

Environment

Climate and Energy

IDENTIFICATION

CODE : GEN-3-S1-EC-SEC
ECTS : 1.0

HOURS

Lectures :	12.0 h
Seminars :	0.0 h
Laboratory :	0.0 h
Project :	0.0 h
Teacher-student contact :	12.0 h
Personal work :	10.0 h
Total :	22.0 h

ASSESSMENT METHOD

terminal exam

TEACHING AIDS

Final test: restitution of the course in the form of a video

TEACHING LANGUAGE

French

CONTACT

M. LEFEVRE Frédéric
frédéric.lefeuvre@insa-lyon.fr

CONTENT

- Ø Introduction to the IPCC
- Ø Understanding the basics of the climate system of the Earth today and in the past
- Ø Evaluate the potential for renewable energy (and resources) from the different components of the climate system
- Ø Be able to analyze the consequences of climate change in relation to our energy consumption and our land use
- Ø Be able to understand in a synthetic way a complex system - know where to find the information to go deeper into to deepen
- Ø To take a step back from the media buzz/social networks/gurus and disinformation

BIBLIOGRAPHY

- Ruddiman, W.F., 2013. Earth's Climate: past and future. Macmillan.
- Bolin, B., 2007. A history of the science and politics of climate change: the role of the Intergovernmental Panel on Climate Change.
- Lutgens F., Tarbuck E., Herman R [2018]. The atmosphere: an introduction to meteorology, Person education
- Archer, D., 2010. The global carbon cycle [Vol. 1]. Princeton University Press.
- Garrison, T.S., 2010. Oceanography: An Invitation to Marine Science: Brooks. Cole, Cengage Learning.
- Sverdrup, K., Armbrust, E, 2008. An Introduction to the Worlds Oceans. McGraw-Hill Higher Education.
- Roberts, N., 2013. The Holocene: an environmental history. John Wiley & Sons.
- Smil, V., 2017. Energy and civilization: a history. MIT Press.
- Henson, R., 2014. The Thinking Person's Guide to Climate Change. Boston: American Meteorological Society.
- Archer, D., 2011. Global warming: understanding the forecast. John Wiley & Sons.
- Liou, K. N. [2002]. An introduction to atmospheric radiation. Elsevier.
- Petty, Grant William. A first course in atmospheric radiation. Sundog Pub, 2006.
- WALLACE, John M. et HOBBS, Peter V. Atmospheric science: an introductory survey. Elsevier, 2006.
- S. Earle, Physical geology. BCcampus Open Education, 2019.
- D. R. Boden, Geologic fundamentals of geothermal energy. CRC Press, 2016.
- E. Leroy-Ladurie, L'histoire du climat depuis l'an mil, Flammarion, 2020.

PRE-REQUISITE

GEN-3-TTC-S1 : Transferts thermiques couplés

INSA LYON

Campus LyonTech La Doua

20, avenue Albert Einstein - 69621 Villeurbanne cedex - France

Phone +33 (0)4 72 43 83 83 - Fax +33 (0)4 72 43 85 00

www.insa-lyon.fr