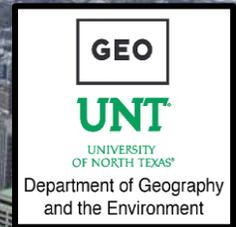


Revised Version – Adjusting our Class Sequence to Help with the KFC Semester Project



GEOG 4230 LOCATION INTELLIGENCE: BUSINESS GIS

Spring, 2020 ▪ Tuesday/Thursday 2:00 – 3:20 PM ▪ ENV 340

Why should you take this course?

You will benefit from this course because a broad knowledge of many application areas and an ability to use multiple analytical tools gives you a wide range of career opportunities. Business geographers have been providing for the analytical needs of retail business for several decades, but store and market area analytics are not an end point for geographic application.

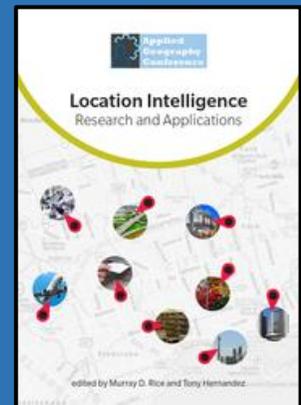
The emerging term of “location intelligence” recognizes the multiple application areas across the economy, but also beyond. Public sector departments and agencies (like FEMA and TXDOT) and nonprofit organizations (like American Red Cross and American Heart Association) also draw direct benefit from recognizing the power of geographic concepts and analysis. By taking this course, you can add a breadth of understanding and application that increases your career development options.

Instructor: Dr. Murray Rice
Office: ENV 310G
Classroom: ENV 190
Telephone: (940) 565-3861
Office Hours: Thu., 11:50 AM to 1:50 PM
My E-Mail: rice@unt.edu
My Website: www.murrayrice.com

Class Directory (for GIS lab materials): R-Drive “Class” directory, “4230” subdirectory (accessible on computers in CSAM lab rooms)

What you’ll need for this course:

- The course text (we’ll discuss in class)



- Weekly ability to access the course website for the resources posted there
- Time management skills
- A willingness to work and learn



Class Web Site:
<http://www.murrayrice.com/geog-4230.html>

What should you be able to do by the end of this course?

- Define the fundamental concept of “business geography” as a field that exists to support improved business decision making
- Understand the need for the emerging “location intelligence” field as a broadened application area for geography to contribute to business, government, and non-profit operational decision making
- Appreciate the basic structure and use of
 - Caliper’s **Maptitude** Geographic Information System (GIS) package,
 - The **Alteryx** broad-based and flexible analytical environment, and
 - Esri’s **Business Analyst Web** cloud GIS
- Ability to engage in intelligent discussion about the fundamental properties and applications of GIS technology
- Understand the basics of the relationship of GIS applications to foundational concepts in urban/economic geography and the powerful field of data science
- Familiarity with the role played by location in a series of discrete application areas, including
 - Urban/Economic Analysis for Business,
 - Transportation and Logistics,
 - Real Estate Location Analysis,
 - Insurance, and
 - Marketing
- Ability to apply good judgment to the selection & design of appropriate maps for specific applications & problem types



How can you succeed in this course?

In addition to the many grade-earning opportunities that await you this semester, your success in this class will be determined by **how well you manage your time** and **how engaged you are with the class** activities.

More specifically:



Show up to class and be on time. If you get to class within 10 minutes of the class start time, you'll avoid being considered late. Even more importantly, you will miss little to none of the great subject matter we're exploring in class that day. I always look forward to seeing you in class! However, if something like a family emergency or a lost dog prevent you from attending, if possible, please send me an email ahead of time so I know not to expect you.



Know the class schedule! Half of the problems people have in classes like this one come from not realizing what's coming up. Please track what's happening in each class and week of classes beforehand. Knowing what is due in class and what is expected that week will help you get the most out of your education investment. One more hint: looking ahead through the entire semester's schedule can help you identify coming weeks that are really heavy. This gives you a chance to get an early start on work for those tough weeks.

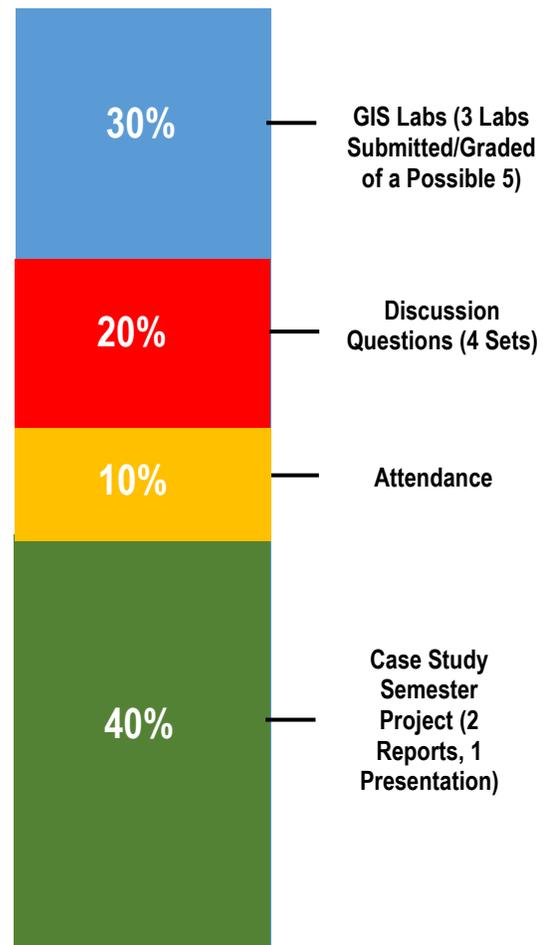


Do the weekly reading Each class will typically involve some sort of reading beforehand that will often relate to something we will do in class that day. I will always assume you have done that reading and are ready to use that knowledge in class.



Contact me when problems come up I want to hear from you when you have questions or issues with class. I especially want to talk with you if you feel like you're getting behind and things are falling out of control. You can succeed here! I am here to help.

Overall Grades Summary



See the detailed course grade listing on the next page for more information.

Detailed Course Grading Listing: It is not essential to pass any particular exam, lab, or project to pass the course, but relative success in each will impact your final grade.

GIS Labs:	Five GIS Lab Weeks (best 3 x 10%)	30%
Discussion Questions	Four Sets Submitted (see schedule; 4 x 5%)	20%
Attendance	Attendance and Class Participation	10%
Semester Applied Project:	First Phase: Proposal Storyboard (week 8)	10%
	Second Phase: Final Written Report (week 14)	15%
	Second Phase: Oral Presentation (week 14)	15%

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at 940.565.4323.

Course Text: The required textbook for this course is Murray D. Rice and Tony Hernandez (2017) *Location Intelligence Research and Applications* (Applied Geography Conference), ISBN: 978-0-991-19751-4 (free book download, details provided in class). An optional textbook that provides supplementary information on some of the course topics is Richard L. Church and Alan T. Murray (2009) *Business Site Selection, Location Analysis, and GIS* (Wiley), ISBN: 978-0-470-19106-4. Other secondary readings are required and listed by week in the schedule portion of this syllabus. Details on access to all readings will be announced in class. The course's "Further Reading" page gives a good start on accessing a wide variety of resources related to the course (see <http://www.murrayrice.com/li-further-reading>).

Late Policy: Anything handed in late will be subject to an immediate 10% penalty. Late work will not be accepted after graded work has been handed back to the class. Graded work is usually returned to the class one week after the due date. I will grant exceptions to the above if you provide documentation substantiating a valid personal emergency.

- *Please note:* it is your responsibility to come to me with an explanation if a personal emergency prevents you from handing in an exercise on time.

Attendance: I encourage full attendance since the in-class experience is a crucial component of learning in this course..

Extra Credit: The Department of Geography does not allow extra credit assignments (work not specified on a course syllabus).

Semester Applied Project: The class will be asked to form groups of 2-3 students to complete a project consisting of a *proposal storyboard*, a *final report*, and an *oral presentation* on an applied, location intelligence problem (more on each of these elements in class). To succeed, you will need to think of this as not just another “term project”, but as a report that you are producing for an actual business client – because that is exactly what you will be doing. The project problem is an actual issue that a real business is encountering, and you get to help them solve it. Everything you write and present should indicate that you have put your best effort forward.

Your project will focus on an applied case study problem involving business geography analysis and assessment. Please consider the following points as you plan your project.

The term project for this class is a complete geographic analysis and assessment for a real-world business that will be introduced during the first week of classes this semester. Industry contacts will meet with the class early in the semester and periodically thereafter to help to introduce the case study, define the project parameters, and provide general insight into the project problem and situation.

The focus of the case study will be a specific business that is a client in need of geographic analysis and advice to guide their future plans. You will be filling the role of a location intelligence analyst in completing your project work. This project will give you an excellent introduction to the connection between geography and real-world business problems through this project. Because you are working with an actual business, you will have an abundance of real-world information about the business that you will need to consider in combination with the concepts and methods we are learning in this class.

The project includes a proposal storyboard, final report, and final presentation.

1. The *first phase proposal storyboard* focuses on an initial environmental scan of the project problem, concentrating on formulation of a plan to complete the project work.
2. The *second phase final report* will focus on crafting understandable research findings and actionable recommendations for the project client.
3. The *second phase oral presentation* will provide a high level overview of your findings and recommendations and provide an opportunity for discussion of your report.

To succeed in this project, you will need to think carefully about the role you are playing in this case study, the case study business itself, its locations and its markets. A few questions to consider: What are the business and your industry contacts trying to accomplish – and following from that, what are you really trying to accomplish in your analysis? Where is the case study business currently located? What geographic factors contribute to success for this business? Who are its customers? Where are they located? Who are the business’ key competitors? Where are they located? How is this competitive situation changing over time?

Last thought: the focus of your report should be on geography and the analytical considerations the case study business needs to make related to locations and markets. You will find that the skills you gain using *Maptitude*, *Business Analyst Web*, and *Alteryx* can also play a role in completing your case study analysis.

It is important that you begin planning and working on your project immediately: you will find you need the entire semester to complete the project.

Components of the Semester Applied Project

1. First Phase Proposal Storyboard (due on the Thursday of week 8): a concise, focused outline of your plans for completing the project. Key elements here include:

- Definition of the **project focus** in your own words, including a concise statement of the specific problem(s) to be solved and who the problem is to be solved for (the client).
- Specification of **the overall plan** you propose to follow to solve the project problem.
- This plan needs to include:
 - Discussion of the **GIS methods** that form the core of your analytical approach to the project problem
 - Listing of the **data sources** and any other resources you have identified that you will need in completing the project analysis.
- **Note:** this proposal storyboard does not include any analytical results. Your entire work here should focus on creating a plan for you to carry out for the two elements below.

2. Second Phase Final Project Presentation (to occur in week 14): an oral presentation to the class of your completed project findings and analysis. Key elements here include evaluation in two dimensions:

- **Specific Presentation Content:** research problem to be solved, significance of the problem, research findings, linkage of findings to client needs, clear connection to the business GIS focus of the course, and actionable recommendations.
- **Overall Presentation Quality:** organization, speaking style, Powerpoint/visuals usage, and ability to hold interest and engage audience.

3. Second Phase Final Project Report (due on the Tuesday in week 14): a written report that provides detail on your completed project findings and analysis. Key elements here also include evaluation in two dimensions:

- **Specific Report Content:** introduction, research question statement, discussion of analytical choices made, explanation of research findings, linkage of findings to client needs, and conclusion that provides overall evaluation and summary of the research completed.
- **Overall Report Quality:** source citations, writing, graphics, and quality of organization of the report as a whole.

**Semester Project Sponsor
for Spring 2020**



Who is your professor?

■ Dr. Murray Rice

- Professor, UNT Geography and the Environment
- Bachelor of Science in Engineering Physics
- MA and PhD, Urban/Economic Geography
- Before coming to UNT: 10 years of consulting practice with Altavision Geographics, a geographic analysis consulting firm
- Following that consulting decade, I am now in my 15th year of teaching at UNT

- I grew up in Ottawa, Canada's capital city
 - So yes, I am a proud Canadian



- I also spent part of my growing-up years in the beautiful city of Boston



■ Other miscellaneous facts...

- I am a Christian, and always up for a good conversation about all matters related to faith and belief
- I have traveled to three continents so far (North America, Europe, and Asia)
- I am a fan of the Ottawa Senators (NHL), Saskatchewan Roughriders (CFL), Boston Red Sox (MLB), and Seattle Seahawks (NFL)

Four Ground Rules

- 1. Do your work
- 2. Come to learn
- 3. Participate
- 4. Consider others

Come Prepared

Right Attitude

Be Engaged

The "Golden Rule"

My goal here is to serve your needs well.

"I did not come to be served, but to serve"

No matter why you are here, what your major is, or anything else about who you are, welcome.

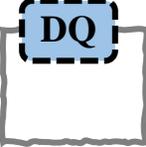
I am glad you are in this class.





What are we doing in this course?

Here is our schedule of topics and learning activities for the semester. Please note that all weeks where something important is happening or due (a GIS Lab, a Discussion Question set, or a project report or presentation) is highlighted in a visible way.

 = DQ Due
  = GIS Lab Work Session
  = Key Project Element
  = GIS Lab Due

Readings: the readings for each week come from the required Rice and Hernandez (2017) textbook, plus more readings accessible through the course website (details on access to these readings will be provided the first day of class). Readings from the optional Church and Murray (2009) textbook are identified by *[text that is italicized and delimited by square brackets]*.

- Also, please note that through the semester I will work to schedule guest speakers from our semester project partners at KFC, and our local business geography practitioner community. Most of these talks are not represented in the schedule here, but I will update you during the semester as I make these arrangements. I anticipate you will find these external contacts to be a valuable part of your course experience.

PART 1 – INTRODUCTION: GEOGRAPHY AND BUSINESS DECISION-MAKING

Week 1 (Jan 14, 16)

Need Filled by This Course

This course fills a specific but important gap in business practice

Focus: application of geographic ideas and methods

People have known that geographic ideas have useful applications for centuries

Issue: hard to implement these applications without technology

Location Intelligence: Motivation and Fundamentals

Rice and Hernandez (2017) Chapter 1 “Location Intelligence as an Evolving Field”; *[Church and Murray (2009) Chapter 1 “Introduction”]*; See all week 1 resources on the course website’s “Syllabus and Handouts” page

- Introduction to course goals and context for location intelligence expertise in society
- Meaning of the “location intelligence” and “business geography” terms
- Discussion of GIS applications in a business context

PART 2 – CONCEPTUAL FOUNDATIONS OF BUSINESS GEOGRAPHIC ANALYSIS

DQ WEEK 2

Week 2 (Jan 21, 23)

Why Urban/Economic Geography?

- In this class, the primary focus of our thinking and analysis will be on the convergence of two key dimensions of human life
 - 1. Cities:** the dominant organizational form of modern society; the venue that encompasses the lives and activities of the majority of people alive today
 - 2. Economy:** the system of work and exchange that provides and distributes goods and services for human populations around the planet

Foundations: Urban/Economic Geography
 Rice and Hernandez (2017) Chapter 5 “Public Sector”; Rodrigue, Comtois, and Slack (2006) Chapter 3 “Economic and Spatial Structure of Transport Systems” and Chapter 7 “Urban Transportation”; See all week 2 resources on the “Syllabus and Handouts” page

Week 2 Discussion Question Set Due This Week (Tuesday)*

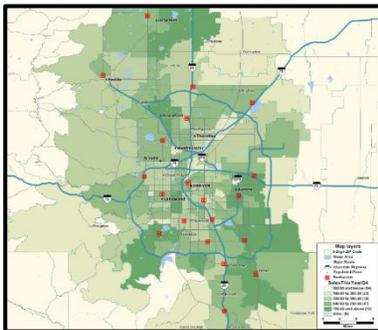
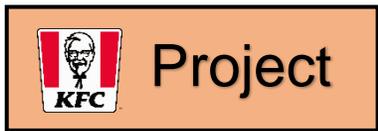
- Overview of selected foundational concepts in economic geography that support business geography practice
- Discussion of key urban concepts and how geographers conceptualize the city

* See the “Discussion Questions” section of this syllabus (beginning on page 16) for a complete listing of discussion questions for each week of the course.

GIS LAB #1 WORK: MULTI-LOCATION BUSINESS

PROJECT: Meeting

Week 3 (Jan 28, 30)



GIS Lab 1: GIS & Urban/Economic Analysis
 Reading: Caliper (2019) *Maptitude Brochure*.

- Consultation with KFC (Tuesday):** KFC’s analytical team will fly in to meet with us and provide insight into our semester project (please make every effort to attend & be ready to fully participate in the discussion)
- Hands-on Lab (Thursday):** restaurant performance assessment and analysis in Denver, Colorado
- Software Focus: Caliper Maptitude**
 - Specific Skills:** Market Area Definition and Buffer Analysis
- Note:** because this lab introduces foundational GIS and Maptitude skills, lab #1 must be completed and submitted, regardless of whether you intend to use this as one of your three labs counting toward your GIS lab grade

DQ WEEK 4

Week 4 (Feb 4, 6)

Depending on GIS Lab #1 progress in week 3, we might also set aside class time on Tuesday of this week to help you complete the lab. We will discuss in class.

Need for a Broad Data Discussion

- To go any further in developing a data-rich, location-aware perspective on business, we need to have a thorough understanding of data and issues associated with data use
- If we can't be confident about our data, we can't be confident about anything else we might do
- Q: what might be reasons to have a lack of confidence in our data?

**GIS MULTI-LOCATION
BUSINESS LAB DUE**

Foundations: Geography, Business, and Data Science

Longley et al. (2005) Chapter 12 "Data Quality"; [Church and Murray (2009) Chapter 2 "GIS"]; See all week 4 resources on the "Syllabus and Handouts" page

Week 4 Discussion Question Set Due This Week (Tuesday)

GIS Lab 1 (GIS and Multilocation Business Lab) Due This Week (Thursday)

- Business applications for data analysis
- Geography, business, and the contributions and meaning of data science
- Understanding and properly navigating through data quality and data acquisition issues

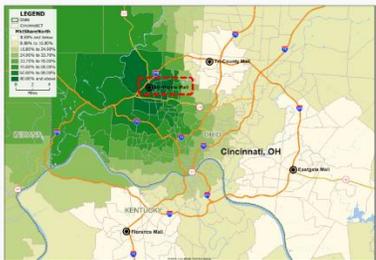
PART 3 – APPLICATION DOMAINS FOR GIS AND GEOANALYTICS

Week 5 (Feb 11, 13)

A Huff Model analysis of market share for the four major regional malls in the Cincinnati metropolitan region.

This map represents the market share by census tract for Northgate Mall.

Q: Are there features of the spatial market share pattern represented here that make good sense?



The Marketing Domain: Customer Analysis

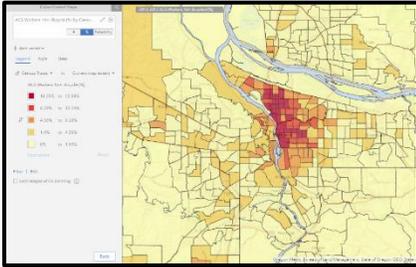
Esri (2011) *Tapestry Segmentation Reference* (1-12)*; See all week 7 resources on the "Syllabus and Handouts" page

GIS Lab 1 (GIS and Multi-Location Business) Due This Week (Thursday)

- General context for marketing application: management of uncertainty
- Market analysis application: The Huff Model
- Market analysis application: Geodemographic Segmentation

GIS LAB #5 WORK: MARKETING

Week 6 (Feb 18, 20)



GIS Lab 5: Marketing and Geodemographic Analytics

No reading for this week.

- *Hands-on Lab*: geodemographic targeting analysis in Portland, Oregon
- *Software Focus*: Esri Business Analyst Web App
 - *Specific Skills*: Market Assessment and Targeting Functions
- *Project (First Phase)*: General Discussion (Thursday)

DQ WEEK 7

Week 7 (Feb 25, 27)

Network Methodologies

We can identify a series of approaches to network, flow, and location analysis that can each be further explored to assist businesses in making sound operational decisions

1. Modeling a network as a graph
2. Location-allocation analytical choices
3. GIS and routing solutions

**GIS
MARKETING
LAB DUE**

The Transportation and Logistics Domain: Supply Chain and Spatial Analytics

Rice and Hernandez (2017) Section 2.3 “Transportation”; Rodrigue, Comtois, and Slack (2006) Chapter 2 “Transportation Systems and Networks”*; Longley et al. (2005) Chapter 59 “Transportation GIS: GIS-T”; [Church and Murray (2009) Chapter 9 “Coverage”]; See all week 9 resources on the “Syllabus and Handouts” page

Week 7 Discussion Question Set Due This Week (Tuesday)

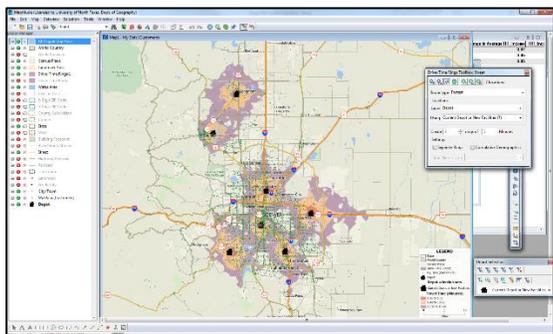
GIS Lab 5 (Marketing and Geodemographic Analysis) Due This Week (Thursday)

- The bases of spatial interaction
- JCPenney: A case study of the role of transportation and logistics in the modern corporation
- Modeling and analyzing transportation networks
- Further exploration of location-allocation methodological options
- GIS and transport routing

GIS LAB #2 WORK: TRANSPORT

PROJECT: 1st Phase

Week 8 (Mar 3, 5)



GIS Lab 2: Transportation Analysis

No reading for this week.

Semester Applied Project First Phase Proposal Storyboard Due This Week (Thursday)

- On Thursday this week, please submit:
 - A paper version and an electronic version of your proposal storyboard (please send the electronic version to rice@unt.edu)
- We will take class time on Thursday to give each person or project team five minutes to explain their storyboard

- *Hands-on Lab*: distribution center network location analysis for a non-store retailer in Denver, Colorado
- *Software Focus*: Caliper Maptitude
 - *Specific Skills*: Site Location and Logistical Analysis Functions

Mar 9-13

Spring Break: No Classes (Enjoy Your Week!)

DQ WEEK 9

Week 9 (Mar 17, 19)

Risk and Real Estate Decisions

- ▶ Real estate success depends on effective management of risk
 - ▶ Risk management: understanding the characteristics of every variable that could impact the success of a given development
 - ▶ There are no real estate guarantees, but solid risk management analysis helps to manage (minimize) the risk present

GIS
TRANSPORT
LAB DUE

The Real Estate Domain: Location and the Identification of Business Opportunity

Rice and Hernandez (2017) Chapter 2 “Services”; Esri (2012) *Improving Retail Performance with Location Analytics*.^{*} [Church and Murray (2009) Chapter 4 “Trade and Service Areas”]; See all week 5 resources on the “Syllabus and Handouts” page

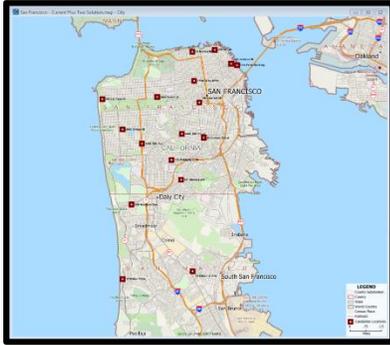
Week 9 Discussion Question Set Due This Week (Tuesday)

GIS Lab 2 (Transportation Analysis) Due This Week (Thursday)

- Why real estate market analysis? What is real estate market analysis?
- Risk and real estate decisions: the “big five” components of real estate

GIS LAB #3 WORK: REAL ESTATE LOCATION ANALYSIS

Week 10 (Mar 24-26)



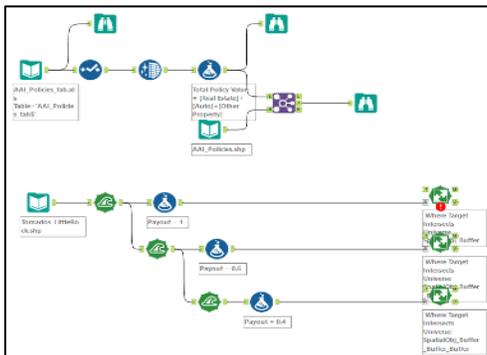
GIS Lab 3: Real Estate Location Analysis

No reading for this week.

- *Hands-on Lab:* pharmacy network real estate analysis in San Francisco, California
- *Software Focus:* Caliper Maptitude
 - *Specific Skills:* Facility Location Functions in a Real Estate Context

GIS LAB #4 WORK: REAL ESTATE/INSURANCE

Week 11 (Mar 31, Apr 2)



GIS Lab 4: Real Estate and Insurance

No reading for this week.

GIS Lab 3 (Real Estate Location Analysis) Due This Week (Thursday)

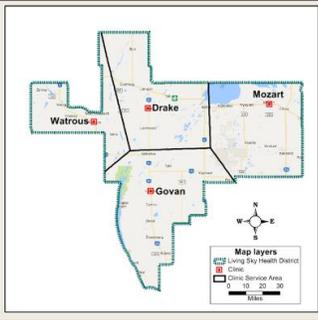
- *Hands-on Lab:* property insurance risk assessment in Little Rock, Arkansas
- *Software Focus:* Alteryx
 - *Specific Skills:* Data Mapping and Workflow Functions Applied to an Insurance Case Study

**GIS REAL ESTATE
LOCATION ANALYSIS
LAB DUE**

Week 12 (Apr 7, 9)

Location-Allocation Case Study Analysis: Canada's Living Sky Health District

We saw one partial example of this thinking in our transportation discussion, when we looked at the application of location-allocation methods to clinic location in the Living Sky Health District



The Healthcare Domain: Spatial Analysis of Health Needs and Medical Services

Rice and Hernandez (2017) Chapter 5 “Public Sector”; Longley et al. (2005) Chapter 66 “Health and Health Care Applications”

GIS Lab 4 (Real Estate and Insurance) Due This Week (Thursday)

- Spatial epidemiology and the incidence of disease
- Health care system planning in a spatial context
- Note: some flexible in-class project work time will be provided this week; details to be provided in class in March

**GIS REAL ESTATE &
INSURANCE LAB
DUE**

PART 4 – COURSE WRAP-UP: FINAL CONCEPTS AND PROJECT PRESENTATIONS

Week 13 (Apr 14, 16)

GIS and Business Location Analytics

- ▶ As we move toward the end of this course, I want us to take a step back to think about how we can do our job better as geographers
- ▶ *Basic idea:* we need to understand the nature of geography
 - ▶ 1. *As a Field of Investigation:* what questions is geography equipped to answer *uniquely well*?
 - ▶ 2. *As a Communications Tool:* when is geography uniquely equipped to communicate a *fundamental characteristic* of a situation?

GIS and Business Location Analytics

Longley et al. (2005) Chapter 51 “GIS for Business and Service Planning”* ; See all week 13 resources on the “Syllabus and Handouts” page

- Overall discussion of issues with GIS applications in business, including attention to the communication side of business GIS work
- Semester project consultation and work time

PROJECT: 2nd Phase Deliverables

Week 14 (Apr 21, 23)



Project Presentations

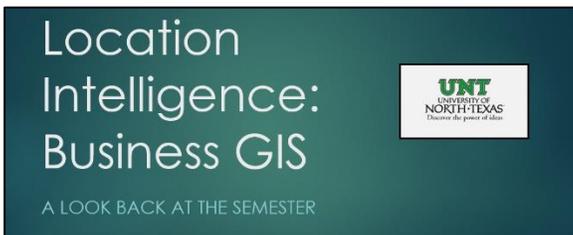
No reading this week

Written Report (Final) and Oral Presentations Due This Week

- Project presentations this week (no other activities planned)
- On Tuesday this week, please provide to me:
 - A paper version and an electronic version of your final report (send electronic version to rice@unt.edu)
 - An electronic version of your presentation file (rice@unt.edu)
- On the day you present (Tuesday or Thursday), please hand in to me at the beginning of class:
 - A paper version of your presentation

PART 5 – COURSE SUMMARY

Week 15 (Apr 28, 30)



Summary and Synthesis

No reading this week

- Summary and review of key course concepts and applications
- Return of graded projects and presentation of best project awards

Sources Referenced in the Course Reading List

Each of the following books and other publications provide excellent background reading for this course. We will examine selected chapters from each book listed in this course, along with our required course textbooks. Some marked readings are available through links on the course website. Aside from the Church and Murray course textbook, none of the books listed below are available in the UNT bookstore, but copies of most are available through online retailers such as Amazon. The Rice and Hernandez course textbook is available through the Applied Geography Conference website (link provided on course website).

Caliper (2019) *Maptitude Brochure*. Caliper: Newton, MA.

Church, Richard, and Alan Murray (2009) *Business Site Selection, Location Analysis, and GIS*. Wiley: New York.

Esri (2011) *Tapestry Segmentation Reference*. Esri: Redlands, CA.

Esri (2012) *Business Analyst Online Brochure*. Esri: Redlands, CA.

Esri (2012) *Improving Retail Performance with Location Analytics*. Esri: Redlands, CA.

Esri (2012) *Business Analyst Online Report Reference Guide*. Esri: Redlands, CA.

Esri (2013) *Location Analytics for Insurance*. Esri: Redlands, CA.

Jones, Ken, and Jim Simmons (1990) *The Retail Environment*, Routledge: London. ISBN: 0-415-04985-7

Jones, Ken, and Jim Simmons (1993) *Location, Location, Location: Analyzing the Retail Environment*, 2nd Edition, Nelson Canada: Scarborough. ISBN: 0-17-604140-0

Longley, P.A., M.F. Goodchild, D.J. Maguire, and D.W. Rhind, editors (2005) *New Developments in Geographical Information Systems: Principles, Techniques, Management and Applications*, 2nd Edition. Wiley: Hoboken, NJ.

Rice, Murray D., and Tony Hernandez (2017) *Location Intelligence Research and Applications*. Applied Geography Conference: Kent, OH.

Rodrigue, Jean-Paul, Claude Comtois, and Brian Slack (2006) *The Geography of Transport Systems*, 1st Edition. Routledge: London.



Discussion Questions

Please note: you are responsible for handing in the discussion questions for the weeks marked “DQ WEEK” in the question listings provided below (weeks 2, 4, 5, and 7). For each of the other weeks with questions provided, please read, reflect on, and answer for yourself the DQs for that week before coming to the first class of each week.

Week 1: Location Intelligence – Motivation and Fundamentals

1. Your chapter 1 reading from the *Location Intelligence* course textbook makes the case that geography as a broad field of study and application is much more important than its low public profile might indicate. For example, even though geographers occupy many important jobs in business and government, almost none of them have a position title that includes the words “geography” or “geographer”. Why do you think many people in society as a whole have only a vague idea of what geography is all about?
2. What kind(s) of applications of geography to business come to mind as we start this course? Are there any ones that you think are particularly obvious? Is there a particular kind of application that particularly interests you?

Week 2: Foundations – Urban/Economic Geography

DQ WEEK 2

1. Your chapter 5 reading from the *Location Intelligence* course textbook argues that it is important to acknowledge the many kinds of actors that are involved in urban/economic issues
 - a. public (governmental),
 - b. private (for-profit business), and
 - c. non-profit (charities, foundations, non-governmental organizations)Think of one example from each of these three organizational categories that plays an important role in shaping what happens in a city (or cities). Name each organization you cite and indicate the role you see the organization playing in the life of the city.
2. Your chapter 7 reading from the *Geography of Transport Systems* textbook spends some time exploring the interaction between transportation and the form of the city (or in other words the overall plan of where in the city we can find each major urban land use, such as commercial activities, residential spaces, public facilities, and parks). What difference has the evolution of transport technologies made for urban form? (see pages 171-176 in particular)

Week 3: Applied GIS Exercise 1 – GIS and Urban/Economic Analysis

1. In general, what kinds of problems do our cities and business communities most need to solve?
Thinking of this same question in another way,
 - a. What issues have the biggest impact on quality of life in our cities?
 - b. What issues are holding our business community back the most?Thinking of these key urban/economic problems, which do you think GIS technology in particular would be most useful in solving?
2. What are the GIS capabilities you see illustrated in the exercise you are doing this week?

DQ WEEK 4

Week 4: Foundations – Geography, Business, and Data Science

1. In 2004, Wal-Mart had 460 terabytes of business data stored at its Bentonville, Arkansas headquarters. This is a huge amount of data. However, today Wal-Mart collects five times as much data from its global operations every hour. The data management challenge Wal-Mart faces (along with other businesses) is immense.
 - a. What data fields and types of information would you think Wal-Mart would be interested in collecting in its database?
 - b. Which areas of Wal-Mart's business do you think this information might come from? (think of Wal-Mart's total, global operations)
 - c. What might be the data sources Wal-Mart can draw upon? (internal, external)
 - d. Can you think of any associated issues/biases/legal implications? Any causes for concern?
2. The online reading "What Data Quality Matters – Now More Than Ever" (see syllabus and handouts page, week 4) makes the case for why we need to care about data quality using three case situations to illustrate the importance of criticizing, analyzing, and scaling your data. Which key take-away strikes you as most important from this article?

Week 5: Marketing Domain – Customer and Market Analytics

Geodemography is a branch of market research that assigns the attributes of small areas – such as census tracts, block groups, or sometimes zip codes – to the consumers who live within them. Based on this assignment, geodemography divides the consumer marketplace into meaningful segments that are locatable and reachable.

1. Some people have seen the rise of massive datasets containing detailed consumer behavior information ("Big Data") as a sign that the usefulness of geodemography is coming to an end. The online blog entry "10 Reasons to Use Geodemography" argues this is not so. Which of these reasons do you see as most powerful, and why?
2. Does geography offer a helpful contribution when an organization possesses a detailed consumer behavior database? Reflect on and briefly describe a potential application for geographic analysis in such a situation.

Week 6: Applied GIS Exercise 5 – Marketing and Geodemographic Analysis

1. In general, what kinds of problems from the broad marketing application area do you think GIS would be most useful in solving?
2. What are the specific GIS capabilities you see illustrated in the exercise you are doing this week?

DQ WEEK 7

Week 7: Transportation and Logistics Domain – Supply Chain Management and Spatial Analytics

1. You can view an animated map of global air travel over a 24-hour period here:
https://www.youtube.com/watch?v=yx7_yzypm5w
What spatial patterns do you see in the flight paths and cities you see linked in this video animation? Can you draw any conclusions about the spatial patterns you see?
2. The Esri StoryMap “Supply Chain Analysis” (see syllabus and handouts links for week 7) illustrates the contribution of geographic analysis to decision-making in a business setting focused on product distribution. In your own words, summarize the situation addressed in this StoryMap and the steps used in the associated analysis. What is the value that a geographic perspective brings to this sample analysis?

Week 8: Applied GIS Exercise 2 – Transportation Analysis

1. Since transportation exists to link places, transportation represents some of the most inherently geographic activities in the modern economy. In general, what kinds of problems from the broad transportation and logistics application area do you think GIS would be most useful in solving?
2. What are the specific GIS capabilities you see illustrated in the exercise you are doing this week?

DQ WEEK 9

Week 9: The Real Estate Domain: Location and the Identification of Business Opportunity

1. Retail is one of the most established areas of application for geographic thinking and analysis: geographers have been contributing solutions to retail businesses for decades. Why do you think the retail environment presents such an obvious application venue for geographic analysis?
2. The Esri StoryMap “Retail Scenario – Merchandising” (see syllabus and handouts page, week 9) illustrates a retail location problem and its solution. In your own words, what is the problem addressed in this scenario, what are the key elements of the analysis, and what are the results produced in this story map?

Week 8: Applied GIS Exercise 3 – Real Estate Location Analysis

1. An old saying indicates that the three rules of real estate success are “location, location, and location”. What do you see as the contributions that can truly help a real estate professional?
2. What are the specific GIS capabilities you see illustrated in the exercise you are doing this week?

Week 9: Applied GIS Exercise 4 – Real Estate and Insurance

1. What kinds of insurance can you think of? In general, what kinds of problems from this insurance application area do you think GIS would be most useful in solving?
2. What are the specific GIS capabilities you see illustrated in the exercise you are doing this week?

Week 10: Healthcare Domain – Spatial Analytics for Health Needs and Medical Services

1. What interactions have you had with the healthcare system in the US?
 - a. What healthcare stories have you seen?
 - b. What perceptions do you have of healthcare in the US?
 - c. What strengths do you see? Weaknesses?
2. What do you know about the healthcare system in other countries? Positives, negatives?

Week 11: GIS and Business Location Analytics

A key issue impacting many geographers is the fact that is difficulty for us to explain the value of location because it is so obvious to us.

1. How might we start to engage with this question – are there specific answers or examples we can give that can clarify the value of a geographic perspective for business?
2. How and why does geography contribute value to an organization?
 - a. Why should ExxonMobil care about location and distribution?
 - b. What about the Texas Department of Agriculture?
 - c. The American Red Cross? Amazon?
 - d. Any other institution you can name?

My goal in this course is for your time here to be of great value to you. This course provides concepts and skills you will find a helpful starting-point for a career in location intelligence and business geography. However, even if you follow a career path outside of business geography, my hope is that this course will provide you with insights into cities and the economy that can help you in many ways.

Please do not hesitate to let me know if there is anything else we can do, beyond what you see in this course package, that could be useful in preparing you for your future.

