**MET 2103 Synoptic Meteorology (3CU)**

**Description**

This course deals with Identification and analysis of the space-time characteristics of the synoptic systems in the tropics with special reference to Africa and East Africa

**Objectives**

The course will help the students to achieve the following objectives

* Understand the different synoptic charts used in weather forecasting
* Describe the different weather features in the different parts of the world ( low, middle and high latitudes)
* Understand the concept of air mass and its applications

**Learning outcomes**

By the end of this course, students should be able to:

* Describe the types of charts used in a forecasting office
* Analyze and identify the low, middle and high latitude disturbances
* Have the knowledge required for the interpretation of synoptic systems
* Apply knowledge of dynamics in synoptic analysis
* Describe the various air masses, fronts and dry lines
* Analyze and identify synoptic and meso-scale systems in Africa and their use in weather forecasting

**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**

* Space-time characteristics of the synoptic systems in the tropics with special reference to Africa and East Africa.
* Analysis and identification of the middle and high latitude disturbances; pressure-wind relationship, quasi-geostrophy, streamline-isotach analysis
* Air masses and fronts; Air masses transformations, slope of a front, weather associated with the various air masses,
* Extra-tropical cyclones and anticyclones, blocking systems, location and structure of all jet streams.

**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**

* **Seymour L. Hess** (1979): Introduction to Theoretical Meteorology, [*R.E. Krieger Pub. Co.*](http://openlibrary.org/search?publisher_facet=R.%20E.%20Krieger%20Pub.%20Co.)
* **Roger G. Barry and Richard J. Chorley**: (1987) Atmosphere, Weather and Climate, 5th edition, *Methuen & co*.
* **George J. Haltiner and Frank L. Martin** (1957): Dynamical and Physical Meteorology, *McGraw-Hill*