**MET 1206 Cloud Physics (3CU)**

**Description**

This course describes the different types of clouds, their formation and why they are important in the earth-atmosphere system.

**Objectives**

The course will help the students to achieve the following objectives

* Derive the relevant atmospheric stability equations
* Explain cloud formation and its applications

**Learning outcomes**

By the end of the course the student should be able to:

* Understand the different stability processes in the atmosphere
* Describe the different methods of cloud formation
* Describe the different methods of modifying weather

**Intellectual, Practical and transferable skills**

* Problem solving
* Analytical
* communication

**Teaching and learning patterns**

The mode of learning involves direct contact with students in form of lectures, Tutorials and assignments

**Indicative content**

* Static stability and parcel buoyancy: hydrostatic balance and stability of dry and moist atmosphere.
* Review of Cloud Thermodynamics
* Cloud types and formation: cloud classification and methods of cloud formation.
* Particle Nucleation of Water and Ice in Clouds
  1. Homogeneous Nucleation
  2. Heterogeneous Nucleation
* Diffusional Growth
* Precipitation: foams and their formation and growth.
* Weather modifications: stimulating precipitation (cloud seeding), fog dissipation and hail suppression.

**Assessment Method**

The assessment method is structured to include course work, and final examination. Course work consists of assignments, reports and tests and accounts for 30% of the final grade. The final examination will account for 70% of the final grading

**Core Reference materials**

* **Louis J. Battan** (2003): Cloud Physics; A popular Introduction to Applied Meteorology, *Doubleday & Company, Inc.*
* **Pruppacher H.R and Klett J.D**. (1997): Microphysics of Clouds and Precipitation second revised edition.and enlarged edition with an introduction to cloud chemistry and cloud electricity, *Kluwer Academic publishers, Dordrecht*