SYLLABUS
CLIMATE CHANGE AND SUSTAIABLE DEVELOPMENT GOALS (CC&SDGS) COURSE
ENV- 216, Syllabus Fall 2021

Lecturer: Zheenbek Kulenbekov, PhD, Associate Professor

E-mail: kulenbekov_z @auca.kg

Class meets twice a week:

Monday 14:10-15:25 lecture

Wednesday 14:10-15:25 seminar

Climate change is a difficult, contentious, and important issue. It will perhaps be the defining environmental issue of the 21st century. **This course aims** to address the whole complexity of climate change as an issue, by bringing together the science, impacts, economics, abatement technologies, and policy solutions into one course. Through this course, we will address several important questions. What is the scientific basis for our understanding of climate change, and in what ways is that scientific basis uncertain? What changes in climate might we expect over the coming centuries? What would be the impacts of these changes in climate for human well-being and the natural world? What are the sources of emissions of greenhouse gases? What technologies exist or might be developed to allow us to slow climate change, and what international policy solutions might be necessary or preferred?

Sustainable Development (SD) is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Report 1987). **The main objective** of the course is to analyze the concept of sustainable development goals in theory and practice specifically focusing on the interactions between the public domain, business world and the world we live in. Past and present strategies for promoting sustainable development, resistance to the concept, and some alternative conceptions and theoretical underpinnings of the notion of sustainable development will set the basis of discussions while the implications of the concept in politics of various sectors such as energy, transport, environment, agriculture and natural resource management will be explored. More specific sustainable development goals (SDGs) have been formulated by the UN in 2015. The most critical resources for the survival of future generations are climate stability and biodiversity. Therefore, we have to respect the planetary boundaries of economic activity today.

Anticipated Outcomes:

By the end of this course, students will be able to:

- Explain and evaluate the evidence for human-caused climate change, in the context of historical climate change, as well as the relevant scientific uncertainties and possible evidence to the contrary.
- Explain and quantify the impacts of climate change on human well-being and the natural world, and evaluate means by which these impacts can be reduced (adaptation).
- Explain the human causes of climate change, including the sources of greenhouse gas emissions. Because energy consumption is central to greenhouse gas emissions, students will

understand the global energy infrastructure in a historical context and evaluate technological options for reducing emissions.
- Apply quantitative analysis of concepts relevant for climate change, drawn from chemistry, physics, and economics, through homework problems.
- Evaluate the successes and failures of past national and international efforts to address climate change, and evaluate prospects for future management of climate change.
- Evaluate the issue of climate change from the perspective of individual nations.

- Examine critically the 17 newly minted UN Sustainable Development Goals.
- Understand the historical evolution, key theories, and concepts of sustainable development.
- Articulate the major issues affecting sustainable development and how sustainable development can be achieved in practice.
- Identify and apply methods for assessing the achievement of sustainable development.
- Discover the science, technology, economics, and politics underlying the concepts of sustainability.
- Understand the implications of overuse of resources, population growth and economic growth and sustainability.
- Explore the challenges the society faces in making transition to renewable resource use.
- Analyze arguments, similarities, and disagreements in the sustainability debate.
- Develop skills that will enable students to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development.
- Apply critical thinking skills to evaluate the quality, credibility and limitations of an argument or solution using appropriate evidence or resources.

Methodology: The course is presented as a series of lectures and discussion sections. All given lectures and seminars, quizzes as well as relevant textbooks and other teaching materials are available for students in the e-course of AUCA's webpage. At the end of each lecture, questions are discussed and several additional topics for independent study during the seminars will be offered to students. Students will make two 15-minutes presentations (both individual and group presentations) on these additional topics. The Instructor, in accordance with the grading scheme presented below, will assess every presentation. In case of group presentation, the number of points will be divided between the students' prepared presentation proportionally. The majority of assignments are intended to facilitate group working. Students will practice in lab seminars. Every student should provide an interpretation of his/her own observation in written format (max 1.5 pages in word extension).

Evaluation and Assessment: The students' performance will be assessed based on their participation during the lectures, including their familiarity with the reading material, note-taking, making assignments, oral presentations and written exams. Students are expected to pass all the above in order to obtain a credit for the semester.

Examination: The students will take two exams: the first one is a mid-term test and the second one is final examination. The test consists of questions on short definitions, multiple-choice questions, true & false and an essay. Exam papers are composed of essay type questions, which require in-depth answers on the topics studied. No books, papers etc. can be used during the exam. Exam questions are compiled from the questions discussed during the lectures. Evidence of using additional sources of information related to the course content will be marked in the form of additional points for examination paper.

Grading scheme: All grades will be awarded in accordance with the scheme given below. *Your points for the class work cannot exceed the maximum of 40.*

ASSIGNMENT POINTS

Mid-term test and **final** examination	20 and 30, **total 50** (maximum)
Active participation, note-taking	**total 40**
Bonus for attending classes	**10**

Withdrawal of grades in case of poor attendance without reason
Minus 5 for each failure to attend

A 100-95	**B-** 76-71	**D+** 47-42
A- 94-89	**C+** 70-60	**D** 41-36
B+ 88-83	**C** 59-54	**D-** 35-30
B 82-77	**C-** 53-48	**F** < 30

WORK AND ATTENDANCE: The work and attendance of all students will be monitored. Students are expected to attend all lectures and seminars. Attendance is regarded as a part of the course. This is for the benefit of the students and helps to ensure that they are coping with the work and managing to comprehend all the information and complete all the tasks given to them. Students must come to class on time not to disturb others, being more than 10 minutes late is counted as an absence. Students are not allowed to use any mobile devices or portable computers in class. Students are not allowed to use any mobile devices or portable computers in class, this is considered as a "negative" participation and participation points be deducted for that.

DOCUMENTATION OF REASONS FOR ABSENCE: Any valid reasons for absence should be reported to the Instructor as soon as possible. Legitimate excuses are the following: illness, confirmed by a doctor's note next class; a death in the family; participation in conferences or seminars with preliminary notification of the Instructor and submission of the relevant supporting documents. Unless the correct procedure is followed no allowances can be made.

READINGS

The core textbook for this course is:

- Joachim Monkelbaan. **Governance for the Sustainable Development Goals,** Book · Springer International Publishing, Nature Singapore Pte Ltd, 2019.
- Suraj Mal, R.B. Singh, Christian Huggel, Editors. **Climate Change, Extreme Events and Disaster Risk Reduction, Towards Sustainable Development Goals.** Book · Springer International Publishing AG 2018.

Recommended readings and other course materials (including lecture slides) including the textbook will be available in the e-course. Because of the interactive nature of the classes, it is especially important that students attend lectures having completed the assigned readings.

COURSE CONTENT

The course schedule is subject to change.

Weeks	Subjects	Lab and Field works
Week 1	Description of the course and Syllabus Objectives of CLIMATE CHANGE AND SUSTAIABLE DEVELOPMENT GOALS **Introduction and principles**	
Week 2	Global (environmental) change and sustainable development. Relationship between socio-economic and environmental drivers of change (e.g. globalization, urbanization, land degradation, inefficient use of water, climate change) and sustainable development with a focus on the specific situation in Central Asia.	Case study 1: Assessment of climate risks and vulnerability in Kazakhstan. Presentation of national assessment results and vulnerability maps and preparation of an assessment in the pilot area.
Week 3	Substantive Issues: The Sustainable Development Goals and the Paris Climate Agreement. Water Deficit Estimation Under Climate Change and Irrigation Conditions in the Fergana Valley, Central Asia.	Dispute on the Case study 2 Climate Risks and Vulnerability Assessment (CRVA) (D-1.7) DRAFT National Level Report for Uzbekistan
Week 4	Context for the SDGs: Defining Global Change, Sustainable Development and Governance	Group discussions on the Case study 2
Week 5	Context for the SDGs: Defining Global Change, Sustainable Development and Governance	Sustainable Disaster Risk Reduction in Mountain Agriculture: Agroforestry Experiences in Kaule, Mid-Hills of Nepal
Week 6	TBD	Guest lecture
Week 7	Combining Theories of Governing Societal Change Towards Sustainability	Case study 2: Climate Change 2014, Impacts, Adaptation, and Vulnerability Part A:

		Global and Sectoral Aspects. Working Group II Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.
Week 8	**Mid Term Exam**	Dispute on the Case study 2
Week 9	Laying Out Actors and Dynamics in the 2030 Agenda for Sustainable Development	Group discussions on the Case study 2
Week 10	Governance Pillars and Competences: Power, Knowledge and Norms as Cross-Cutting Issues in Governance for the SDGs	Case study 3: Influence of Climate Change on Environmental Hazards and Human Well-Being in the Urban Areas—Warsaw Case Study Versus General Problems
Week 11	TBD	Dispute on the Case study 3. Guest lecture
Week 12	Inferences on Improving Integrative Sustainability Governance	Group discussions on the Case study 3
Week 13	**Final examination**	Evaluation of the course