MAPS GIS

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Crime and Substance Abuse: A Correlation Study

Before you begin using this module, you will need to know about using a Web-based GIS viewer. You can do this by watching the tutorial video or working through the tutorial. The tutorial video, student activity, and Web-based GIS Tutorial Viewer can be found at http://gis.lanecc.edu → "Modules" tab → "Tutorial" link. The activity works best with a high speed Internet connection.

Prior Skills: You will need to know how to turn layers on and off, use the ID tool and, zoom in and out of the map, toggle from layers to the legend, and perform a search (Boolean) query.

Remember**,** computer steps are indicated by a ► symbol and questions you need to answer are numbered.

► **Open the Maps-GIS Crime- Drugs- Alcohol viewer: at http://gis.lanecc.edu → Modules → Crime Correlation**

The Web site opens to a map showing the number of <u>property crimes in cities</u> large that 30,000 in 2004. These are the circle symbols. It also shows <u>violent crime by stat</u>e in 2004.

► Turn on the legend to see what the symbols and colors mean.

► Use the identify key and name a city which is in the lowest property crime range.

1. Now name a city which is in the highest property crime range.

► Go back to the Layer menu and make violent crime by city visible. This data layer is under the property crime layer and some of the information is covered.

2. Can you find a city where the violent crime rate is higher than the property crime rate? (hint: zoom in to the northeast or southwest)

Use the Query tool to look for a relationship between property crime and hate crimes

► Make sure Property crime by city is active and visible

► Click on the Query tool and fill in the following

Field	Operator	Sample Values	And	Or
hc_total	>	20	Not	( )

Add to Query String   hc_total > 20

Execute   Undo   Clear

3. The city with more than 20 hate crimes will be highlighted in blue. Is there a correlation between these selected cities and the large circle high-crime cities?

4. Look at the table below. Which city is listed as number 1? This is only related to it FID numbers not the number of crimes.

▶ Turn off the city data layers and make the first "% of marijuana use" in the layer list visible and active, "Refresh the Map"

5. Which state has the highest percentage of marijuana use for people 18 to 25?
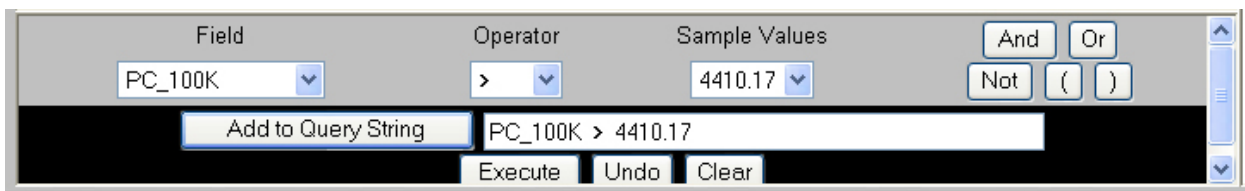▶ Make the second "% marijuana use" visible and uncheck the first one, "Refresh the Map"

6. What state has the highest % of marijuana abuse for people older than 25?

8. In what states is the highest percentage of Property Crime (2004)?

Let's examine the patterns of drug use and property crime at the state level.

▶ Make "State Property Crime 2004" visible and active. It appears at the bottom of the layer list.
▶ Turn off all other layers above it on the layers list. And Refresh the Map
▶ Turn on the Legend
▶ Click on the Query tool
▶ In the Field Menu choose PC_100K. For Sample value choose 441017
▶ Operator >
▶ Add to Query String then Execute

Field	Operator	Sample Values	And	Or
PC_100K	>	4410.17	Not	( )

Add to Query String   PC_100K > 4410.17

Execute   Undo   Clear

9. How many states are in the highest range for Property Crime?

10. Use the "Identify" tool to name them

Using the "Query:" tool, you are going to focus on these states and set up a series of queries (questions) to look at relationships between property crime and other data layers.

First let's look at population.
▶ Click on Query again and choose Field as Pop 2004 and Sample Value 10203863
▶ Operator > then Add String to Query and Execute

The states which "fit" your query will be highlighted in blue.

11. How many of the highlighted states are in your list of highest range for property crime?

12. Do you think population is strongly correlated or related to property crime? Why or Why not?

Now lest look at the various drug categories.
- Click on Query again
- Set Field to Pop MJ12_17 (Marijuana use reported by 12 t o17 yr olds) → set Sample Value to 16
- Set Operator to > → Add String to Query → Execute

13. How many states have a high incidence of 12-17 yr olds using marijuana and which are also in your top range of property crime?

- Try another query: Field MJ18_25, operator >, Value 32. Then add string to query and execute.

14. How many states have a high incidence of 18-25 yr olds using marijuana and which are also in your top range of property crime?

- Try another query: Field C18_25, operator >, Value 7. Then add string to query and execute.

15. How many states have a high incidence of 18-25 yr olds using cocaine and which are also in your top range of property crime?

- Try another query: Field to AL18_25, operator to >, value to 64. Then add string to query and execute.

16. How many states have a high incidence of 18-25 yr olds using alcohol and which are also in your top range of property crime?

Finally let's run through some research using "State Violent Crime 2004" as the background layer.
- Go back to the layer menu
- Make "State Violent Crime 2004" visible and active. Remember you are looking at the state level data which is at the bottom of the layers list.
- Make sure "State Property Crime 2004" in no longer visible or active.
- "Refresh the Map"

First determine how many states are in the highest Violent Crime Range
- Click Query
- Set Field to VC_100K (Violent Crime 2004, near the bottom), Sample value to 568.43, operator >.
- Then add string to query and execute.

17. How many are there and what are their names?

Evaluate population and violent crime
- Field Pop 2004 ,Operator >, Sample Value 10203863. Then add string to query and execute.

18. What is the relationship between violent crime and population?

Evaluate marijuana use in 18_25 year olds
▶ Field MJ18_25, operator >, Value 32. Then add string to query and execute.

19. What is the relationship between violent crime and marijuana use by 18 to 25 yr olds?

Evaluate alcohol use in 18_25 year olds
▶ Field AL18_25, operator >, Value 64. Then add string to query and execute.

20. What is the relationship between violent crime and alcohol use by 18 to 25 yr olds?

Evaluate Cocaine use in 18_25 year olds
▶ Field C18_25, operator >, Value 7. Then add string to query and execute.

21. What is the relationship between violent crime and cocaine use by 18 to 25 yr olds?

Now Change the scale and the focus of your data exploration.

▶ Zoom in on Oregon with the Zoom tool
▶ Make City Property Crime active and visible.
▶ Use the identify tool

22. List the cities in Oregon that are represented in this set of data?

23. Use both the violent and the property crime data layers and describe the types of information can you find about Oregon from MAPS/GIS at this time?

24. List five other layers of data you want or need to develop a better understanding of the relationship or lack of a relationship between crime and the abuse of drugs and alcohol?

    A. _____

    B. _____

    C. _____

    D. _____

    E. _____