

# Climate Change and Impacts on Human Health. Subject Proposal.

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## **Abstract:**

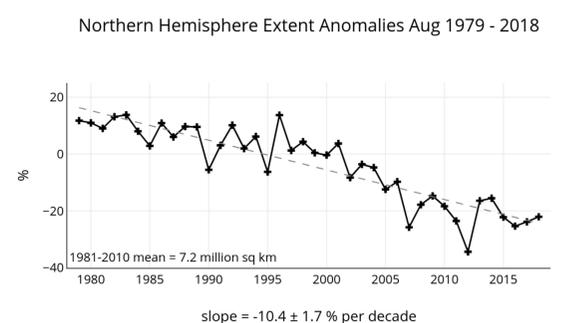
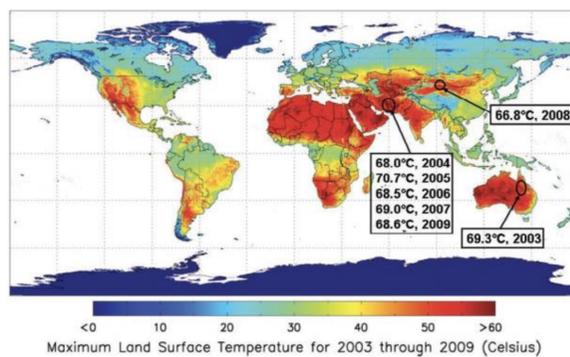
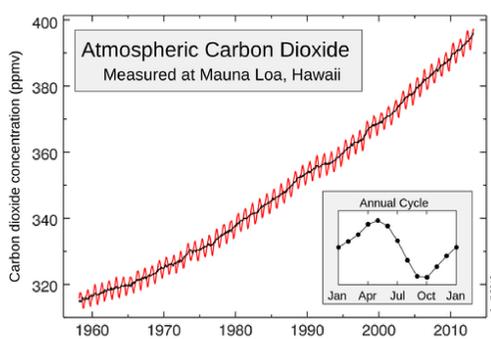
The objective of this cross-curricular subject is for pharmacy students to take awareness and study a key fact on the planet: Climate change.

The atmosphere and the oceans are heating up due to the emission of greenhouse gases such as CO<sub>2</sub> and CH<sub>4</sub>. A warmer atmosphere and the increasing loss of summer ice in the Arctic oceans modify wind trajectories that move the water vapor produced in the sea surface altering current patterns. Hence the name "climate change" is not only an increase in global temperature but also a redistribution of the climatic zones of the planet.

Life adapts to the surrounding environmental conditions. Thus, climate changes are fostering microbial population of bacteria and viruses to invade new habitats where there is no resistance by means of new carriers. Droughts and floods generate health problems, especially from water shortage of wells in the first case, or deposition of dragged pollutants on soils in the second.

A cross-curricular subject of 6 ECTS credits with 60 hours of face-to-face teaching is presented, whose contents are distributed in 18 topics including generic aspects of planet's own dynamics and the impact of climate change on human health.

A proposal of specific competences and broader generic skills is made, together with the learning outcomes as the main goal of the course.



<http://climayciencia.com/>

[http://nsidc.org/data/seaice\\_index](http://nsidc.org/data/seaice_index)

## **Objectives:**

- 1) To make students aware of the importance of the impact of climate change on health.
- 2) To train future pharmacists in environmental impact assessment as a result of global climate change and to be able to measure its health consequences.
- 3) To develop the concern of future pharmacists for research on climate change and especially on the treatment and prevention of diseases sensitive to climatic alterations.

## **Generic competences:**

- 1) To know the physical variables that can affect atmosphere dynamics and its influence on the environment that sustains life on the Earth.
- 2) To know the atmospheric energy sources and to be able to identify the causes that modify its balance, and how polyatomic gases affect this balance.
- 3) To know the behavior of oceans as a CO<sub>2</sub> reservoir, the oceans streams and how the climate can modify them.
- 4) To know and to understand the past, present and potential future effects of global climate change on the planet and the time and intensity scales.
- 5) To know how to interpret the effects of climate change on health.

## **Specific competences:**

- 1) To know the influence of climate change on infectious diseases mediated by vectors and know how to implement prevention strategies.
- 2) To know the influence of extreme temperature episodes and identify the sensitive population segments.
- 3) To know how to evaluate the consequences of climate change in water quality, food, pollen and UV radiation.
- 4) To know how to identify short and long term biomarkers of climate change and to interpret their relationships with the dimension of these changes.
- 5) To know how to develop regional models of climate change and the estimation of local risks.
- 6) To know health programs with actions against the environmental risks derived from the climatic change.

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