CCL - CLIMATE CHANGE LEADERSHIP

CCL 605 Foundations of Climate Change Leadership and Gulf of Maine Case Studies (3 Credit Hours)
This course serves as an introduction to UNE's Master of Science in Climate Change Leadership (CCL) and the Leadership Challenge while exploring the fundamental connections among climate change, marine science, sustainable business, and public health. As a microcosm of the entire program, it examines climate change through the lens of a complex socio-ecological system (Gulf of Maine), using case studies and virtual field trips to assess its impact on marine science, public health, and business. Additionally, the course introduces key pedagogical techniques—such as interdisciplinary analysis, experiential learning, and results-oriented communication—that will be integrated throughout this and other courses in the program, fostering critical thinking, reflection, and engagement with real-world challenges.
Academic Level: Graduate
Enrollment is limited to students with a program in Climate Change Leadership.

CCL 615 Emerging Impact of Climate Disasters (3 Credit Hours)
This course examines the rapidly evolving impact of climate-related disasters, which have gained significant global attention over the past decade. Students will explore the increasing frequency, severity, and human cost of these events, analyzing how climate change is reshaping risks for communities, organizations, and systems. Using a lessons-learned approach grounded in real-world case studies, the course emphasizes the development of effective mitigation and preparedness strategies. Students will design adaptive plans and policies that account for emerging climate trends, with a focus on building resilience, reducing vulnerability, and responding to the complex challenges of a changing global environment.
Academic Level: Graduate

CCL 620 Climate Crisis: Science, Impacts, and Solutions (3 Credit Hours)
Climate changes. It always has and always will. However, scientific evidence proves that over the past half century, human activities are the primary driver of change in the Earth's climate system. The course explores recent evidence of past and projected future climate change, the associated climate risks and impacts on our interconnected social and ecological systems on regional and global scales. The course also considers prospects for addressing the climate crisis via sustainable development with a focus on human health and economic development. You will learn problem solving through critical analysis and assessment of climate change indicators, climate risks, and sustainable development options. The purpose of the course is to better understand the complex and evolving nature of climate change and associated impacts, and explore frameworks that can be used to apply this knowledge to climate action at local and regional scales.
Academic Level: Graduate
Enrollment is limited to students with a major in Climate Change Leadership.

CCL 625 Environmental Economics & Practical Accounting (3 Credit Hours)
This course is designed to expose students to such topics as market and government failure, benefit-cost analysis, the economics of energy, Federal control policies involving air and water pollution, externalities, and environmental issues in other industrialized countries. The course will also expose students to the role of accounting and environmental disclosures in corporate sustainability.
Academic Level: Graduate

CCL 630 Coastal & Marine Ecology (3 Credit Hours)
This course is designed to provide you with a foundation in the field of coastal and marine ecology and how it relates to the ongoing challenge of climate change leadership. Secondary goals within the course include developing an understanding of the scientific method, understanding and interpreting peer reviewed literature, and gathering appropriate resources for response. It will cover many of the basics of a marine and coastal ecology course while also having you engage in a multi-step leadership project related to a selected project focused on conservation, preservation, restoration, or resource management. Weekly topics include: community structure, movement, primary production, trophic dynamics, zonation, biodiversity, and conservation.
Academic Level: Graduate

CCL 635 Advanced Oceanography (3 Credit Hours)
This course examines oceanographic processes, with emphasis given to local, regional, and global systems. Physical and chemical processes in the ocean are investigated, along with the geology of the seafloor and coastal environments, and biological processes in open waters and the deep sea. The importance of oceans to human societies and global environmental phenomena is examined. The course will be taught through a series of case studies that focus on current events through the lens of oceanography.
Academic Level: Graduate

CCL 640 Sustainable Operations (3 Credit Hours)
Why should firms care about sustainability? Which risks matter most to their stakeholders, and how do leaders turn frameworks into operational wins? This course examines recognized sustainability frameworks/standards, identifies what is material within a given organization, and provides practical steps to make operations cleaner, leaner, and more resilient. Students apply tools to a real (or target) organization to diagnose, design, pilot "first#wins," and communicate a board#ready plan for adoption.
Academic Level: Graduate

CCL 645 Emergency Management (3 Credit Hours)
This course introduces students to the foundational principles and real-world applications of emergency management through the lens of public health and climate resilience. Students will explore the five phases of emergency management—prevention, mitigation, preparedness, response, and recovery—while gaining a working knowledge of the Incident Command System (ICS) and its operational structure. Through case studies, simulations, and community-based projects, students will analyze historical and contemporary disasters, design localized prevention and preparedness initiatives, and develop components of business continuity plans. By integrating theory with practice, the course fosters a culture of preparedness and equips students with the skills to enhance community resilience in the face of public health crises, climate-related hazards, and other emerging threats.
Academic Level: Graduate

CCL 650 Change Leadership and Sustainability (3 Credit Hours)
To reduce climate related risk, organizations are now incorporating sustainability initiatives into their strategic planning and day-to-day operations. The success or failure of these initiatives is based on the ability of individuals to lead and manage the change process. The ability to lead change within organizations is essential for solving the complex and urgent challenges of our time, however the majority of change efforts have been shown to fail. The techniques used to successfully lead change across different industries and sectors (private, nonprofit, public) can be taught, learned, and practiced. This course will demonstrate why change efforts often fail, communicate common pitfalls, and introduce strategic approaches for leading successful change that can be applied at any scale. This course emphasizes learning through doing where students will practice and apply concepts, give and receive feedback, and practice self-reflection to grow as leaders of organizational change for climate impact. The course will cover what is known as "the heart of change", with particular focus on how you can "switch" your team on to reduce climate impact and inspire sustainable change.
Academic Level: Graduate
Enrollment is limited to students with a major in Climate Change Leadership.

CCL 655 Coastal & Marine Policy (3 Credit Hours)
This course will explore the essential principles of coastal and marine management. By studying how the United States has managed human access to marine resources and spaces over time, students will become adept at defining core concepts of effective ocean governance, and applying these concepts to current ocean management issues. We will explore the legislative, policy and scientific bases of ocean governance systems, identify best management practices, and analyze how current policies can address increasing human demands for marine resources in a climate-changed world. Students will apply coastal and marine policy constructs to current U.S. and international issues, such as fishery management, marine pollution, marine protected areas and endangered species protection.
Academic Level: Graduate

CCL 660 Interdisciplinary Research Methods & Data Analysis (3 Credit Hours)
Interdisciplinary research is vital for better understanding the impacts of climate change and developing innovative, effective solutions. This course equips students with disciplinary knowledge, analytical tools, and methodological frameworks that can be leveraged to address the complex, interconnected challenges of climate change. Drawing from the natural sciences, social sciences, humanities, and engineering fields, students will explore diverse research data collection and analysis methods—including qualitative, quantitative, and mixed-methods approaches. This course will focus heavily on examining climate change through a systems thinking lens, recognizing the importance of engaging with relevant parties, and promoting opportunities to integrate approaches from across disciplines, with a focus on elements of marine science, global health, and sustainable business.
Academic Level: Graduate

CCL 670 Climate Value Chain Management (3 Credit Hours)
This interdisciplinary course explores how climate change impacts value chains across industries and how organizations can respond through sustainable, resilient, and ethical management practices. Students will examine climate-related risks and opportunities at every stage of the value chain — from sourcing and production to distribution and end-of-life — while learning strategies for reducing environmental impact, enhancing climate resilience, and driving long-term value. Students will also build leadership skills through case studies, projects, and decision-making exercises focused on climate value chain challenges.
Equivalent to BUSC 670.
Academic Level: Graduate
Enrollment is limited to students with a program in Climate Change Leadership.

CCL 680 Graduate Remote Sensing and GIS (3 Credit Hours)
Remote sensing & GIS give us new ways to understand changes happening around the world. This course is designed to give learners skills that will enable powerful analyses, to be used widely across disciplines, with an emphasis on natural sciences. We will concentrate on aerial photography and satellite measurements, with some discussion of other remote sensing techniques (gravimetry, radar, lidar, etc). You will learn how to acquire and manipulate data, and how to extract information from imagery. Application of these techniques to environmental monitoring, oceanography, agriculture, resource management, and other disciplines will form the basis of the course. Students will learn computer software that aids in processing and analyzing large images from satellites and aerial platforms while interfacing with Geographic Information Systems (GIS). The course will prepare you to power your work with spatial data and new insights to improve decision making.
Academic Level: Graduate

CCL 685 Strategy & Sustainability (3 Credit Hours)
This course explores how organizations design and execute strategies that advance sustainability and respond to the challenges of climate change. Through case studies, contemporary research, and applied analysis, students will investigate how businesses integrate environmental and social considerations into long-term strategic planning. The course examines the roles, responsibilities, and decision-making approaches of sustainable strategic managers. Students will learn to apply core tools of strategic business management—such as competitive analysis, stakeholder engagement, and sustainability metrics —to develop actionable strategies that create value while promoting environmental stewardship and organizational resilience.
Academic Level: Graduate

CCL 700 Marine Adaptation & Mitigation (3 Credit Hours)
This course will explore how impacts of climate change on coastal and marine environments and related human communities can be addressed through adaptation and mitigation actions. Topics will include impacts of sea level rise and storms on coastal communities, effects of changing ocean conditions on marine and maritime industries, and potential consequences of mitigation activities within the marine environment, such as renewable energy and deep seabed mining. Selected case-studies will be analyzed by applying legal, scientific and socio-economic principles, and strategies assessed using tradeoff analyses and sustainable development goals.
Academic Level: Graduate

CCL 745 Capstone Planning Course
The Capstone is a culminating experience for the CCL program. Prior to enrolling in the Capstone course (CCL 750), students are required to complete a semester long, 0-credit Capstone Planning course. The focus of the course is develop and write a detailed proposal for their Capstone project. The proposal will be developed and completed in close collaboration with an external partner/industry expert, CCL faculty, and CCL program advisors.
Academic Level: Graduate

CCL 780 Capstone (3 Credit Hours)
The Capstone is a culminating experience for the CCL program. Students use the knowledge gained and skills developed during their CCL coursework, and their previous educational and life experiences to propose and then complete a capstone project that addresses a real-world climate change challenge that demonstrates the integration of the scientific method, public health principles, and business acumen. The specific capstone project will be developed and completed in close collaboration with an external partner/industry expert, CCL faculty, and CCL program advisors. The capstone is meant to be flexible and customizable for each student's interests and career plans. The specific capstone deliverables will be clearly defined in the Capstone Proposal and should focus on climate action and solutions. The format for the deliverables is flexible and may include a detailed report, a pitch, detailed analysis of data sets, management, marketing, or communication plans, or other innovative solutions. A formal presentation to the university and external partner community is a required deliverable. Students are required to enroll in a 0-credit Capstone Planning Class prior to enrolling in CCL 750. Students will develop and write their capstone proposal as part of this planning class.
Academic Level: Graduate