Universidad de los Andes Colombia | School of Management Leadership for Life

international summer school 2026

COURSE SYLLABUS

Managing the Energy Transition: Business and Decarbonization Fundamentals

On-campus | PM

Stanford University

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Short Biography

Edgar Virgüez is a Research Engineer in Stanford University's Department of Energy Science & Engineering, where he works on sustainable, low-carbon energy systems. His research has produced more than 20 publications with over 800 citations in leading journals. Globally, he serves as an expert reviewer for the Earthshot Prize, the International Energy Agency, and Schmidt Sciences. Recognized with the AGU Science for Solutions Award (2025), which honors significant contributions in applying Earth and space sciences to societal challenges, he is also an award-winning educator, author, and trustee whose leadership bridges technology, policy, and sustainability.

Introduction/Course Description

This course provides a multidisciplinary introduction to the energy transition and its implications for corporate strategy and management. It equips participants with the knowledge to understand how energy systems operate, how they are evolving toward decarbonization, and how these changes influence business decisions in both global and Colombian contexts. Through interactive lectures, quantitative exercises, and case-based discussions, students will build foundational literacy in energy systems, explore the economics of energy production and use, and learn to interpret key financial metrics. The course also introduces the basic principles of greenhouse gas (GHG) accounting, helping students understand how energy use drives corporate emissions and how organizations can begin to craft practical decarbonization strategies.

Course Objectives

This course aims to:

- Describe the main components of modern energy systems and explain how energy is produced, distributed, and consumed across different technologies and sectors (C2 – Understand).
- Analyze how financial metrics and market mechanisms influence investment and operational decisions in the energy sector (C4 – Analyze).
- Explain the basic principles of corporate greenhouse-gas accounting and how energy use contributes to organizational emissions (C2 – Understand).
- Discuss practical strategies that organizations can adopt to reduce emissions and advance toward decarbonization goals (C3 – Apply). The alphanumeric code described at the end of each objective corresponds to the specific cognitive levels as defined in Bloom's taxonomy.

Course Methodology

The course is delivered in-person through three-hour sessions combining interactive lectures, guided discussions, hands-on exercises, and collaborative work to foster active participation, critical thinking, and teamwork around energy-transition challenges. Each class includes one or two preparatory readings from academic journals or international organizations, which students must review in advance to meaningfully engage in discussions and problem-solving tasks. Learning alternates between individual and group exercises, culminating in the design and presentation of a corporate energy-transition plan integrating analytical, financial, and strategic concepts. The course also features virtual guest lectures (20–30 minutes + guided dialogue) from global experts including Carmichael Roberts, Jeff Ubben, Jesse Jenkins, Inês Azevedo, Tyler Norris, and one in-person session by Temis Coral; the final speaker list will be confirmed once course dates are finalized.

Evaluation System

The course evaluation is structured as follows:

- In-class participation and attendance (15%)
- Short exercises (35%): Assess core concepts and assigned readings, ensuring continuous engagement.
- Collaborative activities (20%): Completed in teams, with equal grading for all members.
- Corporate transition plan (30%): Capstone group project developing a corporate energy and decarbonization strategy, integrating technical, financial, and strategic components.

There will be eight short exercises; only the best seven will count, each worth 5% of the final grade.

Course Prerequisites

While there are no formal prerequisites for enrollment, it is highly recommended that undergraduate students taking this course have already completed all Level 2 courses (ADMI-2XXX), particularly Sustainability Management (ADMI-2106) and Investment Decisions (ADMI-2204), as these will provide a useful background in managerial and financial concepts applied throughout the course.