Module Code: GSU22205
Module Name: Sedimentary Processes & Environments
ECTS: 5 ECTS
Semester Taught: Semester 1
Module Coordinators: Micha Ruhl
Module Content:
Earth's climate and environments have changed on multiple temporal and spatial scales throughout its history, which significantly impacted on physical, chemical and biological processes across Earth's surface. Information on past climates and environments, stored in sedimentary archives, informs our understanding on present-day conditions at Earth's surface and provides constraints on future changes. Sedimentary materials storing such information can be found across most of the Earth's crust, both on land and in the oceans, and much of our understanding of Earth history comes from their examination. This Module will introduce key physical, chemical, biological and sedimentary processes, deposits and examples of contemporary sedimentary depositional environments. It will analyse and explain the generation, transport and preservation of sediments, as diagnostic tools to link surface processes with the geological records of Earth history, as well as modern environmental change. To achieve the module learning aims, the module will introduce examples of environmental change, and their impact on the sedimentary depositional environment at that time, such as Snowball Earth, Oceanic Anoxic Events, Hyperthermals, the Messinian Salinity Crisis, and Quaternary GlacialInterglacial Cycles. The above described module will prepare the student for related modules in Stratigraphy, Climate Change, Oceanography, as well as fieldwork, in Junior and Senior Sophister.
Learning Outcomes:
On successful completion of this module students will be able to:
LO1. Classify sediments and sedimentary rocks
LO2. Provide technical descriptions of common sedimentary rock types and textures from hand samples and thin sections
LO3. Explain the basic concept of "source-to-sink", and how this links weathering of mountains, and transport and deposition of sediments14
LO4. Describe changes in sedimentary archives from outcrop observations, stratigraphic logs and/or petrological evidence.
LO5. Describe (changes in) in sedimentary archives, and interpret these in regard to changes in physical, geochemical and biological Earth surface processes, and changing environments
LO6. Distinguish and describe temporal and spatial variability in Earth surface processes and how this links to sediment deposition locally
LO7. Illustrate how Global Change processes (physical/ geochemical/biological) (have) shape(d) Earth's surface, in the past, present, and future