each module.
Course Modules			

ILO's	To some extent, there are similarities especially 1st and 2nd modules.	- Are very little compared with the many taught units, - In most modules, ILO's do not well describing overview and taught units. - Measuring verbs must be adjusted and linking with aim and overview. Avoid replications of some ILO's for different modules (4 & 5).	Adequate and measure the overview
Units	Some taught units similar	Too many/crowded in some modules reach 30 units (module 4).	Limited and reflect the overview
Readings	Non	- Not well-written, - The course developer recommended sources relevant with CC, SA and FS, although he/she did not mention about the three concepts in the course overview (module 3). - Reading are very limited and must be vary (journals, books, case studies,....etc)	Adequate, various and related
Teaching methods	lectures	Lectures, students participation	Lectures, laboratory, field work/practices, PBL, active learning
Activity and assignments	There is no similarities	- Activities are not-well-written, - Do not includes variety of learning methods, - The same statements are repeated for each module.	Activities including collaborative learning, field work, problem-based learning.

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Similarities and Differences Report

HU, Egypt Versus Jerash University, Jordan- CCSAFS COURSE

“Sustainability Justice and Food Security”

Item	HU, Egypt	Jerash University, Jordan
Objectives & ILOs	Similarities: - Both courses focus on interdisciplinary approach - More emphasis was given to explore the new concept “sustainability justice” Both courses focus on the application that could serve towards the understanding of the concept of sustainability justices even it was from different perspectives - Both courses uses the accurate verbs according to Bloom taxonomy when it comes to the articulation of the objectives Differences: - Jordanian course has 15 objective which is almost double for the Egyptian one (9 objectives) - More focus in the Jordanian course was given to the urban planning development and its relation to sustainability justice which was not the case at the Egyptian course - The focus in the Egyptian course was to the farms, agriculture practices and how it could enhance sustainability justice	
Topics Covered and Modules	Similarities: - Both courses covered the part of farming and agriculture i and its relation to sustainability justice even it was not stated clearly in the objective of the Jordanian course Differences: - The Egyptian course gives four weeks to go deeply into the concept of sustainability justice and the connection with the four pillar of sustainable development - The Jordanian course gives one module for “Agri-Food Governance and Finance” and how it it could pave the way for in depth understanding for the concept of sustainability justice	

	• It seems that the Egyptian course focuses on the methods and practices that clarify the complex issues of sustainability justice “ for example: system thinking and interdisciplinary practices”
Assessment Methods	• The Jordanian course with no exams and focus on the assignments (80% of the grade), 20 % for the attendance • The Egyptian course follows the normal distribution (30% assignments, 50 % exam and 20% for the attendance)
Focus on Practice Versus Theoretical Approach	• Both courses focuses on the practice but from two different angles (urban planning concepts for Jordanian course and sustainability pillar for Egyptian course)
Literature Used	• The Egyptian course provide three resources covering almost most of the topics while the Jordanian course just provide one resource which is not sufficient to provide adequate knowledge for such promising and aspirin objectives.

Course Title
Sustainable and Ethical livestock Management
Similarities and differences between SCU and JU

Course Comments:

Similarity

1. The course is quite good and includes 6 modules all concentrate on Animal Welfare Ethics, and there are sharing ideas related to Animal welfare and ethical livestock production.
2. The course does not deal well with Controlling infectious diseases and climate change impacts which considered as the main hazards for livestock production and
3. The community/service-based learning activity should be the main targets for increase the public awareness about disease hazards, best control and hygienic measures to save their livestock wealth.

Differences

4. The course schedule does not matching with course modules.
5. It does not include course overview and aims.
6. But there is no modules on food sustainability and food security, The roles of livestock in achieving t
7. The sustainable development goals (SDGs), Climate Change and Sustainable Livestock Production, Livestock health, disease management and production, Modern livestock production and food security and Environmental Impact Assessment of Livestock Systems
8. The course activity does not include student assignments.
9. The course schedule does not includes the 6 modules and their units
10. The course include field trip to Livestock management plan but there is no any practical work (animal farms) to apply the theoretical work odes not includes the visit
11. The course does not cover the The community/service-based learning activity
12. The course does not cover the SD Pillars, 21st ESD, SDGs and Livestock and the Sustainable Development Goals and its vision 2030 and ILO'S.

Sustainable Management of Soil and Water

Overall comments:

The course that prepared by Jordan University (JU) is not follow the CCSAFS course syllabus template when prepared the course compared to the course that prepared by Suez Canal University (SCU). Therefore, the JU course is not divided into modules and activities, but SCU course include six modules and explained the course activities as details.

Teaching methodology

In the JU course, the instructor mentioned some teaching methodology that used in the course as general, but in SCU course the instructor distributed the teaching methods in each activity in each module in more details.

The next Table explained some difference between two courses:

	Suez Canal University	Jordan University of Science and Technology
Similarities	The topic of soil erosion is similar in both courses	
Difference	- The instructor follows the CCSAFS course syllabus template - The course composed of six modules, including the activities for each module - Course Schedule is found in the course syllabus - The instructor used suitable teaching methodologies and limited for each activity	- The instructor does not follow the CCSAFS course syllabus template - The course is not divided into modules and activities, but the instructor mentioned only the course sections and contents - Course Schedule is not found in the course syllabus. - The instructor gave some examples of teaching methodologies that used in the course as whole.

In the next page, you will see the modules and contents in each module in the SCU course and the sections and contents in the JU course.

Suez Canal University		vs	Jordan University of Science and Technology	
The course is composed of 6 modules (M) as follows:	Contents		Sections	Contents
M1: The Science of Sustainable Water Management	• Overview of water sustainability issues • Definition of sustainable water management. • Challenges for achieving sustainable water management. • Overview of different water management and Sustainability approaches. • Basics of the hydrologic cycle		Soil and Water Conservation	- Why Conserve Soil and water? - Agents that Degrade Soil and water resources. - Soil Erosion - Consequences of Soil Erosion (On-site Problems, Off-site Problems) - Drivers of Soil Erosion - Restoration of Eroded and Degraded Soils
M2: Climate Change and Water Resources	• Water resources and climate: an overview • Connections between climate and water • The impact of climate change on the water cycle • The coupling of hydroclimate variability with human systems		Soil Resilience and Conservation	- Concepts of Soil Resilience - Soil Erosion and Resilience - Soil Resilience and Erodibility - Management Strategies to Promote Soil Resilience
M3: Water Governance	• Module Overview and Expectations • The Centrality of Water and its Global Dimensions • Water, Food, and the Global Trade of Virtual Water • Integrated Water Resources Management: Past, Present, and Future • Water Governance in Practice		Erosion Control and Soil Quality	- Definitions of Soil and water Quality - Indicators of Soil and water Quality - The Soil and water Management Assessment Framework - Management of Soil and water Quality
M4: Management of Soil Fertility	• What is soil organic matter? • Production and decomposition of organic matter. • Role of soil organic matter on nutrients dynamics.		Integrated Water Resources Management	- Groundwater Resources and Protection - Catchment Protection - Modelling Environmental Processes - Catchment Hydrology and Assessment

	• Effect of soil management on soil organic matter. • Climate change and carbon sequestration.			- Integrated Systems for Sustainable Surface Water Management - Forecasting and Extreme Event Response
M5: Managing for Soil Erosion	• Processes of soil erosion • Factors affecting wind and water erosion • Estimating and measuring soil erosion • Tillage management to control Erosion • Modeling water and wind erosion			
M6: Management of Soil Threats	• Soil Pollution • Major Types of Soil Pollutants • Sources of Soil Pollution • Soil Remediation • Development of Salt-Affected Soils • Soil reclamation • Loss of soil biodiversity			