



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Culture e società
ACADEMIC YEAR	2018/2019
MASTER'S DEGREE (MSC)	ARCHAEOLOGY
SUBJECT	PRINCIPLES OF TOPOGRAPHY AND PHOTOGRAMMETRY
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50347-Archeologia e antichità classiche e medievali
CODE	02929
SCIENTIFIC SECTOR(S)	ICAR/06
HEAD PROFESSOR(S)	LO BRUTTO MAURO      Professore Associato      Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	120
COURSE ACTIVITY (Hrs)	30
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	<b>LO BRUTTO MAURO</b> Monday    09:00   12:00   Dipartimento di Ingegneria - Area Geomatica - viale delle Scienze - Edificio 8 - scala F6 - secondo piano. Tuesday    09:00   12:00   Dipartimento di Ingegneria - Area Geomatica - viale delle Scienze - Edificio 8 - scala F6 - secondo piano.

**DOCENTE:** Prof. MAURO LO BRUTTO

<b>PREREQUISITES</b>	No preliminary knowledge is required
<b>LEARNING OUTCOMES</b>	<p><b>Knowledge and understanding</b> The course provides the preliminary information necessary to a understanding the topography and photogrammetry techniques. In particular, the student will acquire the know on the topographic and photogrammetric methods for the representation and documentation of archaeological heritage.</p> <p><b>Applying knowledge and understanding</b> The student will be able to use tools for topographic surveys in areas of limited extension, to perform photogrammetric surveys, to use photogrammetric software for archaeological applications.</p> <p><b>Making judgments</b> The student will be able to evaluate surveying techniques for the possible professional applications for accuracy point of view and for limitations of approach.</p> <p><b>Communication skills</b> The student will be instructed to present the results of surveys through technical and graphical representations.</p> <p><b>Learning skills</b> During the course, the student will understand the evolution of the techniques as regards the theoretical and practical aspects.</p>
<b>ASSESSMENT METHODS</b>	The student will have to answer at least three or four oral questions, on all parts of the program. The final examination aims to assess if the student has knowledge of the course topics and has acquired competence over the main topographic and photogrammetric survey methods. The level of sufficiency will be achieved when the student shows at least the basic theoretical skills of the main topics of the teaching. Moreover, he should be able to use the main terms of technical language and to exhibit his basic knowledge to the examiner. Below this threshold, the examination will be insufficient. More the student will show his knowledge of the discipline and his ability to interact with the examiner, more the evaluation will be positive. The evaluation, out of thirty, will be assessed on the basis of the student level.
<b>EDUCATIONAL OBJECTIVES</b>	<p>The aim of the course is to provide students with the theoretical and methodological knowledge for topographic and photogrammetric survey of Cultural Heritage.</p> <p>These operations are very common both during archaeological excavations and in documentation and cataloging phases.</p> <p>This course provides the basics of topography and photogrammetry and some information for the critical evaluation of the results obtained during all phases of survey.</p>
<b>TEACHING METHODS</b>	Lectures, practices
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>Materiale didattico messo a disposizione durante il corso.</p> <p>Bianchini M., Manuale di rilievo e di documentazione digitale in archeologia. Copia online <a href="http://www.rilievoarcheologico.it/manualerilievo8index.htm">http://www.rilievoarcheologico.it/manualerilievo8index.htm</a></p> <p>Galetto R., Spalla A. – Lezioni di topografia. CUSL, Pavia 1998. Copia online <a href="http://geomatic.unipv.it/spalla/dispense.htm">http://geomatic.unipv.it/spalla/dispense.htm</a></p> <p>Testi per approfondimenti</p> <p>Bezoari G., Monti C., Selvini A. - La fotogrammetria per l'architettura. Liguori Editore, Napoli 1992.</p> <p>Bezoari G., Monti C., Selvini A. – Topografia generale con elementi di geodesia. UTET, Torino 2002.</p>

## SYLLABUS

Hrs	Frontal teaching
3	General informations of surveying. Measurement of angles, distances and height differences. Measuring the angles: definition of azimuth angle and zenith angle, definition of direction angle.
3	Characteristics of total station, operating procedures of topographic surveying, instrumental precision, measurement of vertical angles.
3	Measuring of distances, slope distance and topographical distance, electronic measurement with total station.
3	Measurement of height differences, trigonometric leveling, geometric leveling, structure and characteristics of a level.
3	Methods of topographic surveying, general concepts of topographical scheme, polar and cartesian coordinates.
3	Theoretical principles of photogrammetry, terrestrial photogrammetry, operating phases of a photogrammetric survey.

## SYLLABUS

Hrs	Frontal teaching
3	Photogrammetric network, photogrammetric camera, project of terrestrial photogrammetry (single, stereoscopic and convergent images), image scale, longitudinal and transversal overlap.
3	Ground control point, images orientation, photogrammetric triangulation, rectified imagery
3	Photogrammetric survey of archaeological sites
Hrs	Practice
3	Topographic survey of archaeological sites