

# Road Map to Success:

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Collaborating with faculty  
and students in a GIS  
initiative

# The Institution

- Established in 1889
- Joined Texas A&M System in 1996
- Student Enrollment 11,187 (Fall 2012)
- International Students Enrollment 832 inclusively (7.4%)
- Gee Library (under 1 million books, 190 databases, 9,222 maps, etc.)

# My Departments

**College of Science, Engineering & Agriculture**

**Agricultural Sciences**

**Biological & Environmental Sciences**

**Chemistry**

**Computer Science and Information Systems**

**Engineering & Technology**

**Mathematics**

**Physics & Astronomy**

# A Green Horn Librarian

- Old way of referencing is OLD
- New way of servicing your community is still in infancy
- Library marketing as an outreach tool
- Library resources
- Map collections
- Geographic Information System (GIS)?

# Power of GIS

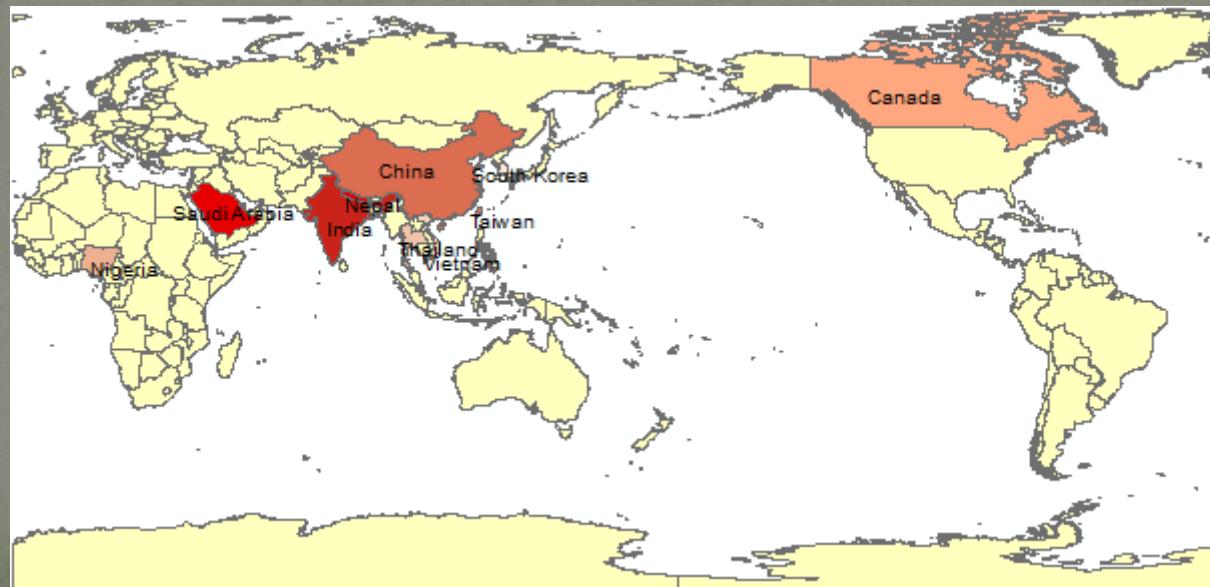
Table

countries

CNTRY_NAME	Shape_Area	'FALL 2011\$'.N	'FALL 2011\$'.NA	'FALL 2	Countries	Nmbr_of_Students	Per_Cntg
India	3453517387670	IN	India	287	India	287	0.4
Saudi Arabia	2153982842970	SA	Saudi Arabia	180	Saudi Arabia	180	0.25
Nepal	167710305533	NP	Nepal	74	Nepal	74	0.1
China	11780004994600	CH	China	40	China	40	0.055
Taiwan	39706637651.400002	TW	Taiwan	29	Taiwan	29	0.04
Thailand	534632006921	TH	Thailand	28	Thailand	28	0.038
Canada	20992409080400	CA	Canada	10	Canada	10	0.013
Nigeria	928009844012	NI	Nigeria	9	Nigeria	9	0.012
Vietnam	341475778040	VM	Vietnam	8	Vietnam	8	0.011
South Korea	121031401222	KS	South Korea	4	South Korea	4	0.005
Russia	26227600554000	RU	Russia	0	Russia	0	0.000

15 | 0 out of 252 Selected

countries



# A Moment of Enlightenment

- GIS application (STEM + Humanities)
- GIS use in every day life

# Further Research

- GIS use in universities
- TAMU's contract with the Environmental Systems Research Institute (ESRI)
- TAMU's GIS use initiative

# Problem Investigation

- A failed Geographic Information Systems, GIS initiative
- Failed analysis
  - ✓ Lack of GIS training
  - ✓ Underestimation of the task
  - ✓ Lack of faculty support

# Diving into GIS in a Big Way

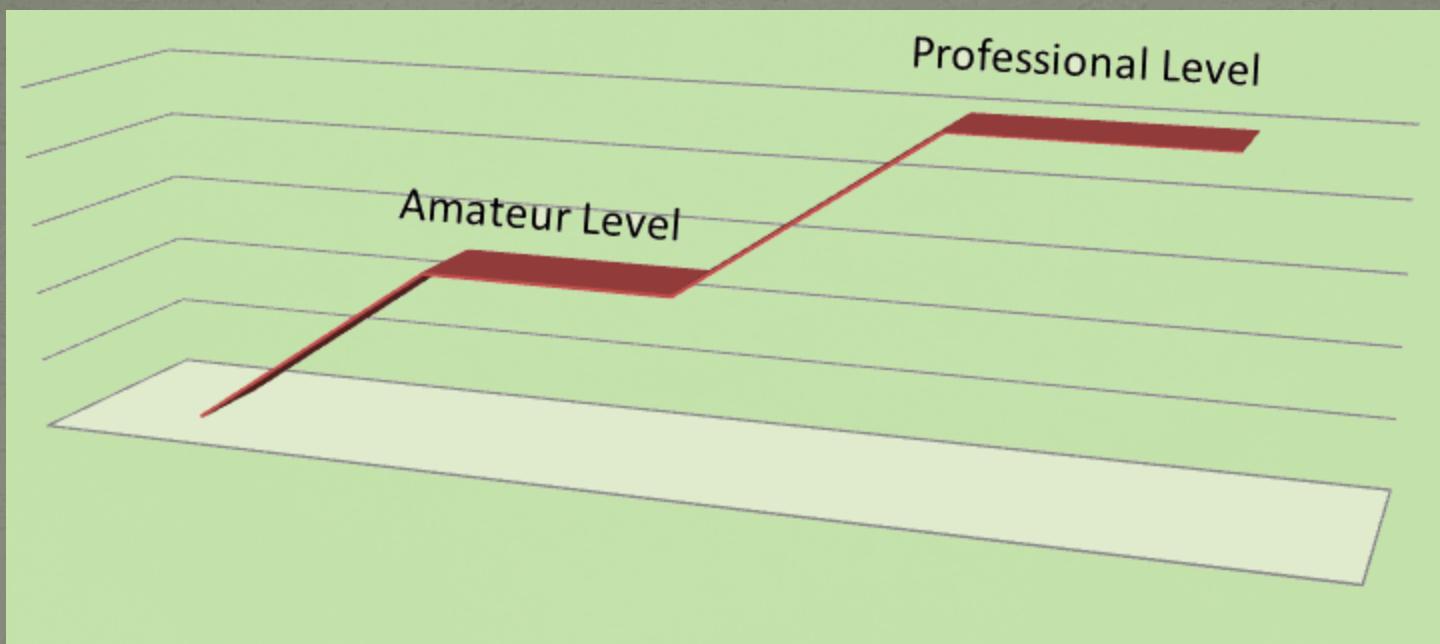
- Learning GIS

[Learning ArcGIS 3D Analyst](#) 1 of 7 lock

**Completed Courses**

Course Title	Completion Date	
<a href="#">Basics of Geographic Coordinate Systems (for ArcGIS 10)</a>	Jun 13, 2012	
<a href="#">Distance Analysis Using ArcGIS 10</a> Access expires: Sep 26, 2013	Oct 07, 2012	
<a href="#">Getting Started with GIS (for ArcGIS 10)</a>	Jun 30, 2012	
<a href="#">Learning ArcGIS Desktop (for ArcGIS 10)</a> Access expired: Apr 09, 2013 You can still access the free module of this course.	Jun 10, 2012	
<a href="#">The 15-Minute Map: Creating a Basic Map in ArcMap</a> Access expires: Sep 26, 2013	Oct 11, 2012	
<a href="#">Turning Data into Information Using ArcGIS 10</a>	Aug 05, 2012	

# Learning Curve



# Faculty Inquiries

- Avid users
- “Heard something”
- “I want it in my department!”
- “Heard nothing”

# Outreaching My Faculty

- Drinking fountain talks
- First results
  - ✓ Two interested faculty members
  - ✓ One Geospatial Mapping Instructor

# Organizing a GIS Club

- “GIS propaganda” at the campus
- First GIS meeting
- Eureka!
- GIS Club came to existence

# The Club

- Projects
- Team
- Schedule
- Library room
- From de facto to de jure

# First Success

- The Texas A&M University System 10<sup>th</sup> Annual PATHWAYS Student Research Symposium

# Poster Presentation

**TEXAS A&M UNIVERSITY COMMERCE**

## Using GIS for Visualization and Spatial Analysis of Data

Brooklyn Clark, Gwen Eishen, and Chris Galusha,  
Advisors: John Atabae, Frannie Miller and Amanda Turley  
Texas A&M University-Commerce, Commerce, Texas

**TEXAS A&M UNIVERSITY COMMERCE**

**ABSTRACT**

Texas A&M University - Commerce has formed a Geographic Information Systems (GIS) club. The focus of the club is centered around learning to use GIS technology to analyze and display spatial information. The club has the additional goal of providing a service to area entrepreneurs who have a data analysis need. The TAMUC GIS club is currently working on such a project. The research question has been to identify potential demand for steam-flaked milo based on the number and size of dairy and beef farms within a radius of the grain mill in Paris, TX. Displaying the information in different ways on maps demonstrates how the display of spatial information can affect the ease of understanding spatial-based information.

**MATERIALS & METHODS**

Data was collected from the U.S. Census site for county boundaries and for the city of Paris, Texas. A 100 mile buffer from Paris, Texas was used to identify counties for inclusion in the study. The counties within the buffer were located in three states; Arkansas, Oklahoma and Texas. Data on beef and dairy farms from the 2007 census was obtained from the USDA National Agricultural Statistics Service for these counties. This data was formatted in excel and then incorporated into GIS for spatial analysis purposes. The data was then analyzed by students utilizing various approaches and symbology types. This allows for comparison of data representation methods.

**RESULTS**

Map displaying total number of beef cattle per county using graduated symbols to allow for comparison of potential cattle consumers per county in one visualization.—Map courtesy of Gwen Eishen

Comparison of graduated symbols versus dot morphology of total cattle head per county. The data represents each state in the difference between the visual effects of each map. The map on the left uses graduated symbols to represent the number of cattle while the map on the right uses dot morphology where a dot represents 384 cattle head; along with a color symbology to represent the three states they originate from. Some counties have no few cattle head that they are not represented by the dot density graph whereas they are represented on the graduate symbol map. —Maps courtesy of Chris Galusha

The map above compares two different dot densities to see what number of dairy cattle are present in each county. The map on the left uses dots to represent the percentage of farms of each size per county. The county characters are color coded to represent the total number of dairy per county. The map on the right represents the same data but utilizes dot density to represent the number of farms of each size. —Maps courtesy of Gwen Eishen

Map on the left demonstrates the percentage of farms with a certain range of herd size using pie charts. —Map Courtesy of Gwen Eishen. The map on the right demonstrates the number of herds per each range of herd size utilizing bar graphs. —Map Courtesy of Brooklyn Clark

This research focuses on the economic effects of undocumented Mexican immigrant workers in Southern Plains agriculture; more specifically, this research seeks to answer the often-asked question of whether these workers are filling a gap in the labor market or taking jobs from native workers (whether they are acting as complements or substitutes, respectively). This research examines production levels for the years 1990-2011, and calculates elasticity values to determine if production levels are inversely or directly proportional to the level of undocumented immigrants present. The results thus far show that almost 10% of the time, the values are positive, which suggests that the undocumented Mexican workers in Southern Plains agriculture primarily serve as complements. Filling a gap in the labor market.

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# Presenting the Project



# Results

- Getting first presentation experience
- Making new connections
- Learning from others
- A great addition to the resume

# Conclusion

- Analyze the problem (who, what, when, etc.)
- Make corrections
- Get faculty and students on your side by explaining the idea
- Start a new project