UTA 2021 COURSES THAT INCLUDE SUSTAINABILITY

Please align your courses with the UN SDGs https://sdgs.un.org/goals

Sustainability course offerings include A) sustainability-focused courses and B) sustainability-inclusive courses:

A. Sustainability-focused courses (a.k.a. “sustainability courses”)

To count as sustainability-focused, the course title or description must indicate a primary and explicit focus on sustainability. This includes:

- **Foundational courses with a primary and explicit focus on sustainability (e.g., Introduction to Sustainability, Sustainable Development, Sustainability Science).**
- **Courses with a primary and explicit focus on the application of sustainability within a field (e.g., Architecture for Sustainability, Green Chemistry, Sustainable Agriculture, Sustainable Business). As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines.**
- **Courses with a primary and explicit focus on a major sustainability challenge (e.g., Climate Change Science, Environmental Justice, Global Poverty and Development, Renewable Energy Policy). The focus of such courses might be on providing knowledge and understanding of the problems and/or the tools for solving them.**

The course title or description does not have to use the term "sustainability" to count as sustainability- focused if the primary and explicit focus of the course is on the interdependence of ecological and social/economic systems or a major sustainability challenge. If the course title and description do not unequivocally indicate such a focus, but it is evident from the course description or syllabus that the course incorporates sustainability challenges, issues, and concepts in a prominent way, the course may qualify as sustainability-inclusive (see below).

B. Sustainability-inclusive courses (a.k.a. "sustainability-related courses")

Courses that are not explicitly focused on sustainability may contribute towards scoring if sustainability has clearly been incorporated into course content. To count as sustainability-inclusive, the course description or rationale provided in the course inventory must indicate that the course incorporates a unit or module on sustainability or a sustainability challenge, includes one or more sustainability-focused activities, or integrates sustainability challenges, issues, and concepts throughout the course.

While a foundational course such as chemistry or sociology might provide knowledge that is useful to practitioners of sustainability, it would not be considered "sustainability-inclusive" unless the concept of sustainable or sustainability challenges and issues are specifically integrated into the course. Likewise, although specific tools or practices such as GIS (Geographic Information Systems) or engineering can be applied towards sustainability, such courses would not count unless the description or rationale provided in the inventory clearly indicates that sustainability is integrated into the course.

Instructor Name and Email	TITLE	DEPARTMENT	LEVEL	DESCRIPTION	SDG(s) #
	ANTH 4460 Zooarcheology	Sociology and Anthropology	UG	Topics include paleoecology, the domestication spectrum, sustainability and collapse of past foraging and herding strategies, and the application of zooarchaeological data in conservation research.	
	ARCH 4307/5307 Life of Cities	Architecture	UG,G	Includes units on environmental justice in urban environments and strategies for resiliency in 21st century city planning in the face of natural disasters.	
	ARCH 3331 Architecture and Environment	Architecture	UG	An overview of sustainable design integrated with natural resource conservation and issues of sustainability.	
	ARCH 4314 Historic Preservation and Restoration	Architecture	UG	Concepts and implementation of the restoration and preservation of historic structures with regard to the sustainability of places.	
	ARCH 4330 Energy Use and Conservation in Architecture	Architecture	UG	Basic concepts of the efficient use and conservation of energy related to architectural design principles of sustainability.	
	ARCH 4360 Politics and Practice of Preservation	Architecture	UG	The history and theory of preservation and of the political context that influence these, especially regarding how to sustain urban environments and neighborhoods.	
	ART 3357 Sustainable Design		UG	An overview of critical environmental issues that affect the contemporary practice of visual communication. Emphasis on ethics, environmental and society responsibility, and creative visual problem solving. Course may	

				include, but is not limited to, lecture, discussion, reading, and creative design exploration.	
	BIOL 1334 Life on Earth: Evolution, Ecology, and Global Change	Biology	UG	Students spend approximately 1/3 of the semester studying ecology, with sustainability applications throughout this unit, including a chapter specifically dedicated to sustainability.	
	BIOL 1442 Evolution & Ecology	Biology	UG	Students spend approximately half of the semester studying ecology, with sustainability applications throughout this unit, including a chapter specifically dedicated to conservation biology and global change.	
	BIOL 3310 Sustenance & Sustainability: The Human Ecology of Food	Biology	UG	Sustainability is the predominant theme in the food ecology seminar. We spend more than half of the semester exploring the ecological consequences of modern food production.	
	BIOL 3328. Environmental Microbiology	Biology	UG	This course explores both the role of microbes in the biogeochemical cycles that maintain sustainable ecosystems and disruptions of the cycles that decrease the sustainability of ecosystems.	
	BIOL 3355 Toxicology	Biology	UG	This course includes sustainability content around topics such as regulation of emissions and industrial waste, other active and passive hazard control methods, conservation of biodiversity for therapeutic potential, pollution of media, and the sources and environmental fate of various toxic agents.	

	BIOL 3356 Environmental Systems, Biological Aspects	Biology	UG	About half the course content is devoted to applying principles of ecology to sustainability in three contexts in aquatic ecology: eutrophication, acidification, and fisheries. Students also write a term paper on a topic of their choice that applies ecological principles to an environmental problem with biological content, and work in writing circles to support each other's efforts.	
	BIOL 3457 General Ecology	Biology	UG	An examination of the theoretical and experimental aspects of the relationship between the biological and physical environments (organisms, food, space, and time) at the individual, population, community, and ecosystem levels regarding sustainability.	
	BIOL 4338 Community Ecology	Biology	UG	The effects interspecific interactions have on the distribution and abundance of organisms and sustaining diversity.	
	BIOL 4350 Conservation Biology	Biology	UG	Introduction to theory and practice of conservation biology, with emphasis on applications of modern quantitative and genetic techniques to preservation of organisms and habitats. Topics include identification and prioritization of units for protection; conservation genetics; preserve design and sustainability; public policy issues; and case studies.	

	CL 2300 Introduction to Sustainable Engineering	Civil Engineering	UG	Introduction to key sustainability Concepts and challenges. Includes Engineering design process and consideration of sustainability	
	CE 3131 Environmental Analysis	Civil Engineering	UG	Laboratory examinations of water, wastewater, and air. Water and air quality parameters and their significance. Sources and types of pollutants and their effects, especially how they threaten the sustainability of ecosystems.	
	CE 3334 Principles of Environmental Engineering	Civil Engineering	UG	Physical, chemical, and biological unit operations and processes in an air, water, and land environment and how they contribute to sustainable systems.	
	CE 4307 Cross listed CE/CM 5382 Construction Sustainability	Civil Engineering	UG/G	Introduction to USGBC's LEED and Green Globes for constructing sustainable/green buildings. Review of sustainable site selection, energy and water efficiency, material reuse and indoor air quality.	
	CE 4323 Landfill Design	Civil Engineering	UG	Introduction and types of landfills, landfill site selection, siting and configuration, compacted and geosynthetic clay liners, final cover design,	
	CM 4357 Sustainable Building Practice	Civil Engineering	UG	Ethics and application of environmental sustainability practice in building construction. Introduction to U.S. Green Building Council LEED program standards, methods, and procedures as applied to construction documents interpretation and construction	
				landfill settlement and slope stability, post closure uses of landfills, leachate and gas generation, collection and removal system, bioreactor landfills and future trends. Focus on	

				sustainable waste practices.	
	CE 4350 Introduction to Air Pollution	Civil Engineering	UG	Sustainability encompasses the environment, economics, and social aspects. The entire air quality course covers types of pollutants, sources, effects, emission estimates, controlling and minimizing air pollution using available technologies and various strategies to achieve sustainable environment.	
	CE 4351 Physical Unit Processes	Civil Engineering	UG	Physical, chemical, and biological unit operations and processes in an air, water, and land environments and how they contribute to sustainable ecosystems.	
	CE 4354 Introduction to Solid and Hazardous Waste Management	Civil Engineering	UG	Sources, chemistry, monitoring, and classifications of solid and hazardous wastes regarding how they disrupt the sustainability of ecosystems. Discussions of environmental hazards, legal aspects, transportation, detoxification, storage, and disposal and incineration.	
	CE 5323 Sustainable Engineering	Civil Engineering	G	Introduction to sustainability concepts and challenges through evaluation of case studies. The engineering design process and consideration of sustainability. Techniques for generating creative and innovative alternative solutions to sustainability problems.	
	CHEM 1345 Chemistry and the World Around Us	Chemistry	UG	Sustainability and green chemistry are the main topics of the first chapter we cover. These topics continue to be a theme that is revisited	

				within the context of all of the following chapters	
	CHEM 1446 Chemistry II for Non- Science Majors	Chemistry	UG	Continuation of the chemistry of things of everyday life. Vitamins, minerals, chemical additives, plastics, cosmetics, proteins, carbohydrates, poisons, fats, and oils.	
	CHEM 4461 Instrumental Analysis	Chemistry	UG	Instrumental analysis includes a problems-based laboratory where students can choose their areas of interest for investigation, including a variety of analytical problems that pertain to environmental analysis and recyclable materials analysis	
	ECON 4302 Environmental Economics	Economics	UG	Includes renewable energies from the ocean (from ocean currents and tides ocean); energy-related sustainability and climate change	
	ENGL 3376: Business/Professional Writing (instructor contact: Amy Hodges or Tim Ponce)	English	UG	An advanced writing course that focuses on writing in the workplace. Emphasis is placed upon producing business and professional documents based on current, standardized formats; considering the role of audience; writing in a clear, concise, and appropriate style; and revising texts to improve their effectiveness. *The Handbook of Sustainability Literacy: Skills for a Changing World* by Arran Stibbe is the recommended text for the class.	
	ENGR 4395 Sustainable	Engineering	UG	Following the engineering design process, students will brainstorm, evaluate, and select	

	Engineering Design Project			among engineering alternatives. Students will evaluate the alternatives based on sustainability criteria, including environmental, economic, and social impacts. Life cycle assessment will be used to quantify environmental and economic impacts of the design alternatives. Students will use decision-making methods and optimization in selecting among alternatives.	
	GEOG 2302 Human Geography	Geography	UG	The course introduces students to geographical perspectives on the relationships between humans and the environment. This includes a focus on how the spatial organization of human activities (e.g., urbanization, global trade, agriculture, governance) influences the ways in which sustainability is practiced and policies of sustainable development are constructed.	all 17
	GEOL 1330 Global Warming	Geology	UG	Global environmental challenges confronting humanity such as pollution, depletion of natural resources, ecosystem deterioration, food production, population growth and how these issues are related to sustainability.	
	GEOL 1340 Weather and Climate	Geology	UG	Nature and variability of weather and climate, including wind, temperature, clouds and precipitation, droughts and flooding. Storm systems, fronts, thunderstorms, tornadoes, hurricanes, atmospheric chemistry and air pollution, especially how these disrupt sustainable ecosystems.	

	GEOL 1350: Intro to Oceanography.	Geology	UG	The study of ocean basins and their origin, ocean currents, waves and tides, properties of seawater, and the sustainability of marine ecosystems, emphasizing the role of the ocean in the Earth system.	
	GEOL 1450 Introduction to Oceanography	Geology	UG	Introduction in oceanography and marine sustainability.	
	GEOL 2406 Natural Resources and Sustainability	Geology	UG	Energy, construction, agricultural, and hydrological resources are evaluated in terms of their production and use, including storage and disposal of waste. Emphasis is placed on the importance of preserving clean water, air and soils. The course will concentrate on what humans take from the Earth, the impacts it has on their environment, and what it takes to make the planet sustainable for human habitation.	
	GEOL 4308. Environmental Geochemistry	Geology	UG	The geochemistry of natural waters with emphasis on processes that control solute concentrations including complexation reactions, oxidation and reduction reactions, biogeochemistry, and chemical weathering reactions.	
	GEOL 4325: Paleoclimate and Climate Change	Geology	UG	Climate change throughout geologic time, especially the last 100 million years: models of the climate system, reconstruction and modeling of past climates, abrupt climate change, warm climates, paleoclimatology, climate change and mass extinctions. Sustainability is discussed within the parameters of each of these aspects.	

	GEOL 4356 Environmental Risk Assessment	Geology	UG	This course introduces the basic scientific components of environmental and occupational health risk assessment and describes the policy context in which decisions to manage environmental health risks are made. The course presents the quantitative methods used to assess the human health risks associated with exposure to toxic chemicals, focusing on the four major components of risk assessment-hazard identification, dose-response assessment, exposure assessment, and risk characterization.	
	GEOL 4405 Meteorology and Climatology	Geology	UG	Includes sustainable air quality and introduction into green energy (solar and wind); energy related sustainability and climate change	
	GEOL 4464 Physical Oceanography	Geology	UG	Includes renewable energies from the ocean (from ocean currents and tides ocean); energy-related sustainability and climate change	
	GLOBAL 2301 Introduction to Global Issues	Modern Languages	UG	Comparative perspectives on a broad range of cultural, linguistic, economic, political, and social issues confronting a globalized world today. Designed to draw attention to the multifaceted connections among nation-states, nongovernmental organizations, diverse ethnic, cultural and religious groups, and populations around the world.	All SDGs
	GLOBAL 4301 Research in Global Studies	Modern Languages	UG	Examines multidisciplinary problems that fall within the scope of human rights and the UN's Sustainable Development Goals (SDGs). Students complete coursework which	All SDGs

				culminates in an original research project on a topic of their choice, which might involve novel approaches toward sustainability, food security, infrastructure, health, water conservation, sanitation, ecosystem resilience, urbanization, recycling, or other issues related to globalization.	
	HIST 3336: Environmental History of the U.S.	History	UG	This course will introduce students to basic concepts necessary to understand and engage present-day debates over policy, politics, and science of sustainability and the relationship between people and the natural environment. This will be accomplished primarily by exploring the history of sustainability and the human-environmental relationship in the United States. The history of the United States has been shaped by a close relationship between people and the North American environment, relationships that have not always been sustainable. The land has altered human behavior and touched human consciousness as surely as people have transformed the land in ways both constructive and destructive. From the colonial period when nature mediated relations between Europeans and Native Americans to cattle ranching in the West to modern environmental engineering to conservation and environmentalist politics, this class will explore the largely unconsidered but crucial role non-human nature has played in the human history of America (and vice versa).	All SDGs

	HIST 4388 Topics in Environmental History: Rivers in American History	History	UG	This course explores some of the roles rivers have played in the history of the United States, including providing Europeans with access to the interior of North America, powering the initial phase of industrialization, serving as the nation's first interstate highway system, and later, as the first interstate sewer system, irrigating western farms and golf courses, and offering playgrounds for sporting people of all sorts. America's rivers have also played a central role within the natural environment that is home, not only to the nation's people, but to all its non-human residents. Throughout much of U.S. history, the determination to make rivers serve the purposes of the nation and its peoples, to understand them scientifically, and to measure their value in those terms, has resulted in their being disconnected from the rest of the environment in ways that have worked against U.S. interests in sustainability.	All SDGs
	HIST 4388 Topics in Environmental History: Natural Disasters in History	History	UG	This course will examine four disasters that occurred about 100 years ago: the Galveston Hurricane of 1900, the San Francisco Earthquake of 1906, the Paris Flood of 1910, and the world-wide Influenza Epidemic of 1918. Students will be asked to consider the causes, responses, and consequences of these catastrophes (environmental, social, political, economic, and scientific understanding), and to compare them to present-day disasters by seeking to understand past and present in terms of policy, politics, and science of	All SDGs

				sustainability. Along the way, the class will interrogate the meaning of the word "sustainable," (and related concepts) by considering how it has been used, by whom, with what reasons, to sustain what, with what effect.	
	HIST 5304 Environmental History of the U.S.	History	G	Through a survey of key texts on topics ranging from the pre-colonial era to the present, this course will explore the field of environmental history as it is practiced in and applied to the United States. Along the way the class will consider theoretical and conceptual matters debated by historians: What is nature? What is wilderness? What is conservation? As well, the class will consider more practical concerns: What distinguishes environmental history from historical geography, historical ecology, or critical and cultural studies of nature writing? Should environmental historians be trained in ecology and biology? Finally, we will consider what environmental history has to offer "traditional" history: Do we need an environmental history of the Civil War? What does environmental history mean for the traditional temporal and national boundaries of historical research? Does environmental history offer a new perspective on the past, or does it speak more to present-day concerns?	All SDGs
	HIST 5361 Reading Colloquium in Late Trans Atlantic History: Plants,	History	G	This course will examine episodes in the entangled histories of people, plants, animals, and germs. In particular, we will focus on the ways in which human history has shaped and	All SDGs

	Animals, Germs: Human and Ecological Histories			has been shaped by the natural histories of plants and animals, including microscopic animals. For the most part, selected topics will be set within the transatlantic arena, and we will range in time from the sixteenth century to the present.	
	HIST 5365 Reading Colloquium in Late Trans Atlantic History: History of Capitalism	History	G	This course will trace the development of capitalism, from its origins in England, its growth in the seventeenth and eighteenth centuries with the Atlantic commodities and slave trade, and its emergence in the nineteenth century as a global system. We will also consider the scholarly debates over the definition and historical manifestations of capitalism, and of its relationship to slavery and the slave trade, industrialization, and related structures of finance, labor, distribution and consumption. Finally, we will explore the impact of capitalism on Earth's natural systems in the epoch that some are calling the "capitalocene."	All SDGs
	INTS 4388 Introduction to Native America	Interdisciplinary Studies	UG	The historical living customs of Native Americans are studied, especially with regard sustainability due to their minimal impact upon environments and ecosystems.	
	LARC 5312/ARCH 4353 History of Landscape Architecture	Landscape Architecture	UG, G	Focuses on changing attitudes toward nature and the environment from 1500 to the present as well as 20th century issues in landscape conservation and the impact of the environmental movement on the landscape architecture profession.	

	LING 4362/5362 Language Document ation	Linguistics	UG, G	Sustaining disappearing languages practiced by indigenous peoples is the topic of this course, as well as how these languages are documented in written and aural ways.	
	MAE 4301: Solar Thermal Energy	Mechanical Engineering	UG	The course provides an overview of solar thermal energy collection and utilization: 1) from a fundamental understanding of radiation heat transfer, 2) to how the solar industry works to assess the current sustainability issues	
	MAE 4386: Wind and Ocean Current Energy Harvesting	Mechanical Engineering	UG	Wind and ocean currents represent secondary streams of energy derived from the primary solar radiation stream. Harvesting energy from wind and ocean currents constitutes a fundamental component of present, near term, and in particular long term sustainable energy sourcing strategies aimed at meeting societal needs. In this course the fundamentals of harvesting energy from fluid motion and its successive conversions down to wall outlet electrical energy are covered from an engineering perspective, together with a discussion of the equally important aspects of environmental impact and societal acceptance.	
Kendra L. Wallis kendra.wallis@uta.edu	MSE 4353 / 5353: Materials for Energy	Materials Science & Engineering	UG, G	The course aims to introduce concepts and design of advanced materials for sustainable energy generation and storage systems. It will cover polymer electrolyte materials, metallic nanoparticles, semiconductors, and nano-fabrication in clean energy conversion, energy storage, fuel cells, photovoltaic cells, and	7, 11, 12, 13

				other emerging energy harvesting and storage. Prerequisite: Department consent and must be in a college of engineering professional program or college of science professional program.	
Kendra L. Wallis kendra.wallis@uta.edu	MSE 4355 / 5355: Fundamentals of Sustainability	Materials Science & Engineering	UG, G	Basic concepts and applications of energy generation and storage. Topics cover a broad spectrum of sustainable energy technologies, including thermal, tide, solar, biomass, wind and electrochemical devices, with emphasis on fundamentals in materials and engineering. Prerequisite: Department consent and must be in a college of engineering professional program or college of science professional program.	7, 11, 12, 13
	PHIL 4388: Topics in the History of Philosophy: Evolution and Intelligent Design	Philosophy and Humanities	UG	This course includes material on evolutionary theory, adaptation, and the role of ecological factors in natural history (e.g., causes of mass extinctions).	
	Phys 1351: Energy and the Environment	Physics	UG	This course explores the fundamental laws of nature and natural processes related to energy production, transport, storage, and uses. The objective of this course is to provide students with an in-depth understanding of the Physics of Energy and its relation to the Earth Environment.	
Amber Raley amber.raley@uta.edu	PLAN 1301: Introduction to Urban Life	Planning	UG	Coursework includes case studies of the increasing role cities are playing in ensuring sustainability initiatives in their building codes and how cities and other local government units are implementing green building practices in the improvement of existing public facilities and the development of new ones such as city halls, libraries, public safety buildings, and more.	11, 08, 09

	PLAN 4320: Sustainable Communities	Planning	UG/ G	The course critically examines sustainable communities' implications for supporting various policy arenas, including sustainable housing and transportation, urban water management, energy, climate change mitigation, informal settlements, and sustainable food systems. You will develop a case-study project on a sustainability area. You will review literature and examples of the state of the art initiatives and projects on sustainable communities across the globe that will inspire your research project. A sustainability assessment will help you measure the opportunities provided by technological innovations, materials, initiatives, and other solutions. Finally, you will explore how partnerships between vulnerable communities, NGOs, local governments, and other stakeholders may illuminate solutions to enable sustainable communities.	All, specially 11
	PLAN 5327: Green Cities and Transportation	Planning	G/ UG	This course explores sustainable transportation policy, systems, and planning through comparative international case studies, lectures, and class exercises. Although the focus is on U.S. transportation and sustainable cities, the course will also pay special attention to transportation issues in the Global South. Case topics include innovative parking management in San Francisco, congestion charging in London, and Bus Rapid Transit in Curitiba and Bogota. You will learn environmental impact	11, 1, 7, 10,

				assessment methods to measure transportation-related energy and greenhouse gas emissions. You will research, conduct an environmental impact assessment, develop, and write a case study or practice-focused policy paper.	
	POLS 4392: Violence, Scarcity, and Norms in Global Politics	Political Science	UG	Explores various components of human security, with specific sections on issues that affect sustainability of the earth and its human population, including environmental security, demographic change, war, public health, and food security.	
	POLS 5334: Violence and Deprivation in World Politics	Political Science	G	Provides a detailed examination of how human activity can affect sustainability, including through patterns of war, migration, economic activity, public health, and environmental degradation.	
	SCIE 3305: Environmental Systems	Science	UG	Topics include interrelationships among biotic and abiotic factors within habitats, ecosystems, and biomes and the energy flow through environmental systems, and the necessity to maintain these sustainable systems.	
	SOCI 3348 The Sociology of Risk	Sociology	UG	This course focuses on risk perceptions and risk assessment as well as the management of risk in contemporary societies. Sustainability and the environment are recurring themes throughout the course – for example, as we discuss risks as hybrids of culture and nature, different perspectives on the concept of nature, and prepping as a response to concerns over the environment.	

	SOCI 3347 Environmental Sociology	Sociology	UG	Topics include the social roots of environmental problems, inequalities in the distribution of environmental hazards, case studies of environmental problems, and new directions in sustainable development	
	SOCW 3310/5310 Environmental Justice & Green Social Work	Social Work	UG, G	This course examines how a variety of vulnerable or marginalized populations are impacted by environmental injustices, and explores ways that social service professionals can solve environmental justice issues on the micro, mezzo and macro level. Students will explore how issues such as climate change, extreme weather events and environmental toxins intersect with health, mental health, children & youth, older adults, indigenous populations, food deserts, climate-forced migration, international conflict, environmental racism, and more and examine solutions including ecotherapy, climate policy, and community organizing.	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17
	SOCW 5301 Human Behavior & the Social Environment	Social Work	G	Exploration of behavioral and social science knowledge of human behavior and development through the life course. Examines major systems in society: individual, group, family, and community; and the diversity of ethnicity, race, class, sexual orientation, and culture	1, 3, 5, 10, 16

Fajer B Jaafari fajer@uta.edu	PHYS 1351 Energy and the Environment	Physics	UG	Explores the fundamental laws of nature and natural processes related to energy production, transport, storage, and uses. The objective of this course is to provide students with an in-depth understanding of the Physics of Energy and its relation to the Earth Environment. The course is designed for non-major students with two hours lecture and one 2-hour laboratory per week. Please check	3,7, 8,11,15,17