

Team name: RUA UNI
Username: RUA UNI
Email address: jhinostrozag@uni.pe
College: Universidad Nacional de Ingeniería

GREENEST CHALLENGE

PART 1

Find 3 colleges or universities in the US or abroad with strong sustainability-focused studies.

- **What draws you to the programs?**

It is a master of Science, which means that it focuses scientific principles inside the program.

Since we are studying civil engineering, environmental engineering and mechatronics engineering, we wanted to take a look to the Bachelor of Science in Environmental Engineering from Northwestern University.

We chose The Amazon course of SUSTAINABILITY RELATED COURSES: UNDERGRADUATE, from University of Florida.

- **What makes it unique, compared to other schools?**

Columbia University offers more than 200 environmental and sustainability courses each year, more than any other university. This means that they are very experienced in this topic.

Northwestern University has four departments that have programs related to sustainability. Perhaps, this program enables Environmental Engineering students to work with Civil Engineering students which I find very curious.

The university has a list about the courses that are related to sustainability in undergraduate and graduate programs.

- **Can you find out why and/or when it launched?**

Master of Science in Sustainability management was launched in fall 2010.

No I couldn't find when it launched.

No I couldn't find when it launched.

- **If possible, find a specific class that interests you. Is there a syllabus you could share?**

I'm really interested in Theory and Practice of Life Cycle Assessment because I would like to know how to develop new ways of creating a circular economy. I did not find a syllabus but I could find the areas of study of the courses.

I find Public and Environmental Health technical elective course very interesting. It is important to learn about public health in various topics such as air, water and particular substances. I did not find a syllabus.

I think The Amazon would be a really interesting course because it may involve a lot of approaches, for instance, the science of rivers, the amazon life, the indigenous people who live there, and so.

- **How would you adapt this to make it your *dream* class?**

I think the class would be wonderful if we actually did real cases. I mean we assess every component of a product, how it is related to the environment, and what options we have to its disposal.

The class would be perfect if professors taught what parameters are important to measure in air and water. Perhaps, the criteria about international quality standards should be taught.

The professor should teach about local conflicts due to lands in Amazon territory, what happened and why the conflict started. Furthermore, indigenous worldview about their amazon lands. Moreover, the animal life in The Amazon and the river's properties.

PART 2

How would you design an original course incorporating Project Green Challenge themes and ideas for a classroom or virtual setting? Create a syllabus for a semester-long PGC class, building off what you learned in your research of sustainability programs and your own experience as both a student and Challenger. Keep in mind:

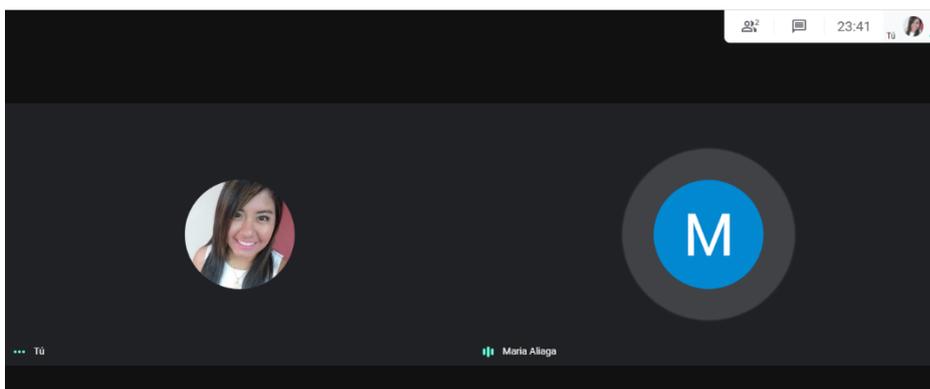
What PGC themes would you incorporate into the class?

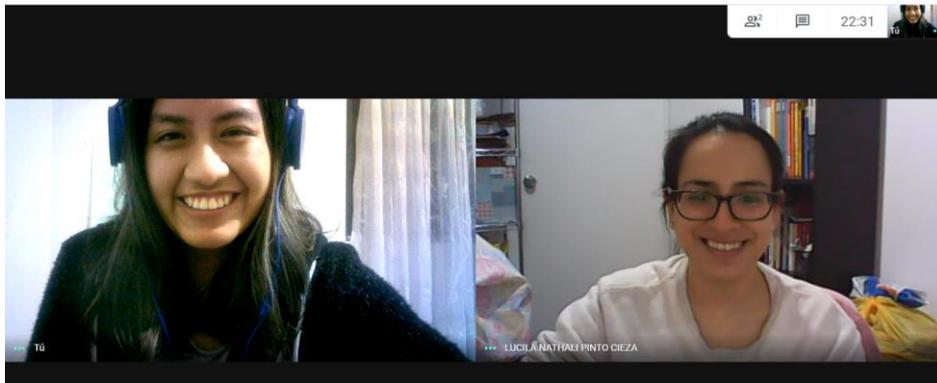
How would you make the class engaging? How would you get students inspired to mobilize around topics? Would you use class discussions, films, etc.? Be creative!

How would you encourage collaboration and teamwork among students?

Plan a calendar with special events, speakers, screenings, etc. Who would you reach out to and why?

Send your syllabus to at least one teacher or professor. Share both the syllabus and feedback from them with us.





I met with two professors from the university: Lucila and María.

Both helped me improve the syllabus, recommending current issues and spaces for innovation.

What I liked about their comments is that they promised that they would help us to carry it out at the university, initially as a pilot plan.

They were very interested in the proposed topics and in favor of the PGC 2020 contest, which was an excellent initiative to engage the student with their university.

INSTAGRAM: <https://www.instagram.com/p/CGzp2jMjuOi/>



PGC PROGRAM AT UNIVERSITY

Public:

Students of the second academic cycle of all careers of the National University of Engineering.



Objective:

Create awareness in students and achieve changes in their habits. Implement sustainability projects at the university and at home.

1 - The reality of our habits

QUIZ Prepare an initial test on our habits and consumption.

TOPICS

Environment and ecosystem
Ecosystem services
Environmental pollution
Environmental problems
Sustainable development
Development goals sustainable (SDG)
Environmental habits

PRESENT

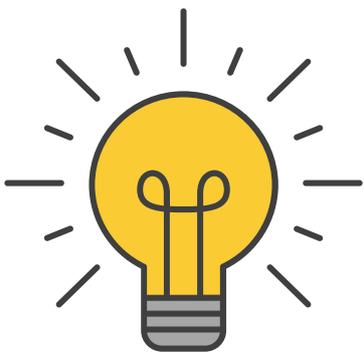
PLANAA National Environmental Action Plan 2011-2021

CONVERSATORY

Planetary Boundary Reading

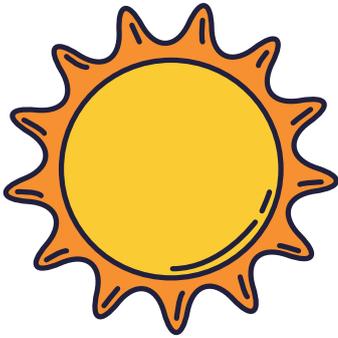
REFLECTION

Video - The True Cost



CHALLENGE Make a personal product with natural materials

2 - Climate Action



TOPICS

Greenhouse effect
Climate change, climate crisis, climate justice
Greenhouse gases and sources
Effects of increased temperature
International climate agreements
COP21 - Paris Agreement 2015
Climate change in Peru
National inventory of emissions
Framework Law on Climate Change (2018)
Carbon footprint

PRESENT

Youth initiatives against climate change
Gender and environment

CONVERSATORY

Before it's too late VS The great global warming scam

REFLECTION

Carbon footprint measurement

CHALLENGE

Short video of tips to reduce your carbon footprint

FINAL PROYECT

Climate action proposal at the university

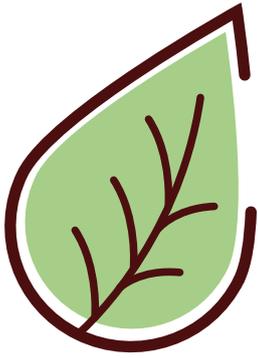
3 - Connecting with nature

TOPICS

Biodiversity
Endemism
Ecosystems in Peru

PRESENT

Biomimicry
Endangered species in Peru
Ecological tourism



Threats to biodiversity
Invasive species
Management and sustainable use of biodiversity
Conservation of biodiversity
Protected natural areas
Fragile ecosystems - coastal hills
Urban ecosystems
Ecological interaction
Biotechnological field and bioindicators

DEBATE

Genetically modified organisms (GMO)

REFLECTION

Illegal species trafficking
The city as a field laboratory

CHALLENGE

Log in Naturalist of biodiversity at home

4 - Pachamama: Mother Earth



TOPICS

Soil formation process
Soil organic matter
Soil pollution and degradation
Remediation of contaminated soils
Soil and climate change
Regenerative organic agriculture
Urban and family farming
Local trade
Organic certifications

PRESENT

Deforestation - Amazon
Local organic fairs

VIDEO

The Soil Story

REFLECTION

Effects of using fertilizers in the soil

CHALLENGE

Elaboration of a bio-garden and compost

5 - Drop by drop



TOPICS

Water
Water availability
Water quality
Uses of water
Water stress
Water contamination
Environmental quality standard
Maximum allowable limit
Ocean pollution
Acidification of the oceans
Water footprint

PRESENT

The Plastic Route
Water culture

VIDEO

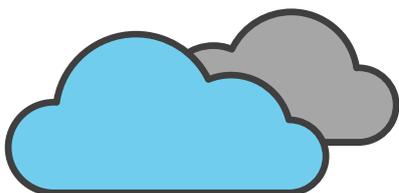
Oceans, the mystery of plastic missing

REFLECTION

Calculation of the water footprint

CHALLENGE Prepare the water footprint of an item that you use / consume

6 - Take a deep breath



TOPICS

Atmosphere
Air quality
Air pollution
Health effects
Environmental quality standard
Maximum allowable limit
Quality monitoring of the air in Lima
Sustainable transport

PRESENT

New monitoring technologies
Variations in air quality due to the effect of COVID-19

WORKSHOP

Hypothetical Environmental Cases About Air Pollution

REFLECTION

Transportation use analysis

CHALLENGE Adaptation of a sustainable transport for a week

7 - Our Trash



TOPICS

Solid waste
Classification in Peru
Solid waste generation in Peru
Landfill
Security padding
Main problems on solid waste
Circular economy
Reduce, reuse and recycle
Segregation color code

PRESENT

New challenges in solid waste
Use of masks - COVID 19

VIDEO

History of things
Solution history

REFLECTION

Record your waste for a week

CHALLENGE

Give a second life to two of the recorded residues

EXPOSITION

Carry out an awareness workshop towards external parties

8 - Our energy consumption



TOPICS

Energy sources
World energy consumption
Renewable energy
Types of renewable energies
Advantages and disadvantages of renewable energies
Renewable energies vs energy conventional
Impacts of each type of renewable energy
Energy matrix in Peru

PRESENT

PETRAMÁS - energy of solid waste

DEBATE

Electric car in Peru

REFLECTION

Consumption diagnosis energy of three used appliances with more frequency

CHALLENGE

Make a list of energy-efficient products and places to get them

QUIZ

Prepare a final test on our habits and consumption

EXTRA: SPECIAL EVENTS

WEBINARS

Escazú Agreement

Citizen science for conservation

WORKSHOPS

Making compost or biochar

Seed germination

Green roofs and vertical gardens

Artificial ecosystems

Biodiesel with recycled oil

FILMS

A Plastic Ocean

A Civil Action

Closing the Loop

CULTURAL SPACE

Volunteering

Environmental art: painting, songs, etc.

Recycled crafts

Self-care Sanctuary

INNOVATION

Engineering environmental projects

University experimentation

