



# Sample Course Syllabus

OREGON STATE UNIVERSITY  
DEPARTMENT OF GEOSCIENCES  
GEO 301 -- Map and Image Interpretation

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## COURSE DESCRIPTION FROM GENERAL CATALOG

Reading, analysis, and interpretation of maps and remote sensing images used by geoscientists. Use of topographic, geologic, nautical, and other geoscience maps. Basic air photo interpretation. Coreq: CS 101 or equivalent experience.

By the end of this course it is expected that you will be able to:

- Understand the most important map projections, grid coordinate systems, and land partitioning methods found on maps.
- Describe the locations of features on the earth by their geographic and grid coordinates, as well as their Public Land Survey description.
- Understand how to find positions and plan routes using maps.
- Measure distances, directions, areas, volumes, and slopes from maps.
- Create profiles and geologic cross-sections from geologic maps.
- Be familiar with the basic types of aerial photography and remote sensor imagery.
- Make height measurements from aerial photographs.
- Understand the basic principles of image interpretation.
- Understand the use of geologic, biogeographic, and land planning maps.

## Lecture Schedule and Readings

Date	Lecture	Pages in Text
Week 1	Introduction: Course Objectives and Content	59-61, 74-77,
	Map Scale vs. Level of Detail/Generalization	536-546
	Geographic Coordinates for Mapping and Images: The Earth as a Sphere, Spheroid, and Geoid. Earth coordinates on the Sphere and Spheroid	219-221
Week 2	Map Projection Concepts: Types and Properties	586-604
	Use of Azimuthal Projections, Wulff (Stereonet) and Schmidt Nets	
Week 3	Use of Cylindrical and Conic Projections, UTM and State Plane Coordinates	222-228
	Land Partitioning Systems on Maps, U.S. Public Land Survey System on Maps	232-242
Week 4	Map Symbols	80-84
	Position Finding Methods, Compass and GPS, Distance Finding Methods	605-620, 243-309
Week 5	Area and Volume Computation Methods;	345-355,
	Profiling and Cross Sections	361-364

### **MID-TERM EXAM**

Week 6	Types of Aerial Photographs and Imagery	547-584
	Geometrical Characteristics of Air Photos and Images	85-95
Week 7	Air Photo Measurements	337-341
	Image Interpretation Basics	499-508
Week 8	Landform Interpretation From Maps /Photos/Images	437-441
	Geologic Map Interpretation	
Week 9	Geophysical Map Interpretation	
	Biogeographic Map Interpretation	479-484
Week 10	Land Planning Map Interpretation	462-469
	Course Review	

### **FINAL EXAM**

### **GRADING**

Midterm Exam 30%

Final Exam 30%

Laboratory Exercises 40%

### **TEXTBOOKS**

Muehrcke, Muehrcke, and Kimerling, MAP USE 4<sup>th</sup> ed. revised, 2001  
Earth Science Curriculum Project, STEREO ATLAS, 1995

### **LABORATORY SCHEDULE**

<u>LAB</u>	<u>HANDS-ON LAB TOPIC</u>
1	Map Scale and the Latitude/Longitude Graticule
2	Azimuthal Map Projections
3	Conformal Map Projection Use and Locational Reference Systems
4	Compass and Direction
5	Area and Volume Computation - Profile and Cross-section Construction
6	Basic Aerial Photograph Measurements
7	Landform Interpretation

#### Computer Lab Assignments

1	Significant Figures
2	Map Projections on the Web
3	Grid Coordinate and Land partitioning systems
4	Map Symbols, Compasses, and GPS
5	Computer Imagery
6	Mapping Features from Aerial Photography
7	Mapping Changes with Aerial Photography