

## Course Syllabus

### INTRODUCTION TO CLIMATE MODELS

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Program: Oceanographic Engineering

#### 1. Course number and name

OCEG1024 - INTRODUCTION TO CLIMATE MODELS

#### 2. Credits and contact hours

3 credits and 3 contact hours

#### 3. Instructor's course or coordinator's name

JONATHAN MARCELO CEDEÑO OVIEDO

#### 4. Text book, title, author, and year

- David Neelin. Climate Change and Climate Modeling (Paperback)
  - a. Other supplemental materials
- Glover, David M. & Jenkins, William M. & Scott C. Doney. Modeling Methods for Marine Science (Hardcover; 2008-03-01)
  - COMET Program. Introduction to climate models (University Corporation for Atmospheric Research)

#### 5. Specific course information

- a. Brief description of the content of the course (catalog description)

This course provides a quantitative introduction to the science of climate modelling, which aims to understand and predict climate changes due to human activities or natural climatic variations.

- b. This course is: Selected elective

#### 6. Specific goals for the course

- a. Specific outcomes of instruction

1.- Understanding the fundamental aspects of the planet's climate system for representation by modelling

2.- Analyze the development of climatic models based on the dynamics of the atmosphere, their equations and the forecasts of time and climate.

3.- Comprehend the calibration and validation processes of climatic models for correct fit.

4.- Evaluate the impact scenarios of global warming models, for the promotion of prevention and mitigation measures against this threat.

- b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

#### 7. Brief list of topics to be covered

1.- Fundamentals of the global climate system

2.- Physical processes of the climate system and principles for weather and climate



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forecast

- 3.- Climate models: basic principles for building climate models
- 4.- Calibration and validation of climate models
- 5.- Global Warming climate model scenarios

