

TITOLO DEL CORSO
GEOLOGIC APPLICATIONS OF GRAVITY AND MAGNETIC METHODS

Settore Scientifico - Disciplinare: GEO/11 **CFU: 6 (6 LF)** **Ore: 48**

Ore di studio per attività:	Lezioni frontali: 2	Laboratorio: 0	Attività di campo: 0
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Tipologia di attività formativa: caratterizzante

SYLLABUS

Prerequisiti: Geofisica, Geofisica Applicata, Geologia, informatica elementare

Lezioni frontali

numero di ore 6	<u>Argomento:</u> Potential fields; vertical component of gravity; total magnetic field; gravity and magnetic gradient tensors; use of MATLAB in the processing and interpretation of potential fields.
numero di ore 4	<u>Argomento:</u> Physical properties of rocks: density, susceptibility, magnetization.
numero di ore 6	<u>Argomento:</u> Gravity and magnetic anomalies in different geologic contexts. Qualitative interpretation methods.
numero di ore 8	<u>Argomento:</u> Semi-quantitative interpretation methods: source-edge detection strategies.
numero di ore 8	<u>Argomento:</u> Source-depth estimation methods; spectral methods.
numero di ore 6	<u>Argomento:</u> 2D and 3D forward and inverse modeling; linear and nonlinear problems.
numero di ore 10	<u>Argomento:</u> Discussion of case histories for large scale exploration planning, volcanic studies, basin characterization, oil-field studies, mining, environmental investigations, archeogeophysics.

Risultati di apprendimento attesi

Knowledge and understanding:

The students must demonstrate knowledge and understanding of the principles of both gravity and magnetic data interpretation. The newly acquired knowledge will enhance previous geophysical background providing a basis for originality in developing and/or applying potential fields analysis to Earth Sciences problems.

Applying knowledge and understanding:

<p>The students must be able to apply their knowledge and understanding of the principles of both gravity and magnetic data interpretation and demonstrate problem solving abilities facing geological or applied research problems within broader contexts related to their field of study.</p>	
<p>Making judgements: The students must have the ability to integrate the newly acquired knowledge of both gravity and magnetic data interpretation with previously acquired knowledge on geosciences, in order to handle complex problems, and try to formulate judgments with typically incomplete or limited information.</p>	
<p>Communication: The students must be able to communicate the key concepts of the application of the principles of gravity and magnetic data interpretation to specialist and non-specialist audiences clearly and unambiguously.</p>	
<p>Learning skills: The students must have the learning skills to allow them to continue to study gravity and magnetic data interpretation tools in a manner that may be largely self-directed or autonomous. During the course, the students will be given the basis for building their own tools to handle general geologic problems having potential field datasets.</p>	
<p>Modalità di verifica dell'apprendimento</p>	
<p>Esame finale: Oral exam.</p>	