

## ERTH 461 Geospatial Information

The goals of this course are to convince students that they should collect field data in a spatially-quantitative manner (i.e., with GPS), and that once those data are collected, to teach them how to store, analyze, and manipulate those data (i.e., with GIS and other spatial-processing software)

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text: Mastering ArcGIS, by Maribeth Price

[http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Welcome\\_to\\_the\\_ArcGIS\\_Help\\_Library/00r90000001n000000/](http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Welcome_to_the_ArcGIS_Help_Library/00r90000001n000000/)

#	date	topic(s)	readings	SLO*
Week 1		Intro, outline of course, UTM, digital analysis of data with ENVI, Excel, Matlab, whatever GPS		2, 5
Week 2		Hand-held GPS (outside) Map datums and projections	Chapter 1 Chapter 11	1, 5 2
Week 3		Field data collection (in the field somewhere – <b>it will be hot</b> ) Shape files, tables, raster data	Chapter 4	2, 3, 5 2
Week 4		GPS Utility Editing	Chapter 2 Chapter 12	2 2
Week 5		Importing field data into ArcGIS Elevation and DEMs	Chapters 12, 13	2, 5 1, 2, 5
Week 6		Geo-registering, mosaicing with ICE GIS applications for Big Island water resources ( <a href="#">guest lecture</a> )		2, 5 1, 3, 5
Week 7		Hawai'i GIS data, Making Pretty Maps Interpolation of point and line data	Chapter 3	2 2, 3, 5
Week 8		Geologic Map I: digitizing contours Topology Chapter 13		2, 5 2, 3
Week 9		Geologic Map II: interpolating contours to TIN, Raster Queries, Selections	Chapters 5, 6	2, 5 2
Week 10		Geologic Map III: drawing geology, symbolizing Tables, Joins	Chapters 5, 6	2, 5 2
Week 11		Geologic Map IV: strikes and dips, info, ancillary data <b>EXAM</b>	Mapping handout	2, 3, 5
Week 12		Geologic Map V: Querying Data: Shape files Network analysis, viewsheds	Chapter 7	2, 3, 5 2, 5

Week 13	Geologic Map VI: Querying Data: Rasters Hydrology Intro.	Chapter 8	2, 3, 5
Week 14	Geologic Map VII: Hydrology, Viewsheds <b>THANKSGIVING</b>		2, 3, 5
Week 15	Volume Calculations with Arc and ITAS GIS and Engineering Geology applications ( <b>guest lecture</b> )		2, 5
Week 16	FLOWGO, Hazard mitigation Interferometry, Lidar	FLOWGO papers	1, 2, 5 2, 5
<b>FINAL PROJECT (aka LAB FINAL) DUE</b>			

### \*SLOs - Student Learning Objectives

Earth Sciences undergraduate courses have to consider how they address a number of SLOs, which the Department has decided are key attributes and/or abilities of any Earth Science student:

1. Students can explain the relevance of geology and geophysics to human needs, including those appropriate to Hawaii, and be able to discuss issues related to geology and its impact on society and planet Earth.
2. Students can apply technical knowledge of relevant computer applications, laboratory methods, and field methods to solve real-world problems in geology and geophysics.
3. Students use the scientific method to define, critically analyze, and solve a problem in earth science.
4. Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.
5. Students can evaluate, interpret, and summarize the basic principles of geology and geophysics, including the fundamental tenets of the sub-disciplines, and their context in relationship to other core sciences, to explain complex phenomena in geology and geophysics.

**If you have a disability and related access needs the Department will make every effort to assist and support you. For confidential services, students are encouraged to contact the Office for Students with Disabilities (known as Kōkua) located on the ground floor (Room 013) of the Queen Lili'uokalani Center for Student Services.**

**Title IX:** The University of Hawai'i is committed to providing a learning, working and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. If you or someone you know is experiencing any of these, the University has staff and resources on your campus to support and assist you. Staff can also direct you to resources that are in the community. Here are some of your options: **As members of the University faculty, your instructors are required to immediately report any incident of potential sex discrimination or gender-based violence to the campus Title IX Coordinator.** Although the Title IX Coordinator and your instructors cannot guarantee confidentiality, you will still have options about how your case will be handled. Our goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

If you wish to remain ANONYMOUS, speak with someone CONFIDENTIALLY, or would like to receive information and support in a CONFIDENTIAL setting, use the **confidential resources available here:** <http://www.manoa.hawaii.edu/titleix/resources.html#confidential>

If you wish to directly REPORT an incident of sex discrimination or gender-based violence including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence or stalking as well as receive information and support, contact: Dee Uwono, Title IX Coordinator (808) 956-299 [t9uhm@hawaii.edu](mailto:t9uhm@hawaii.edu)