

ES492/592 GIS Applications - Final Study Guide

Study Tips

- Read all chapters in book, study figures and tables, compare chapters to notes
- Use study guide as a check list for knowing key terms, key concepts, key skills
- Go back through the class / lab exercises, make sure you can do the math work
- Go back through the key skills emphasized in the tutorials, make sure you know the software skills
- I would study for a minimum of 10-12 hours if I wanted to do well on this exam.
- create a 1 page sheet of key ArcView commands - bring to exam
- bring a calculator to the exam.

Key Words and Skills Since Midterm

GTKAV Ch. 18

polygon classification
selecting features
finding feature

GTKAV Ch. 19

finding features by intersection
finding polygons by intersection

GTKAV Ch. 20

joining table attributes
spatial join
query builder
query method

GTKAV Ch. 21

chart creation
table tool
histogram
chart layout
chart query
chart edit

GTKAV Ch. 22

map layout
layout template
charts to layouts
views to layouts
graphics and text features

GTKAV Ch. 23

creating shape files
heads-up digitizing
convert to shape file

polygon tool
split polygon tool
complete polygon tool
shape editing
adding points to shapes
adding polygons to shapes
adding lines to shapes
saving edits to shapes

GTKAV Ch. 24

editing shapes
vertex
node
shape split
shape merge
split tool
digitizing polygons
digitizing polylines
vertex editing

Spatial Analyst

raster data
grid themes
legend editor
spatial analyst extension
DEM
elevation grid
inquire tool
cell value
Grid Data Source
color ramp
hillshade
theme - convert to grid
surface-derive slope
surface - compute hillshade
surface - create contours

file-manage data sources
theme-convert to shape file
query builder for grids
classify legend
Analysis- Calculate density
from point file
grid interpolation
creat contours from grid theme

Image Analyst

image analyst extension
add theme - image data
add theme-image analysis data
legend editor
histogram stretch
legend editor - infrared
seed tool - pixel identification
seed tool - polygon delineation
align tool
control points
image rectification
RMS of control points
legend editor - band 1,2,3
color bands
zoom to image resolution
Image analysis-mosaic
photo mosaicking
Mr. Sid
Digital Orthophoto Quad

Attribute Data Management

attribute database
*.dbf file
table editing
table-start editing
add field
table link
table join
attribute data calculation
field calculator

Geoprocessing

geoprocessing wizard
geoprocessing of shape files
merge
clip
dissolve
intersect
union
clipping functions
merging shape files
polygon editing
splitting polygons
merging polygons
polygon islands

Data Display

legend editor
map classification
polygon labels
text labels
label tools
labeling map feature from dbase

Data Exploration

Table tool
chart tool
drawing tool (points, lines, circles, etc.)
select features via table

select features via view
clear feature selection
query builder
logical query expressions
grid query
grid map calculator
grid map query tool

Map Algebra

grid map algebra
matrix algebra
map calculator - evaluate
algebraic transformation of grid

Terrain Mapping

DEM
DTM
surface - create contour map
surface - create hillshade map
surface - create slope map
surface-create aspect map

Avenue Scripting (e.g. spatial interpolation)

Avenue Script Tool
*.ave file
load text file
compile script
run script
grid interpolation of point data
spatial interpolation
output grid
input grid
trend analysis

KEY MIDTERM CONCEPTS THAT WILL BE REVISITED

map projection
georeference system
vector-raster representation
using the query tool
legend editor
printing layouts

metadata
working with polygons, lines
adding image data sources
UTM
state plane
Custom Lamber
projection utility
USGS DEM
raster grid to a vector polygon
vector polygon to a raster grid
use the measure tool

Key Software / Analytical Skills

Can you work with the following extensions?

spatial analyst, image analyst, 3D analyst, projection utility, geoprocessing wizard

do you know the basic functions of these extensions, the types of data they are used with, the types of analytical procedures that can be performed with them?

Can you create a nice looking map in layout and print it out?

Can you project and reproject data?

Can you incorporate raster and vector data in a GIS exercise?

Can you perform a slope analysis using spatial analyst?

Can you create a hillshading model using spatial analyst?

Can you create vector and raster-based queries to identify select areas on a map?

Can you add data to a table using the table editor?

Can you compile and run an avenue script?

Can you use the geoprocessing wizard to clip, dissolve, merge data?

Can you find and download gis data from web sites, convert and decompress the data?

Can you use the editing tools to create and edit polygons?

Can you employ heads-up digitizing to create your own shape files? Can you use image analyst to mosaic air photos?

Can you use a photo / image base and create a shape file via digitizing?

Do you know what the following files / data types are: *.e00, *.shp, *.grd, Mr. Sid, *.tif, *.jpg, *.tfw, *.sdw, *.zip, *.tar.z, DOQ, DRG, DEM

Can you download and import a USGS DEM into an arcview / spatial analyst grid format?

Anticipate: 2-3 essay questions focusing on broad summaries of GIS, the types of applications it may be used for, the components of ArcView specifically.

GOAL OF FINAL EXAM: To test your ability to use ArcView as a tool to ask questions of spatial data.