

GIS Training in South Africa, October/November 2014

Working with ArcGIS for Environmental Analysis & Advanced Topics for ArcGIS

Juniper GIS is partnering with the South African National Biodiversity Institute and other conservation groups to offer training in ESRI's ArcGIS software in South Africa this coming October/November. We will offer the one week [ArcGIS for Environmental Analysis](#) at the Southern Africa Wildlife College (SAWC) near Kruger National Park October 20-24. We will also teach that class in Cape Town November 10-14, and then teach the one-week *Advanced Topics for ArcGIS* class in Cape Town November 17-21. See class descriptions below.

The classes will be presented by [Juniper GIS](#) and taught by John Schaeffer, who has over twenty years experience teaching and using ArcGIS, with an emphasis on conservation GIS. John has taught extensively in the US, and also in Fiji, Kenya, Uganda, Tanzania, South Africa, Russia and Mexico to a wide variety of state, local and federal agencies and many conservation groups, including the Jane Goodall Institute and the Society for Conservation GIS.

The cost will be \$500 USD for each one-week class, or \$900 if you register for two classes for students outside of South Africa. For students in South Africa, the price will be R3500 per week or R6300 if you register for two classes. You will work alongside local conservation staff and students from other parts of the world and your fees will help provide GIS training for local conservation people. For the classes in Cape Town, students will need to bring their own laptop capable of running ArcGIS 10.0/10.1/10.2; for the classes at SAWC, we will have access to a computer lab with the software, but you are welcome to bring your own laptop. For both classes we can provide evaluation copies of ArcGIS 10.2.1. For more information on computer requirements, see the information for the Cape Town classes.



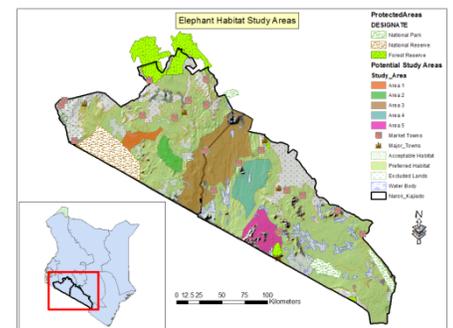
Students at a Juniper GIS class in Uganda

Working with ArcGIS for Environmental Analysis, 5 days

This one-week intensive course will focus on core GIS skills, all with an emphasis on conservation GIS. This class is appropriate for new GIS users and for experienced GIS users wanting more in-depth instruction. Juniper GIS courses are based on real projects, with an emphasis on the skills needed to successfully and efficiently complete your projects.

Core GIS skills include compiling and organizing data, understanding projections, using symbology and labels to best display the data, working with table tools to maximize the database functionality of GIS, working with edit tools to create and clean the data, performing basic analysis, and creating finished maps.

Students will also learn some advanced skills – working with Spatial Analyst, using raster GIS techniques for analysis, using ModelBuilder to create models for analysis, and moving data to and from Google Earth.



The course will work with several analysis projects to demonstrate how these skills can be applied. These projects will use conservation and natural resource data from the US, Kenya, and South Africa. Exercises will work with typical conservation scenarios, such as identifying areas for elephant habitat, displaying coral abundance levels on reefs, or corridor analysis. Time permitting, we will also work with Google Earth and use GPS for some local data collection.

Topics include: Using ArcMap, ArcCatalog, ArcToolbox; Working with layers, data frames, and maps; Understanding data types; Projecting data correctly between coordinate systems; Bringing field data in from GPS; Selecting and querying features; Creating and using layer symbology in ArcMap; Working with Labels and Annotation; Creating and using Layer Files for analysis; Managing and editing tables; Editing data; Basic Geoprocessing and Analysis tools; Creating layouts in ArcMap; Using ModelBuilder for Analysis; Working with Spatial Analyst; Understanding Raster GIS and Raster Analysis; Working with Excel; Creating XY Point Locations from tables; Georeferencing images; Working with Google Earth.

Advanced Topics for ArcGIS, 5 days

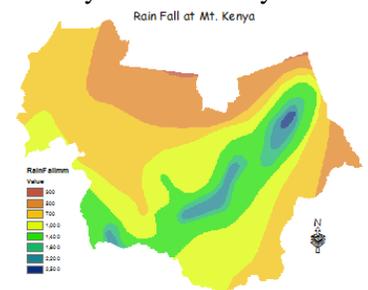
Working with Geodatabases and Linear Referencing, 2 days. This course introduces users to the Geodatabase, a data format that provides enhanced tools for data creation, data modeling, and data validation. Participants will learn how to design, create and manage Geodatabases. At the end of the course, students will have an in-depth understanding of the Geodatabase structure and Geodatabase tools for creating and editing data while maintaining data integrity. These tools include subtypes, domains, and Geodatabase topology. Since one of the strengths of a Geodatabase is to validate and correct data, there will be many examples of editing, particularly with specialized Geodatabase editing tools and other advanced editing methods. In the last section students will learn how to create routes and use linear referencing for analysis on streams and roads.

Topics include: Geodatabase concepts and basics; Converting data to the Geodatabase; Working with Images in the Geodatabase; Understanding Spatial Reference for the Geodatabase; Validating attributes with Domains and Subtypes; Validating features with Geodatabase Topology; Editing with the Geodatabase; Working with Routes; Linking to external databases.

Working with ModelBuilder, 1 day. Students will learn to use ModelBuilder to create tools to perform basic and advanced geoprocessing and analysis tasks. The course will first cover the ArcGIS Geoprocessing environment, which provides the foundation for ModelBuilder operations. Students will then learn how to create models and tools (dialog boxes with user input) in ModelBuilder. The models will cover a variety of functions, including iteration, batch operations, process models, and branching. Students will also learn how to add Python Scripts to ModelBuilder. This is a practical, hands-on course designed to increase your productivity, making both analysis and basic tasks more efficient.

Topics include: Understanding the ArcGIS Geoprocessing Environment; Defining ModelBuilder; ModelBuilder Properties and Environments; The ModelBuilder Interface; Creating Models; Special Tools for ModelBuilder; Creating Tools from Models; Adding Python Scripts to Models; Iteration in Models; In-line variable substitution; Using ModelBuilder for Analysis; Exporting and Sharing Models; Creating Documentation for Models.

Using Spatial Analyst for ArcGIS, 2 days. This course introduces participants to the Spatial Analyst extension by working through several projects. The first project illustrates basic raster functionality by locating the best site for a solar installation. The second project demonstrates more advanced analysis by determining wildland fire hazard zones. A third project explores the process of analyzing water tables and the impact of irrigation, providing an opportunity to look at the Hydrology sample provided for ArcGIS. The final projects combine the skills learned in earlier projects to locate sites for elephant conservation zones in Kenya and to do least-cost path analysis to find the best corridor between an elephant herd and a reserve area.



Topics include: Understanding Raster GIS; Interpolating surfaces; Using DEM elevation files; Using Map Algebra for spatial analysis; Using the Raster Calculator; Cost Distance Analysis; Analysis properties and commands; Distance, Viewshed and Proximity Grids; Using GRID commands; Hydrology in ArcGIS; Site Suitability Analysis; Least-cost Path and Corridor analysis.

For more information on these courses please contact John Schaeffer at john@junipergis.com.

ArcGIS for Environmental Analysis at Southern African Wildlife College - October 20-24

This course will be held at the [South Africa Wildlife College](#) located inside the western boundary of Kruger National Park. The college has en suite twin student rooms with a study area and bathroom, as well as a cafeteria and food service areas and a bushpub for relaxing. It may be possible to arrange some guided nature walks or safari drives in Kruger National Park.

The college is about 4.5 hours driving from Pretoria (380 km), and the closest airport is Kruger International airport. If you can fly into Kruger International airport, we will try to arrange ground transportation. You should plan to arrive at the college Sunday, October 19 mid or late afternoon if you are staying there. We will have a get-acquainted function that evening and help load software and data if you want to use your own laptop. We will wrap up the course around mid-afternoon on October 24 for people who need to travel that evening. The class will start each morning at 8:30.



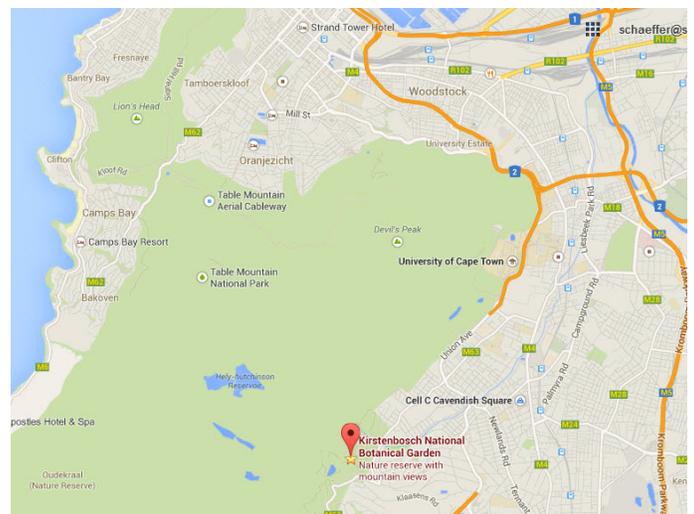
Lodging and meals are available at the college for an additional fee, which we will collect when you make the payment for the course. For the 5 days, the cost of a shared room and meals, from Sunday evening until lunch on Friday, is R2475 or \$225 USD. For a single room, if available, the cost would be an additional R275 or \$25 USD. Additional nights and meals could be arranged and any additional costs would be paid on-site.

We will be teaching in a lab with ArcGIS 10.x software. If you do want to bring your own laptop we can provide an evaluation copy of ArcGIS 10.2.1, or if you already have ArcGIS installed on your laptop, there should be no problem if you have either 10.0 or 10.1, with an ArcView\Desktop Basic license and Spatial Analyst for the ArcGIS for Environmental Analysis class. For more information on computer requirements, see the information for the Cape Town classes.

Cape Town Courses - ArcGIS for Environmental Analysis November 10-14 and Advanced Topics for ArcGIS, November 17-21

The classes at Cape Town will be at the [Kirstenbosch National Botanical Garden](#), which lies in the heart of the Cape Floristic Region, also known as the Cape Floral Kingdom. In 2004 the Cape Floristic Region, including Kirstenbosch, was declared a UNESCO World Heritage. It is the first botanic garden in the world to be included within a natural World Heritage Site.

Kirstenbosch is a land mark in Cape Town, so getting to the gardens will be easy because it is well sign posted. Public transport to Kirstenbosch is limited; there are some buses that go there on a scheduled route from the city centre and Mowbray. It may be easier to either hire a car or use either a taxi cab or a shared taxi from Claremont. When people start registering and we know where people are staying, we should be able to help coordinate transportation.



We will also arrange for lunch at Kirstenbosch during the classes for a reasonable fee. Students will be responsible for meals, lodging, and transportation. There are some lodging options nearby.

Moss Cottage: <http://www.capetown-southafrica.co.za/moss.php>
Fern Cottage: <http://www.safarinow.com/go/FernCottageNewlands/>
Drey Lodge: <http://www.sa-venues.com/visit/dreylodge/>
Pincushion: <http://www.sa-venues.com/visit/thepincushion/>

Computer Requirements

You will need to bring your own laptop for the Cape Town classes. The classes will be taught using ArcGIS 10.2.1. If you already have ArcGIS installed on your laptop, there should be no problem if you have either 10.0 or 10.1, with an ArcView\Desktop Basic license and Spatial Analyst for the first class – ArcGIS for Environmental Analysis. There are also some exercises using Excel, but any version of Excel 2000 or higher should work. If you are taking the second week – **Advanced Topics in ArcGIS** – you will need the ArcEditor\Desktop Standard license and Spatial Analyst.

We will provide evaluation copies of ArcGIS 10.2.1 ArcDesktop Standard and Spatial Analyst. If you want to get the software in advance, you can download an evaluation copy from ESRI at: <http://www.esri.com/software/arcgis/arcgis-for-desktop/free-trial>. We will organize a software loading party the Sunday before class, but if you can get the software installed in advance, that will be best.

Students will need a computer with Window's XP with Service pack 3, or Window's 7 or 8, with at least 2GB of ram, a CPU speed of 2.2 GHz, and an Intel Premium 4 or higher processor. Mac laptops running a Window's emulator should work OK. You will also need .NET Framework 3.5 SP1 or higher installed, which will be standard for most Windows' computers running XP. We can install this if needed. For more details on computer specifications see: <http://www.esri.com/software/arcgis/arcgis-for-desktop/system-requirements>. The data will take about 800mb and if we install ArcGIS, we will need about 4gb to copy the install program over to your computer. Please plan on plugging in your laptop as the process can take up to an hour.

We recommend that your laptop has a 12" or larger screen. With some of the small "notebook" computers, you cannot see the entire dialog box for some operations, including a critical one for installing ArcGIS and if that is the case, we may not be able to install ArcGIS. We also recommend using a mouse because ArcGIS requires significant interaction with the screen, much more than doing word processing or spreadsheets and even if you are an expert with the laptop's thumb pad, you will find a mouse much more efficient.

Payment and Registration

If you wish to register for the course from outside South Africa or to pay by credit card, see the Juniper GIS website <http://www.junipergis.com/training/registration/> for the registration form or contact Patti Bailey at patti@junipergis.com. We can accept payment with Visa, MasterCard or bank transfer. Because of currency fluctuations and fees, if you are paying by credit card from South Africa, the rates will be slightly higher. The rate for one week will be R3850 or US \$350, for two weeks it will be R6930 or US \$630, shared lodging at SAWC will be R2750 or US \$250, and for single lodging R3025 or US \$275. We require a 50% non-refundable down payment to hold your space, with the full amount due September 15 for the class at Southern African Wildlife College, and October 1 for the classes in Cape Town.

If you are interested in the class at Southern African Wildlife College, and plan to register and pay in Rand, or have questions about the facilities or travel, download the registration form and then please contact Mervyn Lötter at mervyn.lotter@gmail.com.

If you are interested in the classes at Cape Town, and plan to pay in Rand, download the registration form and then please contact Fahiema Fahiema Daniels at F.Daniels@sanbi.org.za.