Boğaziçi University 2022-2023 Semester
List of Courses on Environmental Sustainability & Climate Science

Level	Faculty	Department	Course Code	Course Title	Course Descriptions	ECTS
UGRD	Institute of Environmental Sciences	Environmental Sciences	ESC 301	The Environmental Dimensions	Understanding environmental problems, an understanding of ecological principles and social issues such as human population growth is needed.	5
UGRD	Institute of Environmental Sciences	Environmental Sciences	ESC 305	Global Climate Change	Understanding the reasons of climate change problem and thinking critically how we can solve the reasons of the problem	6
UGRD	Institute of Environmental Sciences	Environmental Sciences	ESC 307	Social Ecology	Critical understanding of the relationship between economic, social and ecological system	6
UGRD	Institute of Environmental Sciences	Environmental Sciences	ESC 315	Microbes	Sustainable life on earth will solely depend on the products and applications produced by microbes in the future.	8
UGRD	Institute of Environmental Sciences	Environmental Sciences	ESC 351	Sustainable Development	Causes of climate change, impacts of climate change, actions to tackle climate change	6
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 509	Resource Conservation for Energy Fuel & Che	Assessment of related Sustainable Development Goal Indicators for energy and water and material resources of Earth	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 528	Drinking Water Disinfection	Drinking Water Standards, Regulations and Goals	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 530	Research Methods for Environmental Scientists	An Ethical research in both environmental science and technology fields.	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 541	Environmental Economics	Introducing the students to the economic analysis of the environment by focusing mainly on concepts, models, and methods used in environmental, ecological and behavioral economics	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 557	Environmental Microbiology	Introducing relevant topics of microbiology to explore how microor- ganisms utilized in various environmental settings and built environments.	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 558	Concept and Models in Ecology	Biodiversity, Extinctions, And Small Population Paradigm	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 559	Molecular Ecology and Evolution	Focusing on using genetics methods to understand the ecology and evolution of biological species.	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 572	Global Environmental Systems	This course covers the basics of various geological, physical, chemical and biological processes on Earth.	8
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 577	Dynamic Modeling of Socio-Ecological Systems	This is a course legible for all students with natural sciences, engineering and social sciences backgrounds interested in socio-ecological resilience and sustainability, systems approach, modeling and computer simulation-based problem inquiry.	8

GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 58G	Special Topics in Ecosystem Modeling	Ecosystem Modelling is a methodological key skill in modern environmental research	6
GRD	Institute of Environmental Sciences	Environmental Sciences	ESC 59D	Environmental Governance	A critical understanding of the relationship between economic, social and ecological systems; appreciate the interdisciplinary approach to the analysis of environmental problems and be able to apply various methods and models used in social sciences, more specifically in political sciences, economics, political ecology, law, and international relations.	6
GRD	Institute of Environmental Sciences	Environmental Technology	ESC 503	Transport of Pollutants in The Environment	Introduction to fate and transport processes in the environment.	8
GRD	Institute of Environmental Sciences	Environmental Technology	ESC 516	Water & Wastewater Treat	Providing the students with information on the physicochemical processes used in both water and wastewater treatment. The course is fundamental for the students in the concentration area “Water and Wastewater Treatment Technologies”. It also appeals to others since understanding of treatment requirements and treatment principles is essential for all people dealing with environmental issues.	8
GRD	Institute of Environmental Sciences	Environmental Technology	ESC 531	Urban Waste Management	Zero Waste & Circular Economy	8
GRD	Institute of Environmental Sciences	Environmental Technology	ESC 536	Renewable Energy Sources And the Environment	Introducing the basic fundamentals of Renewable Energy Sources with a particular focus on their impacts on the environment and climate change.	8
GRD	Institute of Environmental Sciences	Environmental Technology	ESC 514	Water Quality Management	Focusing on evaluation, control and modeling of water quality in streams and lakes. Students will be familiar with the basic physical, chemical and biological processes within surface water ecosystems and as well as the processes of transport and assimilation of various types of pollution in surface waters.	8
UGRD	Faculty of Engineering	Chemical Engineering	CHE 443	Renewable Energy Technologies	Introducing the sustainable and renewable energy concepts	5
UGRD	Faculty of Engineering	Chemical Engineering	CHE 465	Operational&Environmental Safety of Chemical Plants		5
UGRD	Faculty of Engineering	Chemical Engineering	CHE 441	Hydrogen Technologies	To study the major chemical and physical methods used for clean-up of hydrogen-rich streams, To survey state-of-the-art technologies using hydrogen and/or syngas for clean energy generation	5
GRD	Faculty of Engineering	Chemical Engineering	CHE 542	Analysis of Sustainable Technologies	Analysis of natural sustainable energy resources: agricultural, biomass, solar, wind, geothermal and other resources. Existing and near-future sustainable energy technologies.	8
GRD	Faculty of Engineering	Chemical Engineering	CHE 543	Catalysis for Green Technologies	Environmentally benign catalytic production technologies for energy and materials. Catalysis for mobile and stationary power generation. Adsorbents for hydrogen storage. Catalysts and adsorbents for reduction and prevention of greenhouse gas emissions: methane conversion, carbon dioxide utilization and sequestration.	8

UGRD	Faculty of Engineering	Civil Engineering	CE 422	Environmental Engineering Design	Water, wastewater quality parameters, water, wastewater treatment, filtration process, oxygen deficiency in water bodies, eutrophication process, nutrient modelling of water bodies, hazardous waste management, smart cities, wetlands.	5
UGRD	Faculty of Engineering	Civil Engineering	CE 49B	Sp. Tp. Green Building	Green buildings and show why and how to develop a sustainable building	6
UGRD	Faculty of Engineering	Civil Engineering	CE 315	Hydraulic Engineering I	A quantitative introduction to the principles of hydrology, hydraulics and water resources planning for design and analysis of systems concerned with the use and control of water, storage, water transmission; design of open channels and pressure conduits. Ground water engineering, economical analysis of water resources projects.	6
UGRD	Faculty of Engineering	Civil Engineering	CE461	Transportation Systems Engineering	Sustainability and environmental impacts of transportation systems.	7
UGRD	Faculty of Engineering	Civil Engineering	CE 336	Foundation Engineering	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors,	6
UGRD	Faculty of Engineering	Civil Engineering	CE 322	Environmental Engineering	Introducing physical, chemical, biological processes we see in environment	5
UGRD	Faculty of Engineering	Civil Engineering	CE 48C	Pecial Topics in Civil Engineering: Planning Aspects of Hydroelectric Power Plants	An ability to design a system, component, or process to meet desired needs such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainabilityEnvironmental, economic and social impacts of hydroelectric power plants.	5
GRD	Faculty of Engineering	Civil Engineering	CE 535	Environmental Geotechnics	Engineering properties of compacted soils and wastes. Contaminant transport and soil/waste interaction, pore fluid effects.	8
GRD	Faculty of Engineering	Civil Engineering	CE 58B	Sp. Tp. Sustainable Materials	A comprehensive introduction to sustainable materials used for various structures in different engineering disciplines.	8
GRD	Faculty of Engineering	Civil Engineering	CE 638	Soil Behaviour	The knowledge of fundamentals of atomic structure will enhance the perspective of the student for a safe, economic, sustainable and resilient geotechnical design. Innovative solutions based on the atomic structure will be presented	10
GRD	Faculty of Engineering	Computational Science & Engineering	CSE 592	Downscaling Methods & Applications in Climate Science		8
GRD	Faculty of Engineering	Computational Science & Engineering	CSE 593	Impact Modeling Processes for Climate Science		8
UGRD	Faculty of Engineering	Industrial Engineering	IE 414	Smart Manufacturing Systems	An ability to design diverse systems including manufacturing, service, logistics, financial and information, to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	6
UGRD	Faculty of Economics And Administrative Sciences	Economics	EC 404	Environmental & Ecological Economics	An understanding of alternative definitions and measurements of sustainability and the relationship between economic, social, and ecological systems.	6

UGRD	Faculty of Economics And Administrative Sciences	Economics	EC 471	Growth and Development	Human Capital, Agricultre, Environment	6
UGRD	Faculty of Economics And Administrative Sciences	Economics	EC 406	Agricultural Economics	Agricultural and Environmental Problem -This course will introduce students to topics covered in current discourse of agricultural and environmental economics both globally and in Turkey.	6
UGRD	Faculty of Economics And Administrative Sciences	Economics	EC 474	Selected Topics in International Development	Global patterns of ecologically unequal exchange: Implications for sustainability	6
UGRD	Faculty of Economics And Administrative Sciences	Management	AD 48C	Sustainability Leadership	Gaining a broad perspective on the interdisciplinary nature of sustainability challenges including climate change, water-energy-food nexus, income inequality, diversity, human rights, social unrest, and more.	6
GRD	Faculty of Economics And Administrative Sciences	Management	AD 510	Management of Ethical Issues and Sustainability	Exposing the participants to the concepts, theories, methods, diverse perspectives, applications, 'best and worst practices' related to business ethics, ethical behavior in organizations, and sustainability.	6
GRD	Faculty of Economics And Administrative Sciences	Executive MBA	ADEX 571	Sp. Tp. In Sustainability & Business	Contemporary topics and issues in sustainability and business.	3
UGRD	Faculty of Arts and Sciences	Sociology	SOC 360	Environment & Society	Analyzing the tension between economic development and the environment in reference to the omnipresent concept of sustainability, and more contemporarily the green economy	6
UGRD	Faculty of Arts and Sciences	Chemistry	CHEM 471	Environmental Chemistry	An introductory level chemical understanding over a range of chemical compounds and processes that relate to recently popularized major environmental issues. Within each subtitle of the course, the particular type of pollution, and its effects on the deviation from natural balance for various ecosystems will be presented. Body pollution will be discussed.	6
GRD	Faculty of Arts and Sciences	Chemistry	CHEM 596	Sp. Tp. Alternative Future Energy Sources	Energy Sources and Sustainability, Fundamentals of Energy, Nuclear Energy, Solar Energy, Wind Energy, Biofuels and Biomass, Hydrogen Economy, Fuel Cells	8
UGRD	Faculty of Arts and Sciences	Physics	STS 488	The Age of Sustainable Development	Why sustainability and why now? Sustainable Development Concepts Planetary Boundaries	6
UGRD	Faculty of Arts and Sciences	Physics	STS 489	Planetary Boundaries	Sustainable Development Goals, the Anthropocene, Social-Ecological Systems and Resilience thinking, Planetary Boundaries Framework, Planetary Boundaries	6
UGRD	Faculty of Arts and Sciences	Philosophy	PHIL 497	Sel. Tp. The Ethics of Climate Change	Looking at climate change from the perspective of environmental ethics. We will examine universal ethical theories and the political principles of cosmopolitanism and ask how well these theories address the problem of global climate change	6
GRD	Faculty of Managerial Sciences	Sustainable Tourism Management	TRM 521	Destination Development for Sustainable Tourism	The sustainable destination; tourism impacts; sustainability indicators	7

GRD	Faculty of Managerial Sciences	Sustainable Tourism Management	TRM 525	Sustainable Business Development	Establishing sustainable business strategies, balancing economic profit targets and broader economic, social and environmental values.	7
GRD	Faculty of Managerial Sciences	Sustainable Tourism Management	TRM 581	Sp.Tp. Current Sustainability Issues in the World Economy	Providing the student with an understanding of the key sustainability issues of the world with respect to economic/financial, social and environmental/ecological problems	7
GRD	Faculty of Managerial Sciences	Sustainable Tourism Management	TRM 511	Tourism, Society and Culture	Sustainable development strategies that involve and gain the participation and support of the community members of a region will also be covered. Features of the bottom-up, community-based tourism, pro-poor, protective/good tourism and creative tourism will be discussed.	9
GRD	Faculty of Managerial Sciences	Sustainable Tourism Management	TRM 522	Environment, Sustainability and Tourism	Providing the student with a framework for understanding the key issues of environment and sustainability.	7
GRD	Faculty of Managerial Sciences	Sustainable Tourism Management	TRM 580	Managing Sustainability in Hospitality and Tourism	Providing an opportunity to develop the academic perspective further on the current state of management and governance of sustainability in the industry	7
UGRD	Faculty of Managerial Sciences	Tourism Administration	TRM 104	Environment & Tourism	Providing students with the fundamental concepts of environment; the knowledge of key global environmental problems; their impacts on tourism and vice versa; and what kind of responses has tourism created to deal with these problems	5
UGRD	Faculty of Managerial Sciences	Tourism Administration	TRM 413	Tourism Destination Development	Exploring the sustainable development of destinations and the interplay of various stakeholders.	6
UGRD	Faculty of Managerial Sciences	Tourism Administration	TRM 48R	Sustainability from Environmental and Social Perspectives	This course not only provides students with the main concepts of sustainability in both environmental and social perspectives but also opens a critical debate on what should be considered as “sustainable and unsustainable.	5
GRD	Faculty of Managerial Sciences	International Competition & Trade	INCT 583	Strategic Sourcing Management	Understanding impact of sourcing decisions on sustainability.	7
UGRD	Faculty of Education	Mathematics and Science Education	SCED 48H	Sp. Tp. Climate Change Education		6
UGRD	Faculty of Education	Mathematics and Science Education	SCED 240	Science, Technology and Society	Explaining the interdisciplinary nature of science and technology.-Sustainability	5
GRD	Faculty of Education	Mathematics and Science Education	SCED 692	Science Learning Environments		10