

Example excerpt from CH EN 5306/6306: Applied Atmospheric Modeling

Sustainability Course Attribute

This course fulfills the University of Utah requirements for the sustainability course attribute. Specially, the four UN Sustainable Development Goals (SDGs) that will be explored in this course are:

- Goal 3: Health - <https://sdgs.un.org/topics/health-and-population>
- Goal 7: Energy - <https://sdgs.un.org/topics/energy>
- Goal 11: Sustainable Cities - <https://sdgs.un.org/topics/sustainable-cities-and-human-settlements>
- Goal 13: Climate Action (Atmosphere) - <https://sdgs.un.org/topics/atmosphere>

Because the topics covered in this course are all related to the atmosphere and the importance of treating land-atmosphere-human interactions as a coupled system, this course also aligns with the UN SDG integration.

The Student Learning Objectives and Learning Outcomes describe above are linked to these SDGs. In terms of learning objectives, because this course focuses on atmospheric modeling learning objectives 1 and 4 are linked to SDGs 3, 7, 11 and 13. The first learning objective is to understand how atmospheric phenomena are modeled. This covers fundamental background of the atmosphere and is critical to understanding air quality (Goal 3), renewable energy (Goal 7), land cover impacts on the atmosphere (Goal 11), and the changing atmosphere due to climate change (Goal 13). Learning objective four is related to finding open access geosciences data, all these SDGs require this type of data to quantify outcomes, therefore the SDGs also align with this learning objective.

The learning outcomes stated above that align with the SDGs are 1 (recognize reputable data), 3 (recall and execute code for atmospheric simulations), and 5 (produce visualizations to communicate results). Specifically, these outcomes closely link to Goal 7: Energy and Goal 13: Climate Action. Renewable energy technologies leverage atmospheric processes to generate electricity (e.g., wind and solar) and the changing climate is associated with to changing atmospheric composition. Knowledge and understanding of atmospheric processes and composition are critical to these two SDGs.