

Lehigh Climate Action Strategy

Course Toolkit

Background

In October 2020, Lehigh launched its Sustainability Strategic Plan 2030. It establishes a long-term vision for sustainability at Lehigh with 6 focus areas and detailed near-term, intermediate, and longer-term goals. Additionally, Lehigh is in the process of developing a crucial component of that 2030 Plan - a Climate Action Strategy. This strategy will provide a detailed framework and serve as a comprehensive roadmap for measuring, planning, and reducing greenhouse gas emission at Lehigh. Watch this [video](#) to learn more about Lehigh's Climate Action Strategy development process.

Purpose

The purpose of this class toolkit is to assist faculty across Lehigh's five colleges with integrating Lehigh's commitment to sustainability and climate action (including key concepts like climate change, climate action, social justice, and resiliency) into your class(es). There are eight different paths this integration can take ranging from minimal to moderate effort. As sustainability becomes more central to the strategy of business and government, employers are increasingly emphasizing sustainability competencies, even for jobs that aren't explicitly focused on sustainability. This means that students equipped with these competencies are in demand by employers. We encourage you to choose the integration path that works best for you and your course!

Potential Learning Outcomes

We recognize every course is going to adjust learning outcomes that best fit the given syllabus. The purpose of this toolkit is to be able to give students the tools to have deeper understanding of the impact of the climate crisis globally and regionally from the viewpoint of various disciplines. Students will also be able to have an opportunity to connect what they learn to our community and what Lehigh is doing. Here are some learning outcomes we hope you consider:

1. Students will deepen their understanding of past Lehigh climate action and sustainability achievements and the ongoing Climate Action Strategy process, purpose, and content.
2. Students will feel empowered to provide input on the development of Lehigh's Climate Action Strategy and feel an increased connection to sustainability initiatives at Lehigh.
3. Students will understand the drivers and impacts of climate change, with a focus on local/regional impacts, and intersection of equity and climate change.
4. Students will learn about strategies to mitigate climate change impacts and understand that taking action on climate change is possible and productive.

Instructions

8 WAYS to include Lehigh's Climate Action Strategy in your course

Adapted from Peggy Barlett and Geoff Chase from AASHE's Curriculum Workshop

Strategy 1 - Embedded Curriculum

Infusing sustainability into the material you use to teach your main topic

- **Examples:**
 - Math or Economics - Replace context materials for a math problem or an economic scenario with one related to climate. For example:
 - Energy and power
 - Population growth curves
 - Dynamic equilibria and the energy balance of the Earth
 - Feedbacks and tipping points in ecosystem models
 - Psychology - Replace context materials for behavior and perception with one related to climate.
 - Research Design - Teach research design using sustainability-related studies. For example:
 - What factors influence acceptance of climate change as being human-induced?
- **Tools and Resources:**
 - Math or Economics - [Calculating Planetary Energy Balance & Temperature](#)
 - Psychology - [Climate Change Needs Behavior Change](#)
 - Research Design - [World Bank Video - Climate Adaptation is About People](#) | ["Adapting to Climate Change"](#) | [We are the Class of 0000](#) | [Welcome to the Climate Advocacy Lab](#) | [Climate Advocacy Lab](#) | [Temperature Anomalies by Country 1880-2017](#)

Strategy 2 - New Content in Existing Modules

Making the connection between climate action content in existing course topics

- **Examples:**
 - Economics - What are the economic ramifications of the climate crisis?
 - Psychology - What are the cognitive, social, and motivational barriers to taking climate action?
 - Engineering - Research some of the top upcoming technologies to reduce carbon emissions. If this new technology were to scale, what are some of the potential challenges as well as iterations that would need to be addressed?
- **Tools and Resources**
 - Economics - [The Economic Risks of Climate Change in the United States](#) | [Larry Fink's Letter to CEOs](#)
 - Psychology - [Psychology of Environmental Problems](#)
 - Engineering - [YouTube BioGas Solution Ethiopia](#) | [YouTube Liter of Light](#)

Strategy 3 - New Assignment

Creating a new class assignment that would be incorporated into your class syllabus

- **Examples:**
 - English or Political Science - Write a short, creative story describing the experience of living through a climate crisis. Climate crises include, but are not limited to an increase in: ocean acidification, droughts, wildfires, sea level rise, vector-borne diseases. Have students imagine that it is 2050 and we have solved the climate crisis. Have students write about how we were able to achieve this future (English). Research the policies (Political Science) that took place in order to support this accomplishment.
 - Communications - Conduct interviews with friends, family, and relatives on their understanding of the climate crisis and then present a summary to the class. Form a creative response to bring awareness to a specific climate change issue.
 - Art or Graphic Design - Design graphics or artwork to convey key climate issues.
- **Tools and Resources:**
 - English or Political Science - [How Humans Could Halt Climate Change By 2050](#) | [How Science Fiction Helps Readers Understand Climate Change](#)
 - Communications - [Map Yale Climate Opinion Maps 2020](#) | [Dear Future Generations: Sorry](#)
 - Art or Graphic Design - [How Graphic Design Shaped the Environmental Movement](#)

Strategy 4 - New Unit or Module

Taking a major topic in a class and adding a full module on the impact of climate change

- **Examples:**
 - Engineering - Create a new unit around biomimicry and what we can learn from nature to better understand a circular economy and infrastructure.
 - Health - Have a unit on health and the built environment or population health and air pollution.
 - Arts/Design - Learn about the behind the scenes technology that is being used to make Lehigh a more efficient campus and find a way to personalize or daylight this technology to better inform the Lehigh community. This could include an art exhibition or a competition on how to best illustrate energy use in a way the campus community can understand.
- **Tools and Resources:**
 - Engineering/economy/business - [YouTube Biomimicry](#) | [Biomimicry 3.8 - Innovation Inspired by Nature](#)
 - Health/Psychology - [The COGfx Study](#) - The Impacts of Green Buildings on Cognitive Function
 - Art/Design - [Eco-Visualization](#) | [Visual Energy Flows](#) | [IDDV-NEU](#)
 - Business/Agriculture/Biology - [Can This Breakfast Cereal Help Save The Planet?](#) | [Climate Change and the Future of General Mills - Technology and Operations Management](#)

Strategy 5 - Guest Speakers; Team Teaching

Bringing in a guest speaker or having a co-teacher from the field that is complementary to learning at a deeper level about the impacts of climate change

- **Examples:**
 - Guest Speaker - Ask local practitioners to come in and share how they use concepts in your teaching and class in their day-to-day careers to help solve the climate crisis. The pool of people is larger now that there is Zoom.
 - For example, faculty from [Lehigh's Earth and Environmental Sciences](#) department can provide specific expertise.
 - Faculty Co-Instructor for a Class - Partner with another faculty who can make the connection to strengthen the deeper, interdisciplinary understanding of the climate and climate change.
 - For example, if you're a political scientist, bring in a climate expert to talk about the history of our changing climate.
- **Tools and Resources:**
 - Guest Speaker - Bring in someone from the following departments or organizations to speak: [Lehigh's Office of Sustainability](#) | [Lehigh Valley Planning Commission](#) | City of Bethlehem | [Bethlehem Environmental Advisory Council](#) | [Lehigh Valley Economic Development Corporation](#)
 - Faculty Co-Instructor - [Value of Co-Teaching, Project-Based Learning, and Common Communication for Teaching Sustainability to an Interdisciplinary Class](#)

Strategy 6 - Engaged Learning; Community Experience

Applying knowledge through hands-on experiences

- **Examples:**
 - Campus Sustainable Impact Fellowship - Encourage students to apply to the Campus Sustainable Impact Fellowship to gain hands-on experiences with campus sustainability projects. Students make a one-year commitment to be a part of the fellowship program. Through engaging in such meaningful, authentic, and incredibly alive projects, fellows develop skill sets, mindsets, and portfolios to solve complex campus sustainability challenges.
 - Greenhouse Gas Inventory - Encourage students to assist the Office of Sustainability with Lehigh's annual greenhouse gas inventory, from collecting and analyzing data to developing campus surveys and running the inventory report in SIMAP.
 - Climate Action Strategy Experiential Learning Opportunities - Encourage your students to get involved in one of the many experiential learning opportunities - using the Campus As a Living Lab - both during the development of Lehigh's Climate Action Strategy and once it is implemented.
- **Tools and Resources:**
 - Campus Sustainable Impact Fellowship - [Campus Sustainable Impact Fellowship Website](#)
 - Greenhouse Gas Inventory - [Lehigh's Past GHG Inventories](#)
 - Climate Action Strategy - [Climate Action Strategy Website](#)

Strategy 7 - Paradigm shift

Modifying the course strategy to include a broader learning outcome beyond the standard course subject matter

- **Examples:**
 - History/City Planning - Teach history through the lens of climate justice - talk about historical events through focusing on the marginalized communities experiences and how that lends itself to continued climate injustices today.
 - Accounting - Teach accounting using only sustainable, climate-forward businesses as examples and case studies.
 - Business - Teach globalization through the lens of climate impact and overall environmental impact to ensure a more nuanced understanding of the impact of business - looking at upstream procurement and resource management through end of life.
- **Tools and Resources:**
 - History/City Planning - [How Decades of Racist Housing Policy Left Neighborhoods Sweltering](#)
 - Accounting - [Businesses That Are - And Are Not - Leading on Climate Change | Who are the 100 most sustainable companies of 2020?](#)
 - Business - [Inescapably Intertwined: The Reality of Globalisation and Borderless Climate Risks](#)

Strategy 8 - Whole New Course

Creating a new course that puts climate/climate action as its centerpiece

- **Examples:**
 - ANTH-EES - [The Challenges of Sustainability](#) (Ben Felzer and Bruce Whitehouse)
 - PSYC 357 - Psychology of Environmental Issues (Barbara Malt)
- **Tools and Resources:**
 - Teaching Sustainability Guide - Use the [Teaching Sustainability Guide](#) that was put together by the Office of Sustainability and Library & Technology Services to provide resources for different disciplines.

Additional Resources

Lehigh Sustainability & Climate Action:

- [Lehigh Sustainability](#)
- [Lehigh's Climate Action Strategy](#)
- [Lehigh Sustainability Strategic Plan 2030](#)
- [GHG Inventories](#)

Local/State Climate Action:

- [City of Bethlehem Climate Action Plan](#)
- [Community Hazards Map](#)
- [Climate Explorer](#)
- [2020 April Pennsylvania Climate Impacts Assessment Update](#)

National/Global Climate Action:

- [Risky Business: The Bottom Line on Climate Change](#)
- [Climate Change: Evidence and Causes - Free EBook](#)
- [Consortium for Climate Risk in the Urban Northeast](#)
- [Study published in 2019 in Nature Communications](#)
- [NOAA National Temperature and Precipitation Maps](#)
- [Climate Justice Principles](#)
- [Project Drawdown](#)
 - [Sectors](#)
 - [Solutions](#)

Lehigh Curricular Integration:

- [Teaching Sustainability Guide](#)

Videos:

- [University-hosted climate solutions webinars featuring local experts](#), one from almost every state
- [World Bank Video - Climate Adaptation is About People](#)
- ["Adapting to Climate Change"](#)
- [Temperature Anomalies by Country 1880-2017](#)
- [YouTube BioGas Solution Ethiopia](#)
- [YouTube Liter of Light](#)
- [YouTube Biomimicry](#)
- [Global Weirding with Dr. Katharine Hayhoe](#), YouTube Channel
- [Climate Change 101 with Bill Nye](#), National Geographic

Documentaries:

- [Before the Flood](#)
- [Paris to Pittsburgh](#)
- [An Inconvenient Sequel: Truth to Power](#)
- [This Changes Everything](#)
- [I Am Greta](#)
- [Chasing Coral](#)

Readings:

- [Spending at least 120 minutes a week in nature is associated with good health and wellbeing](#)
- [Calculating Planetary Energy Balance & Temperature](#)
- [How Humans Could Halt Climate Change By 2050](#)
- [How Graphic Design Shaped the Environmental Movement](#)
- [How Decades of Racist Housing Policy Left Neighborhoods Sweltering](#)
- [Businesses That Are - And Are Not - Leading on Climate Change](#)
- [Who are the 100 most sustainable companies of 2020?](#)
- [Inescapably Intertwined: The Reality of Globalisation and Borderless Climate Risks](#)

Assignments:

- Have your students watch the [Power Dialog 2020: Pennsylvania](#) - our state's climate-solutions webinar. Then use one of the [Teacher's Guides](#) for subjects from art to economics, music to statistics to engage students in a critical conversation about climate solutions in your state.
- Have your students watch this [video](#) to learn more about Lehigh's Climate Action Strategy development process. Then have them identify 3-5 impacts their daily habits have on climate change and identify what actions they can take to reduce negative impacts. The assignment is complete when the student follows @LehighSustainability on Instagram and/or Facebook.