



UNIVERSITÀ DI PISA

GEOLOGIA PLANETARIA

LUIGI FOLCO

Academic year	2018/19
Course	SCIENZE NATURALI ED AMBIENTALI
Code	172DD
Credits	6

Modules	Area	Type	Hours	Teacher(s)
GEOLOGIA PLANETARIA	GEO/07	LEZIONI	48	LUIGI FOLCO

Obiettivi di apprendimento

Conoscenze

The student who successfully completes the course will have the basic knowledge of the geological processes that occurred and occur on the various bodies of the Solar System since its formation 4.56 billion years ago. The student will get familiar with planetary materials including meteorites, micrometeorites and impactites in order to lay the basis for understanding their petrogenesis and geological context.

Modalità di verifica delle conoscenze

Through discussion and laboratory work.

Programma (contenuti dell'insegnamento)

Planetary origins

Architecture of the Solar System
Theories on the origin of the Solar System
The major planets, dwarf planets and satellites
Dust, asteroids and comets

Orbits and cycles

Planetary orbit
Insolation
Interaction between planetary bodies
The variable Sun

Core, mantle, crust

Reading the subsurface
Sources of change
Core
Mantle
Crust

Magnetic fields and signatures

Magnetosphere
Magnetism as probe
variability
Reversals
Paleomagnetism
Magnetic stratigraphy

Topography and gravity

Shape and spin
Hypsometric curves
Topography
Mapping gravity
Isostasy



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Tectonics

Structures
Cryotectonics
Global tectonics

Volcanism

Maria and flood basalts
Flows
Edifices and Intrusions
Outgassing

Impact and impactors

Projectiles
Targets and atmospheres
Crater formation
Cratering history

Atmosphere

Origins
Circulation
Greenhouses

Oceans and ice caps

Oceans
Subsurface oceans: Europa, Enceladus and Titan
Icecaps and snow caps

Erosion and stratigraphy

Wind
Running water
Stratigraphy

Planetary biology

Origins
Extinctions
Detecting life on other planetary bodies
Terraforming

Bibliografia e materiale didattico

Slides provided by the lecturer.

Modalità d'esame

Oral exam.

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