

Course/Project Title

"Impact of Climate Change on Food Systems"

(Part 1 and Part 2)

Group B5, Group B6

Your Name and Organisation:

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Overview

A general description of the training required that summarizes the key goals and states why the training is important to accomplish for your organization or region.

- The study of the world food problem in the XXI century is the most important strategic task because it is not only the main condition for the existence of the population on the Earth, but also a decisive factor in the social stability of individual countries and the world community as a whole.
- An important link in the global climate change problem is the assessment of changes in agroclimate resources for crop cultivation and the impact of these changes on crop productivity.



Overview

- Climatic changes affect all sectors of the national economy. Therefore, a thorough study of research on this problem is important for the successful use in practice of the set of methods and measures to adapt agriculture to climate change.
- Department of Agrometeorology and Agroecology OSECU is the only in Ukraine, on the territory of the former Soviet Union and in the world scientific and practical base for training specialists-agrometeorologists of all levels. BNAU specialists have many years of experience in training competitive, innovation-oriented specialists for sustainable development of the agricultural sector. This determines our interest and ability to provide everyone with in-depth knowledge in understanding the impact of modern climate change on the objects and processes of agricultural production.



Audience Description

Primary audience for the training, and any secondary audiences, if they will impact any of your decisions

The assumed current knowledge and skills, or prerequisite knowledge and skills, of the primary audience, and any other characteristics that will guide your decisions

- The main audience of the course is students without hydrometeorological education, engaged in activities in the field of agricultural production or working in the agricultural sector and wishing to improve their skills on the impact of climate change on all chains of agricultural production, in particular crop production, animal husbandry, quality of agricultural products.
- The course has been prepared for distance learning in a modular object-oriented dynamic learning environment (MOODLE).



Expected Impacts (Training Goals)

How the training project is expected to have a positive impact on the organization, country, or region

- **The aim** of the course "Impact of Climate Change on Food Systems" consists of learning approaches and techniques for mathematical modelling of the impact of climate change on growth, development and yield formation of productivity of agrophytocenoses (part 1), animal behaviour, development and spread of diseases and pests, ecological purity and quality of agricultural products pollution of the natural environment (part 2).
- **Course objectives:**
 - - to form knowledge on dependence of agricultural production objects on weather and climatic conditions;
 - - to develop their ability to use this knowledge for solving arising problems and tasks;
 - - to develop the ability to reduce the optimization of agricultural production processes and to choose ways to increase the economic efficiency of agricultural production and to reduce the negative impact of environmental pollution.



Learning Needs

*Overview of the learning needs at the level of the individual learners, organization, country, or region.
Some description of how these were identified and determined as valid needs.*

Job competencies to be addressed by the training

- Ability to analyse features of natural and anthropogenic systems and objects of the Earth's geospheres.
- Ability for self-organisation and self-learning.
- Ability to solve standard tasks of professional activity on the basis of information and bibliographic culture.



Learning Outcomes

Desired learning outcomes of the planned event, written in terms of skills that can be assessed. You may want to begin with the statement: "After completing the training, participants will be able to..." Also include specific actions, tools or objects worked with, and the context of application, if possible. Be as specific as you can be.



After studying the discipline, the student should know:
methods of determining the impact of climate change on the most important physiological processes of plant life, growth, development and yield formation of crops, animal behavior and on the ecological purity and quality of agricultural products pollution of the natural environment



After studying the discipline, the student should be able to:

- identify and simulate the effects of climate change on crop growth, development and crop formation, animal behaviour and senses, on the quality of agricultural products;
- identify the main sources of pollution of the natural environment



acquire skills:

- to perform preparation of materials for making calculations in addressing any tasks.
- to analyze the results of the calculations.



After studying this course, the students will be able to:

- LO-1.
Anticipate possible impacts of climate change on human livelihoods in agricultural production.
- LO-2.
Apply internet technology in agricultural production processes to account for the effects of climate change.
- LO-3.
Calculate the expected risks of climate change for all sectors of agricultural production.



Content Scope

Provide a content outline consistent with learning objectives or outcomes. This could be the course outline as it would be presented to students, but not necessarily a complete syllabus.

Include a high level list of all topics you feel are necessary to cover and/or the skills that must be developed. If you think it will help clarification, state what will NOT be covered.

- **Programme of the lecture course:**

- **Part 1**

- Theme 1: The concept of a sustainable food programme.
- Theme 2: Influence of global climate change on agrophytocenosis growth and development.

- **Part 2**

- Theme 1: Influence of climate change on livestock industry.
- Theme 2: Food and nutritional security in the context of climate change. Production of ecologically safe products.

- **Programme of practical course:**

- **Part 1**

- Theme 1: Calculation of crop productivity under climate change.
- Theme 2: Calculation of technical crop productivity under climate change.

- **Part 2**

- Theme 1: Calculation of manure and wastewater yields from farm biogeocenosis.
- Theme 2: Calculation of environmental quality of agricultural production under climate change.

Learning Solutions and Delivery Modes

List the learning solutions (modes of training) used and why you have chosen them. For example: classroom training, online learning, blended learning, on-the-job training, online resources for self-directed learning, coaching or mentoring, etc.

- **The course 'Impacts of Climate Change on Food Systems' is delivered by distance learning. There are several reasons for this choice:**
- - **Accessibility** is the main advantage of distance learning. Online events take place in two formats - either a pre-recorded video lesson or a live webinar. Live broadcasts are no different from regular offline meetings - you can see the teacher and the presentation, ask questions, and communicate with colleagues.
- - **Flexibility.** During distance learning most of the material is learnt by the learner him/herself, i.e. he/she can choose the time of the session by him/herself. Participants of in-service training courses are usually working people, so they can easily fit in with almost any working schedule.
- - **Communication.** The training includes practical exercises, in order to prepare participants to make predictive decisions. Communication skills also play an important role. Guidance of such exercises by trainers is very useful.

Learning Strategies

Consider which learning strategies you will use. Provide justification for why you want to use them, including why they will help learners achieve your intended learning outcomes.

Consider an appropriate blend of strategies that complement one another.

You do not need to describe the actual activities in any detail in this section.

- According to Ruth Colwyn Clark's definition of a set of educational strategies, the following educational strategies will be used:
 - - show and tell (material is presented with little direct participation from the audience, e.g. watching a video lecture or online lecture with a presentation)
 - laddering :
the instructor explains the practical work and illustrates how to do the calculations by giving examples;
 - - Immersion: the trainee carries out the practical work by him/herself, with the trainer acting as facilitator to assist or guide the trainee.



Learning Activities

Describe the major learning activities that will be included, including lectures, readings, cases, discussions, exercises, assignments, simulations, role-play, etc.

Describe the roles of trainers and learners during the activities

- **The main learning activities to be used in teaching this course are video lectures, remote lectures (via video conferencing) and practical assignments.**

The specifics of distance learning is that the teacher:

- - Freely uses modern educational electronic resources and helps a student to assimilate them.
- - Organises work and motivates listeners to learn.
- - Provides feedback and monitors the results of distance learning.

The role of the trainees in the learning process:

- - Deliver the suggested lectures and complete the practical assignments in time to acquire the required knowledge.
- - Participate actively in learning activities in order to practise and learn.
- - Seek feedback and guidance from trainers in order to improve their competencies.

Learning Assessment

Describe your plan for assessing learners before, during, and/or after the course, including tests, exercises, graded activities, and projects or products to be evaluated. Describe the use of self or peer assessment, if used. Show how assessment is linked to the Learning Outcomes.

The following assessment methods are provided in the trainee education process:

1. An online entry test to determine the level of competence of the trainees.
2. Knowledge of theoretical material will be checked by means of online self-assessment tests. These tests can be used by the trainees for deeper assimilation of the theoretical part of the course and for work on mistakes.
3. Practical exercises (tasks and steps will be available online).
4. The course ends with an online exam, which is the means of assessing learning



Training Storyboard

Use one of the recommended methods to produce a visual storyboard of your blended training event.

- The main aim of this project/presentation is to discuss the impact of climate change on food production. In our training course will be using different videos, pictures to highlight the fact that climate change is impacting on the production of food.



Learning Resources and Tools

List existing resources you will use for readings or presentations, activities, case studies, data, etc. Describe content resources you will need to search for.

Describe the technologies that will be used to support training development and delivery, including instructional technologies and operational equipment.

• **The course «Impacts of Climate Change on Food Systems is intended to be delivered by distance learning, so resources will be used:**

• - **Zoom** is a video conferencing and online meeting service.

Video conferences can be accessed via a link or a conference ID;

• - **Moodle** - a service that allows delivering learning material in different forms (e.g. lectures, presentations, practical exercises, tutorials, videos), testing, quizzes and checking learning outcomes.

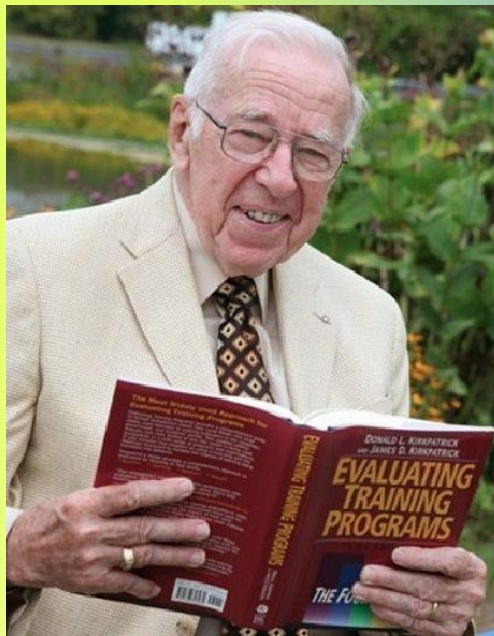
• **The use of e-mail** for communication with trainees, the university repository, where numerous training materials are collected, and the digital library of OSECU and BNAU are also envisaged.



Training Evaluation

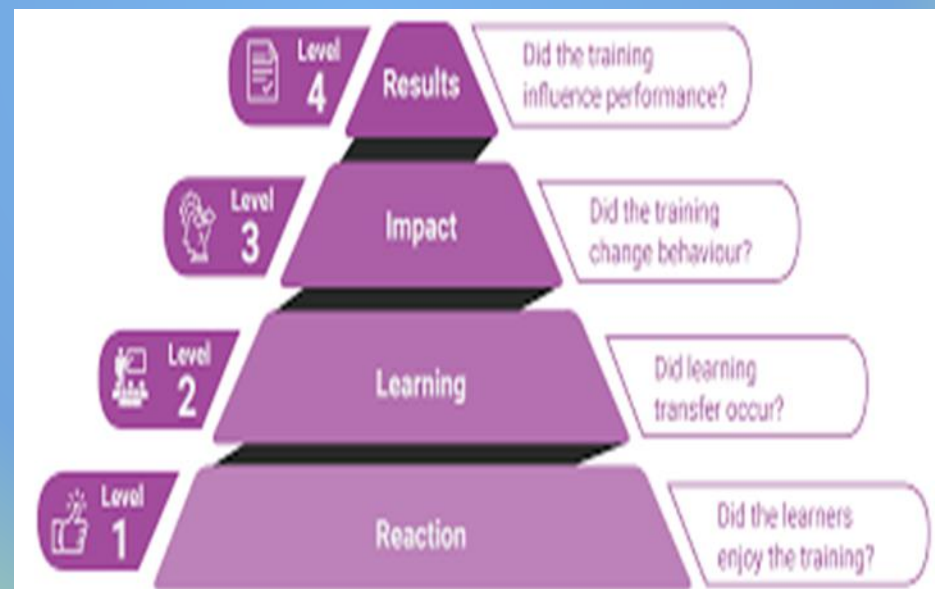
Methods you will use to evaluate the effectiveness of your training, including surveys, interviews, post-course feedback, long-term impacts evaluation, etc.

Towards the end of the course assessments will be completed for both students and teachers. It will focus on Level 1 of the Kirkpatrick model (using a questionnaire), and will be very useful for planning future courses or continuing this. We also do a mid-course interim assessment of students to see if we are on the right track or if we need to change something. In addition to the written assessments (questionnaires) there will be a conversation in a relaxed atmosphere with both trainees and teachers to find out if they are satisfied with the process or if they think any changes should be made.



Dr Donald Kirkpatrick's ideas on measuring training effectiveness were originally published in 1959.

Four level model.
Simple.
Flexible.
Comprehensive.



Human Resources

Internal resources: project manager, project lead, content experts, teachers, developers, training support, etc.

External resources: primary decision makers, content experts, reviewers, translators, etc.

- **Internal course developers:**

- ***Odessa State Ecological University, Agrometeorology and Agroecology Department:***

- Olena Barsukova - Candidate of Geographical Sciences, Associate Professor
- Lyudmyla Bozhko - Candidate of Geographical Sciences, Associate Professor
- Oksana Volvach - Candidate of Geographical Sciences, Associate Professor
- Olena Zhigaylo - Candidate of Geographical Sciences, Associate Professor.

- ***Bila Tserkva National Agrarian University***

- Natalya Dyman - Assistant of the Department of Language Training
- Svitlana Gornovska - Assistant in the Department of Technologies in Plant Growing and Plant Protection

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- **External experts**

- Tatiana Adamenko - Candidate of Geographical Sciences, Head of Agrometeorology Department, Ukrainian Hydrometeorological Centre
- Victor Sitov - Candidate of Geographical Sciences, Associate Professor, Head of the Hydrometeorological Centre of the Black and Azov Seas.

Constraints and Risks

- **Limitations of the developed course may include:**
 - 1. A clearly articulated time frame.
 - 2. As the course is taught remotely, trainees may have additional limitations due to organisational issues (difficulty in mastering the Moodle learning system, trainees not adhering to the recommended study schedule, etc.).
- **Risks that may affect the success of the course may include:**
 - 1. Lack of time to fully engage with trainees (distance learning).
 - 2. Technical limitations due to the students' varying degrees of computer and Internet skills.
 - As to other risks, they are practically absent here (e.g):
 - - Insufficient experience of the teaching staff (The training course is developed by experienced teachers with degrees in meteorology, climatology, agrometeorology, who regularly attend refresher courses and carry out research work in the field of agrometeorology).
 - - Large volume of information or its complexity (Course material is presented in appropriate sources and is accessible to most students, lecture materials are clearly structured and not overloaded with a lot of information).

Milestones and Schedule

Outline of major milestones (deadlines) with a real or relative timeline (if you do not yet know the start date of the project). Milestones might include those below, or any additional ones pertinent to your effort.

*Project Plan completed
Learning needs assessed
Learning outcomes reviewed and approved
Content outline developed
Learning activities designed*

*Assessment plan complete
Scheduling of all human, technical, and facility resources
Learning resources developed or adapted
Training delivered (begin date/end date)
Training evaluation complete*


Curriculum established - July 2021
Learning needs identified - July 2021
Learning outcomes reviewed and approved - July 2021
Required human, technical resources and facilities for course delivery identified - August 2021
Course content development - August 2021
Implementation of course (start and finish dates) - September 1st-30th 2021
Completion of course evaluation - first week of October 2021
Closing Learning Assessment - second week of October 2021

An interactive module

Your progress ?

 Лекція 1 Вплив змін клімату на тваринництво


Mark as done

 Практична робота №1


Mark as done

 Тести для контролю знань №1

Mark as done

 Тести для самоперевірки №1.

Mark as done

 Лекція тема 2 Виробництво екол. безпечної продукції

Mark as done


 ПРАКТИЧНА РОБОТА_до теми 2


Mark as done


 Тести для контролю до теми 2

Mark as done

Лекція 1 Вплив змін клімату на тваринництво


 Практична робота №1

 Тести для контролю знань №1

 Тести для самоперевірки №1.

 Лекція тема 2

Виробництво екол. безпечної продукції


 ПРАКТИЧНА РОБОТА_до теми 2

 Тести для контролю до теми 2

 Тести для самооцінки до теми 2


 Презентація до лекції 1


 Презентація до лекції 2

 Опитувальник для оцінювання процесу навчання

Administration

Course administration

 Edit settings

 Course completion

> Users

▾ Filters

Hide sidebars

Course management

XRay_Mod_v58_Mo...jar

Показать все X

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ClimEd My courses (2) Bookmarks

Your progress Write a review

Developing a Training Course for Experts in Agriculture

Impact of Climate Change on Food Systems (Part 1)

List of participants

| | | | |
|---|-----------------|-------|--------------------------|
| 1 | Ljudmyla Bozhko | OSENU | bozhko@i.ua |
| 2 | Natalia Dyman | BTNAU | nathalie.dyman@gmail.com |
| 3 | Oksana Volvach | OSENU | rada.d.4109001@gmail.com |

Mark as done

BOS Blog

BOS Chat

Mark as done

Project presentation

Assignment 1
Progress 1 / 1

Navigation

- Dashboard
- Site home
- Site pages
- My courses
 - ClimEd_Tr2
 - BOS
 - Participants
 - Badges
 - Competencies
 - Grades
 - General
 - Project presentation
 - Course Project: The Training Development Plan (TDP)
 - An interactive module

Administration

- Course administration
 - Edit settings
 - Course completion

Course management

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ClimEd My courses (2) Bookmarks

Dashboard Site home Calendar Badges All courses Turn editing on

Developing a Training Course for Experts in Agriculture

Impact of Climate Change on Food Systems (Part 2)

List of participants

| | | | |
|---|--------------------|-------|-----------------------------|
| 1 | Olena Barsukova | OSENU | lena5933@ukr.net |
| 2 | Svetlana Hornovska | BTNAU | gornovskayasvetlana@ukr.net |
| 3 | Olena Zhygalo | OSENU | elenajigalo@gmail.com |

Mark as done

BOS Blog

BOS Chat

Mark as done

Course Project: The Tr...

An interactive module

Your progress

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 - Тести для самоперевірки

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Служба клімату

My courses (2) Bookmarks

Hide sidebars

Course management

Mark as done

Практична робота 1

Mark as done

Практична робота 2

Mark as done

Тести контролю знань з курсу

Mark as done

Презентація

Mark as done

Опитувальник для оцінювання процесу навчання

Mark as done

Тести для самооцінки до тем

Mark as done

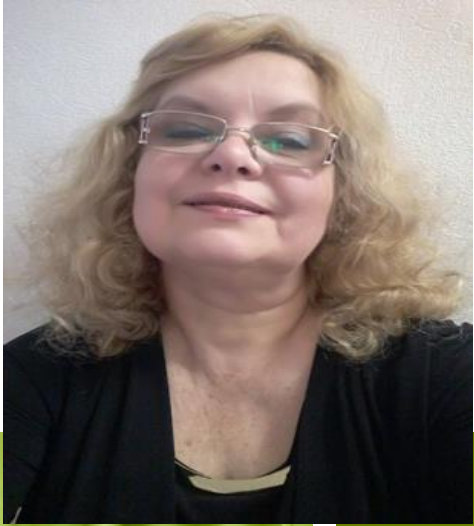
Administration

- Course administration
 - Edit settings
 - Course completion
 - Users
 - Filters
 - Reports
 - Gradebook setup
 - Badges
 - Backup
 - Restore
 - Import
 - Reset
 - Question bank
 - Recycle bin

← Course Project: The Tr... Jump to...

Презентація до...pptx Презентація до...pptx XRay_Mod_v58_Mo...jar

Показати все



Odessa State Environmental University

Bila Tserkva National Agrarian University



Thank
you for your
attention

