# REQUEST FOR ADDITION OF NEW COURSE

## PROPOSED COURSE DESCRIPTION

<table>
<thead>
<tr>
<th>Rubric &amp; No.</th>
<th>GEOG 3043</th>
<th>Title</th>
<th>Crime Mapping</th>
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<table>
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<tr>
<th>Short Title (≤ 19 characters)</th>
<th>CRIME MAPPING</th>
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</table>

| Semester Hours of Credit | 3.0 |

If combination course type, # hrs. of credit for:

- Lecture: 3
- Lab/Sem/Rec: |

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<thead>
<tr>
<th>Repeat Credit Max. (if repeatable)</th>
<th>N/A credit hours</th>
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<tbody>
<tr>
<td>Graduate Credit?</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>No</strong></td>
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Credit will not be given for this course and:

**Course Type (Indicate hours in the appropriate course type.)**

- Lecture 3
- Lab __
- Seminar __
- Recitation __
- Lec/Rec __
- Lec/Sem __
- Res/Ind __
- Clin/Pract __
- Intern __

| Maximum enrollment per section: (use integer, e.g. 25 not 20-30) | 30 |

<table>
<thead>
<tr>
<th>Grading System:</th>
<th>Letter Grade X</th>
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<tr>
<td><strong>Pass/Fail</strong></td>
<td>Final Exam:**</td>
</tr>
<tr>
<td><strong>No</strong></td>
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</table>

**(Attach justification if the proposed course will not hold a final exam during examination week.)**

**Course Description:**

(Concise catalog statement exactly as you wish it to appear in the General Catalog)

**GEOG 3043 Crime Mapping (3)** See SOCL 4441, 6441.

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**BUDGET IMPACT (IF ANSWER TO ANY QUESTION IS "YES", ATTACH EXPLANATION.)**

If this course is approved, will additional staff be needed? Yes ____ No X

Will additional space, equipment, special library materials or other major expense be involved? Yes ____ No X

Academic Affairs Approval: (Date) __________

**ATTACHMENTS (ATTACH THE FOLLOWING TO YOUR PROPOSAL)**

JUSTIFICATION: Justification must explain why this course is needed and how it fits into the curricula. Will the course duplicate other courses? SYLLABUS: Including 14 week outline of the subject matter; titles of text, lab manual, and/or required readings; grading scale and criteria (For 4000-level, specify graduate student grading criteria if requirements differ for graduate and undergraduate students).

**APPROVALS**

Department Faculty Approval Date 3/24/2017 College Faculty Approval Date 4/19/17

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Department Chair Signature 4/18/2017

Graduate Dean Signature 4/29/2017

College Dean Signature 5/11/17 Chair, PS C&G Committee 5/11/17

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MATT MC. A. 7/27/17

--Academic Affairs--
Course Justification

Geographic information systems (GIS) are computerized systems designed for the storage, retrieval, and analysis of geographically referenced data. GIS uses advanced analytical tools to explore spatial relationships, patterns, and processes of cultural, biological, demographic, economic, geographic, and physical phenomena. Crime analysis in particular has become an essential tool for both criminologists and law enforcement to improve public safety, identify trends, allocate appropriate resources, and implement strategies to aimed at crime prevention. The spatial analysis of crime builds upon students critical thinking skills, logic and reasoning ability by synthesizing their broad knowledge of criminological theory, statistics, research methods, and modern computer technology.

Further, informal discussions with many of the students who register for courses are more interested in obtaining a broader knowledge of crime, developing a variety of methodological approaches, and having a practical skill that enhances their resume and desired by employers. To address this need, we propose the development of a course titled Crime Mapping. Additionally, Michael Leitner from the Department of Geography & Anthropology is spearheading the development of a companion course, Crime GIS.

Both Crime Mapping and Crime GIS address gaps in both the undergraduate and graduate curricula by providing courses that are not only applies criminological theory but provides students with practical skills that are highly desirable on the job market. For undergraduate students this course provides equips them for internships with the East Baton Rouge District Attorney’s office (SOCL 3900). While graduate students learn valuable methodological capabilities that allows them to include spatial data in subsequent analyses, but more broadly improves their skillset and makes them more competitive on the academic job market.

To facilitate interest in the study of crime, the proposed Crime GIS Mapping course would focus on the core issues related to the spatial aspects of crime and spatial analysis. Specifically, this course would discuss the following topics:

- How crime is patterned across space
- Data sources used to study crime patterns and trends
- Broad overview of the theoretical foundations of crime analysis
- Utilizing ESRI’s ArcGIS mapping software to perform crime mapping & analysis
- Effective map design
- Conduct hot spot analysis of crime in a jurisdiction

This course has been previously offered every spring semester since 2015 as either Crime Mapping and Crime Analysis using Spatial Data (SOCL 4091) or GIS (SOCL 7213). The class has been well received with eight graduate students taking the class and twenty undergraduates. I am confident that by partnering with the Department of Geography & Anthropology to create this series of courses, Crime Mapping & Crime GIS, will further to increase the demand and popularity for these courses. With the increasing demand for individuals with skills in data analytics, being proficient with ESRI’s ArcGIS is a highly sought after skill set beyond crime mapping and analysis including: city and regional planning, community planning, economic development, transportation issues, land use and business applications, including marketing and advertising. This course is principally a hands on learning course with a size of 30 students (given the constraints of the computer classroom in 102 Stubbs Hall).
No Final Exam Justification

Learning GIS requires many hours of hands on learning at a computer terminal. As such a timed exam does showcase a student’s comprehension of the spatial techniques and analysis learned throughout the semester. The use of a class project allows students to highlight the skills they have learned and mastered throughout the semester. To make high quality, discernible maps takes time (much more than 2 hours). Furthermore, the practical application of these skills in the professional world would be most readily observed in a group project with a report and a presentation given. Therefore, the goal is to provide students with a practical example of how these data analytics skills are to be received in a professional environment.
SOCL 4460 (GEOG 3042): Crime Mapping
Fall 2018

Instructor: Prof. Matthew Valasik
Email: mvalasik@lsu.edu
Office: 17B Stubbs Hall
Office Hours: Thursdays, 2 - 4pm or by Appointment

Graduate Assistant:
Email:
Office:

Class Location/Time: Tuesdays, 3:00pm - 5:50pm, 102 Stubbs Hall

COURSE DESCRIPTION:

SOCL 4460: Crime Mapping (3) Also offered as GEOG 3042. Fundamentals of crime mapping and crime analysis with spatial data using geographic information systems (GIS).

Geographic information systems (GIS) are computerized systems designed for the storage, retrieval, and analysis of geographically referenced data. GIS uses advanced analytical tools to explore spatial relationships, patterns, and processes of cultural, biological, demographic, economic, geographic, and physical phenomena.

This course covers underlying geographic concepts (world coordinate system and projections, vector map topology, tiled and layered maps, etc.), map design and outputs, geodatabases, importing spatial and attribute data, digitizing, geocoding, spatial data processing, and advanced spatial analysis. Additional emphasis will be on crime mapping and analysis. The technical focus of the course includes computer lab tutorials and case studies using the leading desktop GIS software, ArcGIS from ESRI.

Application areas covered in this course include city and regional planning, community planning, economic development, education, election, and environmental studies, housing and property evaluation, transit and transportation issues, land use, historic studies, crime analysis and policing, emergency management, public works utilities, census population and demographic studies, health, and business applications, including marketing, advertising, and site selection.

By the end of the course, students will have sufficient background to identify spatial characteristics of diverse application areas, enabling them to integrate spatial thinking and GIS analysis into their academic research and careers.

COURSE OBJECTIVES:

- To describe the basic terminology and concepts related to the spatial aspects of crime and spatial analysis;
- To explore different theoretical perspectives associated with the geography of crime;
- To understand the spatial aspects of crime and spatial analysis;
- To critically evaluate and problem solve to examine geographic patterns of crime using appropriate spatial analysis techniques;
- To apply spatial analysis techniques to crime data to investigate patterns of crime.
COURSE MATERIALS:

**Thumb drive or other backup device— to copy GIS data to and from computer labs

OPTIONAL MATERIAL:

COURSE REQUIREMENTS & GRADING POLICY

Students are expected to come to class on time and remain for the entire class. Attendance while only being 10% of your grade is mandatory. This course is homework driven and all assignments will be graded at the beginning of the lab portion of class. Complete assignments represent 40% of your course grade.

In addition to homework there will be two case studies. **Cases are treated as take-home exams and must be completed individually.** All work by graduate students must be done independently, except for any assistance by the instructor. The first case will be given on _________ and due on __________. The second case will be given on _________ and due on __________. Explicit details about the group project will be provided at a later date. Cases represent 20% of your course grade.

Lastly, students will complete a project (assigned by the instructor) in small groups. The project will consist primarily of developing a research questions, integrating the data into ArcMap, investigating the social phenomenon through spatial analysis, and preparing a report and presenting the groups findings at the end of the quarter. Explicit details about the group project will be provided at a later date. The project will be assigned on _________ and due during the examination period on _________.

Discussion among students on homework assignments and cases is encouraged for clarification of the assignments, technical details of using the software, and structuring major steps of solutions. Cheating and plagiarism are strictly forbidden. Cheating includes, but is not limited to plagiarism, submission of work that is not the student’s own, submission or use of falsified data, unauthorized access to exam or assignment, use of unauthorized material during an exam, supplying or communicating unauthorized information for an assignment or exam.
Grades will be distributed as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Class Attendance</td>
<td>10%</td>
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<tr>
<td>Homework</td>
<td>40%</td>
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<tr>
<td>Cases</td>
<td>20%</td>
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<tr>
<td>Project</td>
<td>30%</td>
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Grading Scale:

- **A+**: 97% - 100%
- **A**: 94% - 96.99%
- **A-**: 90% - 93.99%
- **B+**: 87% - 89.99%
- **B**: 84% - 86.99%
- **B-**: 80% - 83.99%
- **C+**: 77% - 79.99%
- **C**: 74% - 76.99%
- **C-**: 70% - 73.99%
- **D+**: 67% - 69.99%
- **D**: 64% - 66.99%
- **D-**: 60% - 63.99%
- **F**: 0% - 59.99%

**COURSE POLICIES**

*Academic Misconduct and Classroom Etiquette*: Students are expected to abide by the LSU student code of conduct. Students are also expected to abide by the basic rules of classroom etiquette including: getting to class on time and coming prepared to engage; turning off all electronic devices; not talking during lectures; and remaining respectful of diverse views when engaging in classroom debate. All views are allowed and welcome; however, expressing them in a respectful way is required. Reasonable people can disagree, but disagreement needs to be expressed in ways that are conducive to the free exchange of ideas, productive dialogue, and meaningful learning.

*Missed Classes*: If you miss a class, you will be required to provide written documentation of a valid reason for your absence within one week of the day (see LSU Policy Statement 22, posted on the course website, for examples of valid reasons for absences). Missing class more than once or twice is likely to compromise your grade.

*Missed Exams*: If you miss an exam, you will be required to provide written documentation of a valid reason for your absence within a reasonable time of the exam day (see LSU Policy Statement 22, posted on the course website, for examples of valid reasons for absences). All make-up exams will be administered at my discretion and at a time and place of my choosing. If you miss a scheduled make-up exam you will receive a zero for your exam grade, which will make it very difficult to pass this course.

*Disability*: Any student who feels he/she may need an accommodation based on the impact of a disability should contact the professor privately to discuss specific needs. Also, contact the LSU Disability Services at (225) 578-5919 as soon as possible to better ensure that accommodations are implemented in a timely fashion.
OUT OF CLASS EXPECTATIONS
It is expected that the students have read the assigned chapters or pages prior to class for the background necessary to properly participate in the discussion and think critically about the concepts addressed. As a general policy, for each hour you are in class, you (the student) should plan to spend at least two hours preparing for the next class. Since this course is for three credit hours, you should expect to spend around six hours outside of class each week reading or writing assignments for the class.

COURSE SUGGESTIONS:
Although it is not required, you are encouraged to:

1. Raise your hand in class, question the professor, and engage with the material via discussion!

2. Get acquainted with one another. Exchange e-mail addresses and phone numbers. Form study groups. Engage in collaborative learning. Studies show that students who engage in collaborative learning tend to do better in college and beyond.

3. See the professor and/or the GA as often as is necessary to do well in this course. Do not wait until problems are irreparable or concerns are outdated to seek assistance. Try to make it to our office hours but if that is not possible make an appointment. If you extend the effort, we will be available and willing to help you do well in this class.
COURSE SCHEDULE (Subject to Change):

WEEK 1 - : INTRODUCTION
Readings: Boba - Chapter 1 & 4
         Steinberg & Steinberg - Chapter 1
Lab: GIS Tutorial 1-1 through 1-9
Homework: Assignments 1-1 & 1-2

WEEK 2 - : MAP DESIGN
Readings: Boba - Chapter 5 & 6
         Steinberg & Steinberg - Chapter 2
Optional Readings: Chapter 4: Design Principles to Guide GIS Use “Beyond Maps – GIS and Decision Making in Local Government” by John O’Looney
         Chapter 2: Cartographic Language in “Some truth with maps: A Primer on Symbolization and Design” by Alan M. MacEachren
Lab: GIS Tutorial 2-1 through 2-8
Homework: Assignments 2-1, 2-2 & 2-3

WEEK 3 - : GIS OUTPUTS & LAYOUTS
Readings: Boba - Chapter 7
         Steinberg & Steinberg - Chapter 3
Optional Readings: Chapter 2: Mapping It Out - “Scale, Perspectives & Generalizations” by Mark Monmonier
Lab: GIS Tutorial 3-1 through 3-8
Homework: Assignments 3-1, 3-2 & 3-4

WEEK 4 - : FILE GEODATABASES
Readings: Boba - Chapter 7
         Steinberg & Steinberg - Chapter 4 & 5
Lab: GIS Tutorial 4-1 through 4-6
Homework: Assignments 4-1 & 4-2
Case #1 Assigned (Due Week 6)
WEEK 5 - : SPATIAL DATA
Readings: Boba - Chapter 10 & 11
          Steinberg & Steinberg - Chapter 11
Lab: GIS Tutorial 5-1 through 5-11
Homework: Assignments 5-1 & 5-2

WEEK 6 - : GEOPROCESSING
Readings: Boba - Chapter 12
          Steinberg & Steinberg - Chapter 13
Lab: GIS Tutorial 6-1 through 6-7
Homework: Assignments 6-1 & 6-2

WEEK 7 - : DIGITIZING
Readings: Boba - Chapter 13
          Steinberg & Steinberg - Chapter 14
Lab: GIS Tutorial 7-1 through 7-5
Homework: Assignments 7-1 & 7-2
Case #2 Assigned (Due Week 9)

WEEK 8 - : GEOCODING & GEOREFERENCING
Readings: Boba - Chapter 14
          Steinberg & Steinberg - Chapter 15
Lab: GIS Tutorial 8-1 through 8-5
          Georeferencing Tutorial
Homework: Assignments 8-1, 8-2 & 8-3

WEEK 9 - : SPATIAL ANALYSIS
Readings: Boba Santos - Chapter 15
Lab: GIS Tutorial 9-1 through 9-4; Apportion Tutorial
Homework: Assignments 9-1, 9-2 & 9-3
WEEK 10 - USING CRIME MAPS / DESIGNING & BUILDING CRIME MAPS

**Review Chapters 1 & 2 in GIS Tutorial for Crime Analysis**

Readings: Boba Santos - Chapter 2

GIS Tutorial for Crime Analysis pg. 30 - 33

Lab: GIS Tutorial for Crime Analysis 3-1 through 3-3; 4-1 through 4-3

Homework: Assignments 3-1, 3-2, 4-1, & 4-2 / PROJECTS ASSIGNED

WEEK 11 - QUERYING CRIME MAPS & BUILDING MAP ANIMATIONS

Readings: Boba Santos - Chapter 3

GIS Tutorial for Crime Analysis pg. 88 - 90

Lab: GIS Tutorial for Crime Analysis 5-1 through 5-3; 6-1 & 6-2ry

Homework: Assignments 5-2 / WORK ON PROJECTS

WEEK 12 - CONDUCTING HOT SPOT ANALYSIS

Readings: GIS Tutorial for Crime Analysis pg. 128 - 130

Lab: GIS Tutorial for Crime Analysis 7-1 through 7-3

Homework: Assignment 7-1 / WORK ON PROJECTS

WEEK 13 - ASSEMBLING JURISDICTION MAPS

Readings: Boba Santos - Chapter 16

GIS Tutorial for Crime Analysis pg. 152 & 153

Lab: GIS Tutorial for Crime Analysis 8-1 through 8-5

Homework: Assignment 8-1 / WORK ON PROJECTS

WEEK 14 - FINAL PRESENTATIONS

** YOU MUST ATTEND THE FINAL PRESENTATION TO PASS THIS COURSE!
Case #1 - Due Week 6

Poverty and health overview

"Health in the United States is very strongly correlated with income. Poor people are less healthy than those who are better off, whether the benchmark is mortality, the prevalence of acute or chronic diseases, or mental health."\(^1\)

According to a study published in the October issue of the American Journal of Preventive Medicine, Americans have been getting poorer since 2000, and national rates of severe poverty have climbed sharply. The study found the percentage of Americans living in severe poverty—those earning less than half of the poverty threshold—grew by 20 percent between 2000 and 2004, and the proportion in higher income tiers fell. The researchers reported that the number of Americans living in severe poverty increased by 3.6 million between 2000 and 2004.

“These trends have disturbing implications for society and public health,” said Dr. Steven H. Woolf, professor of Family Medicine, Epidemiology and Community Health, Virginia Commonwealth University, and lead author of the study. The authors discuss the broad societal implications of the increase in poverty. Likely health consequences include a higher prevalence of chronic illnesses, more frequent and severe disease complications, and increased demands and costs for health-care services. Adverse effects on children carry long-term implications.\(^2\)

For more information on poverty, visit the following sites:

The Assignment:

Your task is to create maps that spatially compare poverty data or poverty-related data (e.g. education, unemployment) for a particular county in the United States. You should include a view of the entire state and then zoom into your focus area (county tracts and one major city outlined). Each student will choose a unique county so that every student’s case area will differ.

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\(^1\) Institute for Research on Poverty. [http://www.irp.wisc.edu/research/health.htm](http://www.irp.wisc.edu/research/health.htm).

\(^2\) Elsevier Health Sciences
You should use additional resources beyond those provided, but you should use these as a guideline. The case is intended to give you freedom to explore the U.S. Census to obtain poverty data, ESRI's Web sites to gather GIS layers for your study area of interest, and the internet in general to obtain data for your study area of interest. You should include other census layers or data information that you think is useful (e.g. population, housing, employment, education, or other information you think relative to your poverty and health study). Throughout the case, keep in mind the cartographic principles that were addressed throughout the course. You will be graded on the quality of your maps and application of GIS in your poverty study. You should definitely make more than one page of maps; in fact, it's encouraged. **Don't try to squeeze too many small maps on one layout.**

**NOTE:** We recommend that you save your CASE onto a **Flash Drive** that can be turned in. You do not need to turn in printed material. You are welcome to either save data as either in a geodatabase or as individual shapefiles, whatever works best for you!

***You will be graded on what you turn in and it must be able to open from any computer. Be sure to check this; you will automatically lose 10% of the points if upon opening your assignment there are **red exclamation points**!
The following includes the bare minimum that must be included in your Case:

- Brief overview of the state and county you selected (in a Word Document). Describe poverty in your study area – Is it getting worse? Are certain demographic groups doing better, worse?

- Proper naming, labeling, and design principles.

- State map with appropriate county located on the map. Also, create a bookmark to the outline of a particular city in your county.

- At least 2 tract-level, county Choropleth maps showing census variables that may be related to poverty and/or public health.

- A map(s) showing how the census variables relating to poverty and/or public health you have selected have changed over some time period. Perform some analysis of county-level change.

- A map showing “long term” change in poverty at the tract level for any city or place using 2000 and 2010 Census Data (SF3) &. Keep the size of the place “manageable” – for example, I wouldn’t choose “Pittsburgh” for Allegheny County given there are lots of smaller cities available. However, don’t choose a city/place that is so small that there are only a handful of census tracts.

- Minimum and maximum scales.

- At least one hyperlink to a relevant website or relevant photograph.

- .PDF, .BMP, or .JPEG output file

- Graph included in layout map

- **BONUS:** Add a local transportation layer such as bus routes, railroad lines, or other transportation routes for your selected areas.

**What to Turn in:**

- ArcMap document(s)
- Personal geodatabase/individual shapefiles
- Word document
- Pdf document
**Hints:**
You want to study, download and display GIS files for at least the following layers:
- County Boundaries
- Census Tracts for entire state
- Line Features – Roads (for just your county)

Download Census data to join to your maps:
- Comparison Census SF3 tables for your state and your selected county (i.e., Employment Status and educational attainment)
- Detailed Census tables for the variables you are using to study poverty.

When you download your data from the census, you will end up with a zip file containing several files. The one you want will look something like this:
dt_dec_2000 sf3 u data1. This is the file you want. It will be easier to 1) rename this file, 2) rename the variables inside of the file (because they will default to something like P004001, which doesn’t make much sense to me or you), and 3) delete any supplemental variables that you don’t need.

**Important Websites:**
TIGER = Topologically Integrated Geographic Encoding and Referencing Files
https://www.census.gov/geo/maps-data/data/tiger.html

National Historical Geographic Information System
https://www.nhgis.org/

U.S. Census American Fact Finder
http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

**ALL WORK MUST BE YOUR OWN!**
Case #2 - Due Week 9

Transportation to work
According to the American Community Survey of the U.S. Census Bureau, 91% of households have at least one vehicle available, 90% of workers in 2006 traveled to work in a car, truck, or van (excluding those who worked at home), 45% of workers who commute (among workers who used a car, truck, or van to get to work) took less than 20 minutes, and for 14% of commuting workers, the commute lasted 45 or more minutes. $87.6 billion is the estimated revenue in 2006 of the nation’s automotive repair and maintenance businesses.

Sources: 2006 American Community Survey (ACS), 2009 Statistical Abstract, Table 1244

Objective:
Your task in this case study is to create maps comparing U.S. Census ACS transportation data at the census tract level for your county from Case #1.

Start with the following:

- Use your Case #1 U.S. County for your study area.


- Download the 2010 American Community Survey table "S0801 Commuting Characteristics by Sex" 5 year estimates from the American Factfinder website [http://factfinder2.census.gov/](http://factfinder2.census.gov/)

  **Hint:** First choose the census tracts for the county of your study area, then search for the table S0801.

- Download other map features that you think are relevant to your study area, such as water features.
The Assignment:

Your task is to create maps that spatially compare 6 of the following transportation variables (see below) by census tract from the ACS table S0801 Commuting Characteristics by Sex, Means of Transportation to Work for Workers 16 years and over. **Note:** The means of transportation data in this file already has values that are percentages.

- Car, truck, or van
- Drove alone
- Carpoled
- In 2-person carpool
- In 3-person carpool
- In 4-or-more person carpool
- Workers per car, truck, or van
- Public transportation (excluding taxicab)
- Walked
- Bicycle
- Taxicab, motorcycle, or other means
- Worked at home

You can use additional resources beyond those provided, but you should use these as a guideline. The case is intended to give you freedom to explore the U.S. Census to obtain data, ESRI's Web sites to gather GIS layers for your study area of interest, and the internet in general to obtain data for your study area of interest. You should include other layers or data information that you think is useful to better understand transportation patterns in your county!

You will be graded on the quality of your maps and application of GIS in your transportation study. You should definitely make more than one page of maps; in fact, it's encouraged. **Don't try to squeeze too many small maps on one layout.**

**NOTE:** We recommend that you save your CASE onto a **Flash Drive** that can be turned in. You do not need to turn in printed material. You are welcome to either save data as either in a geodatabase or as individual shapefiles, whatever works best for you!
*** You will be graded on what you turn in and it must be able to open from any computer. Be sure to check this; you will automatically lose 10% of the points if upon opening your assignment there are red exclamation points!

The following includes the bare minimum that must be included in your Case:

- Brief overview of the state and county you selected (in a Word Document). Include a brief description of transportation observations found in your maps. Include a title, your name, the US Census variables used, and observations found in your maps. Include statistics or graphs to support your observations. For instance, are certain demographic groups traveling to work differently?

- Proper naming, labeling, and design principles.

- At least 2 tract-level, parish Choropleth maps showing census variables that may be related to transportation and mobility.

- Local transportation layer such as bus routes, railroad lines, or other transportation routes which are appropriate for your study.

- .PDF, .BMP, or .JPEG output file

- Graph included in layout map

What to Turn in:

ArcMap documents

Personal geodatabase/individual shapefiles

Word document

Pdf document

Hints:

- Import the downloaded US Census data table(s) and shapefiles. Join the transportation table to the census tracts. Study the table and its values carefully. Some data “cleaning” will be necessary. Use the US Census Bureau’s website to answer questions about the data.

- Carefully consider colors, map elements, classifications, zooms, scales, etc. Include a scale and north arrow.

ALL WORK MUST BE YOUR OWN!
March 29, 2017

TO WHOM IT MAY CONCERN:

On behalf of the G&A faculty, I approve/support the following proposed courses:
- Geog 41643 (cross-listed as SOCL 4447) and
- SOCL 4466 (cross-listed as GEOG 3043).
If you have any questions, please contact me at fwang@lsu.edu or call 578-6629.

Sincerely

Fahui Wang, PhD
James J. Parsons Professor of Geography
Chair, Department of Geography & Anthropology
REQUEST FOR **ADDITION** OF NEW COURSE

**PROPOSED COURSE DESCRIPTION**

<table>
<thead>
<tr>
<th>Rubric &amp; No.</th>
<th>SOCL 44460</th>
<th>Title</th>
<th>Crime Mapping</th>
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<tr>
<th>Semester Hours of Credit</th>
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<th>Lecture:</th>
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Repeat Credit Max. (if repeatable): N/A credit hours

Graduate Credit? Yes No

Credit will not be given for this course and:

Course Type (Indicate hours in the appropriate course type.)

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Maximum enrollment per section: (use integer, e.g. 25 not 20-30) 30

Grading System: Letter Grade X Pass/Fail Yes X Final Exam: Yes X

**(Attach justification if the proposed course will not hold a final exam during examination week.**

**Course Description:**

(Concise catalog statement exactly as you wish it to appear in the General Catalog)

SOCL 44460 Crime Mapping (3) Also offered as GEOG 3043. Fundamentals of crime mapping and crime analysis with spatial data using geographic information systems (GIS).

**BUDGET IMPACT (IF ANSWER TO ANY QUESTION IS "YES", ATTACH EXPLANATION.**

If this course is approved, will additional staff be needed? Yes No X

Will additional space, equipment, special library materials or other major expense be involved? Yes No X

Academic Affairs Approval: (Date)

**ATTACHMENTS (ATTACH THE FOLLOWING TO YOUR PROPOSAL)**

JUSTIFICATION: Justification must explain why this course is needed and how it fits into the curricula. Will the course duplicate other courses?

SYLLABUS: Including 14 week outline of the subject matter; titles of text, lab manual, and/or required readings; grading scale and criteria (For 4000-level, specify graduate student grading criteria if requirements differ for graduate and undergraduate students).

**APPROVALS**

Department Faculty Approval Date 3-29-17 College Faculty Approval Date 4-19-17

Department Chair Signature (date) College Dean Signature (date)

Graduate Dean Signature (date) Chair, FS C&C Committee (date)

College Contact E-mail Academic Affairs Approval (date)
Course Justification

Geographic information systems (GIS) are computerized systems designed for the storage, retrieval, and analysis of geographically referenced data. GIS uses advanced analytical tools to explore spatial relationships, patterns, and processes of cultural, biological, demographic, economic, geographic, and physical phenomena. Crime analysis in particular has become an essential tool for both criminologists and law enforcement to improve public safety, identify trends, allocate appropriate resources, and implement strategies to aimed at crime prevention. The spatial analysis of crime builds upon students critical thinking skills, logic and reasoning ability by synthesizing their broad knowledge of criminological theory, statistics, research methods, and modern computer technology.

Further, informal discussions with many of the students who register for courses are more interested in obtaining a broader knowledge of crime, developing a variety of methodological approaches, and having a practical skill that enhances their resume and desired by employers. To address this need, we propose the development of a course titled Crime Mapping. Additionally, Michael Leitner from the Department of Geography & Anthropology is spearheading the development of a companion course, Crime GIS.

Both Crime Mapping and Crime GIS address gaps in both the undergraduate and graduate curricula by providing courses that are not only applies criminological theory but provides students with practical skills that are highly desirable on the job market. For undergraduate students this course provides equips them for internships with the East Baton Rouge District Attorney’s office (SOCL 3900). While graduate students learn valuable methodological capabilities that allows them to include spatial data in subsequent analyses, but more broadly improves their skillset and makes them more competitive on the academic job market.

To facilitate interest in the study of crime, the proposed Crime GIS Mapping course would focus on the core issues related to the spatial aspects of crime and spatial analysis. Specifically, this course would discuss the following topics:

- How crime is patterned across space
- Data sources used to study crime patterns and trends
- Broad overview of the theoretical foundations of crime analysis
- Utilizing ESRI's ArcGIS mapping software to perform crime mapping & analysis
- Effective map design
- Conduct hot spot analysis of crime in a jurisdiction

This course has been previously offered every spring semester since 2015 as either Crime Mapping and Crime Analysis using Spatial Data (SOCL 4091) or GIS (SOCL 7213). The class has been well received with eight graduate students taking the class and twenty undergraduates. I am confident that by partnering with the Department of Geography & Anthropology to create this series of courses, Crime Mapping & Crime GIS, will further to increase the demand and popularity for these courses. With the increasing demand for individuals with skills in data analytics, being proficient with ESRI’s ArcGIS is a highly sought after skill set beyond crime mapping and analysis including: city and regional planning, community planning, economic development, transportation issues, land use and business applications, including marketing and advertising. This course is principally a hands on learning course with a size of 30 students (given the constraints of the computer classroom in 102 Stubbs Hall).
No Final Exam Justification

Learning GIS requires many hours of hands on learning at a computer terminal. As such a timed exam does showcase a student’s comprehension of the spatial techniques and analysis learned throughout the semester. The use of a class project allows students to highlight the skills they have learned and mastered throughout the semester. To make high quality, discernible maps takes time (much more than 2 hours). Furthermore, the practical application of these skills in the professional world would be most readily observed in a group project with a report and a presentation given. Therefore, the goal is to provide students with a practical example of how these data analytics skills are to be received in a professional environment.
SOCL 4460 (GEOG 3043): Crime Mapping
Fall 2018

Instructor: Prof. Matthew Valasik
Email: mvalasik@lsu.edu
Office: 17B Stubbs Hall
Office Hours: Thursdays, 2 - 4pm or by Appointment

Graduate Assistant:
Email:
Office:

Class Location/Time: Tuesdays, 3:00pm - 5:50pm, 102 Stubbs Hall

COURSE DESCRIPTION:

SOCL 4460 Crime Mapping (3) Also offered as GEOG 3043. Fundamentals of crime mapping and crime analysis with spatial data using geographic information systems (GIS).

Geographic information systems (GIS) are computerized systems designed for the storage, retrieval, and analysis of geographically referenced data. GIS uses advanced analytical tools to explore spatial relationships, patterns, and processes of cultural, biological, demographic, economic, geographic, and physical phenomena.

This course covers underlying geographic concepts (world coordinate system and projections, vector map topology, tiled and layered maps, etc.), map design and outputs, geodatabases, importing spatial and attribute data, digitizing, geocoding, spatial data processing, and advanced spatial analysis. Additional emphasis will be on crime mapping and analysis. The technical focus of the course includes computer lab tutorials and case studies using the leading desktop GIS software, ArcGIS from ESRI.

Application areas covered in this course include city and regional planning, community planning, economic development, education, election, and environmental studies, housing and property evaluation, transit and transportation issues, land use, historic studies, crime analysis and policing, emergency management, public works utilities, census population and demographic studies, health, and business applications, including marketing, advertising, and site selection.

By the end of the course, students will have sufficient background to identify spatial characteristics of diverse application areas, enabling them to integrate spatial thinking and GIS analysis into their academic research and careers.

COURSE OBJECTIVES:

- To describe the basic terminology and concepts related to the spatial aspects of crime and spatial analysis;
- To explore different theoretical perspectives associated with the geography of crime;
- To understand the spatial aspects of crime and spatial analysis;
- To critically evaluate and problem solve to examine geographic patterns of crime using appropriate spatial analysis techniques;
- To apply spatial analysis techniques to crime data to investigate patterns of crime.
COURSE MATERIALS:

**Thumb drive or other backup device— to copy GIS data to and from computer labs

OPTIONAL MATERIAL:

COURSE REQUIREMENTS & GRADING POLICY
Students are expected to come to class on time and remain for the entire class. Attendance while only being 10% of your grade is mandatory. This course is homework driven and all assignments will be graded at the beginning of the lab portion of class. Complete assignments represent 40% of your course grade.

In addition to homework there will be two case studies. Cases are treated as take-home exams and must be completed individually. All work by graduate students must be done independently, except for any assistance by the instructor. The first case will be given on __________ and due on __________. The second case will be given on __________ and due on __________. Explicit details about the group project will be provided at a later date. Cases represent 20% of your course grade.

Lastly, students will complete a project (assigned by the instructor) in small groups. The project will consist primarily of developing a research questions, integrating the data into ArcMap, investigating the social phenomenon through spatial analysis, and preparing a report and presenting the groups findings at the end of the quarter. Explicit details about the group project will be provided at a later date. The project will be assigned on __________ and due during the examination period on __________.

Discussion among students on homework assignments and cases is encouraged for clarification of the assignments, technical details of using the software, and structuring major steps of solutions. Cheating and plagiarism are strictly forbidden. Cheating includes, but is not limited to plagiarism, submission of work that is not the student’s own, submission or use of falsified data, unauthorized access to exam or assignment, use of unauthorized material during an exam, supplying or communicating unauthorized information for an assignment or exam.
Grades will be distributed as follows:

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**COURSE POLICIES**

*Academic Misconduct and Classroom Etiquette:* Students are expected to abide by the LSU student code of conduct. Students are also expected to abide by the basic rules of classroom etiquette including: getting to class on time and coming prepared to engage; turning off all electronic devices; not talking during lectures; and remaining respectful of diverse views when engaging in classroom debate. All views are allowed and welcome; however, expressing them in a respectful way is required. Reasonable people can disagree, but disagreement needs to be expressed in ways that are conducive to the free exchange of ideas, productive dialogue, and meaningful learning.

*Missed Classes:* If you miss a class, you will be required to provide written documentation of a valid reason for your absence within one week of the day (see LSU Policy Statement 22, posted on the course website, for examples of valid reasons for absences). Missing class more than once or twice is likely to compromise your grade.

*Missed Exams:* If you miss an exam, you will be required to provide written documentation of a valid reason for your absence within a reasonable time of the exam day (see LSU Policy Statement 22, posted on the course website, for examples of valid reasons for absences). All make-up exams will be administered at my discretion and at a time and place of my choosing. If you miss a scheduled make-up exam you will receive a zero for your exam grade, which will make it very difficult to pass this course.

*Disability:* Any student who feels he/she may need an accommodation based on the impact of a disability should contact the professor privately to discuss specific needs. Also, contact the LSU Disability Services at (225) 578-5919 as soon as possible to better ensure that accommodations are implemented in a timely fashion.
OUT OF CLASS EXPECTATIONS
It is expected that the students have read the assigned chapters or pages prior to class for the background necessary to properly participate in the discussion and think critically about the concepts addressed. As a general policy, for each hour you are in class, you (the student) should plan to spend at least two hours preparing for the next class. Since this course is for three credit hours, you should expect to spend around six hours outside of class each week reading or writing assignments for the class.

COURSE SUGGESTIONS:
Although it is not required, you are encouraged to:

1. Raise your hand in class, question the professor, and engage with the material via discussion!

2. Get acquainted with one another. Exchange e-mail addresses and phone numbers. Form study groups. Engage in collaborative learning. Studies show that students who engage in collaborative learning tend to do better in college and beyond.

3. See the professor and/or the GA as often as is necessary to do well in this course. Do not wait until problems are irreparable or concerns are outdated to seek assistance. Try to make it to our office hours but if that is not possible make an appointment. If you extend the effort, we will be available and willing to help you do well in this class.
COURSE SCHEDULE (Subject to Change):

WEEK 1 - INTRODUCTION
Readings: Boba - Chapter 1 & 4
                Steinberg & Steinberg - Chapter 1
Lab: GIS Tutorial 1-1 through 1-9
Homework: Assignments 1-1 & 1-2

WEEK 2 - MAP DESIGN
Readings: Boba - Chapter 5 & 6
                Steinberg & Steinberg - Chapter 2
Optional Readings: Chapter 4: Design Principles to Guide GIS Use “Beyond Maps – GIS and Decision Making in Local Government” by John O’Looney
Chapter 2: Cartographic Language in “Some truth with maps: A Primer on Symbolization and Design” by Alan M. MacEachren
Lab: GIS Tutorial 2-1 through 2-8
Homework: Assignments 2-1, 2-2 & 2-3

WEEK 3 - GIS OUTPUTS & LAYOUTS
Readings: Boba - Chapter 7
                Steinberg & Steinberg - Chapter 3
Optional Readings: Chapter 2: Mapping It Out - “Scale, Perspectives & Generalizations” by Mark Monmonier
Lab: GIS Tutorial 3-1 through 3-8
Homework: Assignments 3-1, 3-2 & 3-4

WEEK 4 - FILE GEODATABASES
Readings: Boba - Chapter 7
                Steinberg & Steinberg - Chapter 4 & 5
Lab: GIS Tutorial 4-1 through 4-6
Homework: Assignments 4-1 & 4-2
Case #1 Assigned (Due Week 6)
**WEEK 5 - : SPATIAL DATA**

**Readings:** Boba - Chapter 10 & 11  
Steinberg & Steinberg - Chapter 11

**Lab:** GIS Tutorial 5-1 through 5-11

**Homework:** Assignments 5-1 & 5-2

**WEEK 6 - : GEOPROCESSING**

**Readings:** Boba - Chapter 12  
Steinberg & Steinberg - Chapter 13

**Lab:** GIS Tutorial 6-1 through 6-7

**Homework:** Assignments 6-1 & 6-2

**WEEK 7 - : DIGITIZING**

**Readings:** Boba - Chapter 13  
Steinberg & Steinberg - Chapter 14

**Lab:** GIS Tutorial 7-1 through 7-5

**Homework:** Assignments 7-1 & 7-2

*Case #2 Assigned (Due Week 9)*

**WEEK 8 - : GEOCODING & GEOREFERENCING**

**Readings:** Boba - Chapter 14  
Steinberg & Steinberg - Chapter 15

**Lab:** GIS Tutorial 8-1 through 8-5  
Georeferencing Tutorial

**Homework:** Assignments 8-1, 8-2 & 8-3

**WEEK 9 - : SPATIAL ANALYSIS**

**Readings:** Boba Santos - Chapter 15

**Lab:** GIS Tutorial 9-1 through 9-4; Apportion Tutorial

**Homework:** Assignments 9-1, 9-2 & 9-3
WEEK 10 - : USING CRIME MAPS / DESIGNING & BUILDING CRIME MAPS

**Review Chapters 1 & 2 in GIS Tutorial for Crime Analysis**

Readings: Boba Santos - Chapter 2
          GIS Tutorial for Crime Analysis pg. 30 - 33
Lab: GIS Tutorial for Crime Analysis 3-1 through 3-3; 4-1 through 4-3
Homework: Assignments 3-1, 3-2, 4-1, & 4-2 / PROJECTS ASSIGNED

WEEK 11 - : QUERYING CRIME MAPS & BUILDING MAP ANIMATIONS

Readings: Boba Santos - Chapter 3
          GIS Tutorial for Crime Analysis pg. 88 - 90
Lab: GIS Tutorial for Crime Analysis 5-1 through 5-3; 6-1 & 6-2ry
Homework: Assignments 5-2 / WORK ON PROJECTS

WEEK 12 - : CONDUCTING HOT SPOT ANALYSIS

Readings: GIS Tutorial for Crime Analysis pg. 128 - 130
Lab: GIS Tutorial for Crime Analysis 7-1 through 7-3
Homework: Assignment 7-1 / WORK ON PROJECTS

WEEK 13 - : ASSEMBLING JURISDICTION MAPS

Readings: Boba Santos - Chapter 16
          GIS Tutorial for Crime Analysis pg. 152 & 153
Lab: GIS Tutorial for Crime Analysis 8-1 through 8-5
Homework: Assignment 8-1 / WORK ON PROJECTS

WEEK 14 - : FINAL PRESENTATIONS

** You MUST ATTEND THE FINAL PRESENTATION TO PASS THIS COURSE!
Case #1 - Due Week 6

Poverty and health overview

"Health in the United States is very strongly correlated with income. Poor people are less healthy than those who are better off, whether the benchmark is mortality, the prevalence of acute or chronic diseases, or mental health."¹

According to a study published in the October issue of the American Journal of Preventive Medicine, Americans have been getting poorer since 2000, and national rates of severe poverty have climbed sharply. The study found the percentage of Americans living in severe poverty—those earning less than half of the poverty threshold—grew by 20 percent between 2000 and 2004, and the proportion in higher income tiers fell. The researchers reported that the number of Americans living in severe poverty increased by 3.6 million between 2000 and 2004.

“These trends have disturbing implications for society and public health,” said Dr. Steven H. Woolf, professor of Family Medicine, Epidemiology and Community Health, Virginia Commonwealth University, and lead author of the study. The authors discuss the broad societal implications of the increase in poverty. Likely health consequences include a higher prevalence of chronic illnesses, more frequent and severe disease complications, and increased demands and costs for health-care services. Adverse effects on children carry long-term implications.²

For more information on poverty, visit the following sites:
Poverty and health: http://aspe.hhs.gov/poverty/

The Assignment:
Your task is to create maps that spatially compare poverty data or poverty-related data (e.g. education, unemployment) for a particular county in the United States. You should include a view of the entire state and then zoom into your focus area (county tracts and one major city outlined). Each student will choose a unique county so that every student’s case area will differ.

² Elsevier Health Sciences
You should use additional resources beyond those provided, but you should use these as a guideline. The case is intended to give you freedom to explore the U.S. Census to obtain poverty data, ESRI’s Web sites to gather GIS layers for your study area of interest, and the internet in general to obtain data for your study area of interest. You should include other census layers or data information that you think is useful (e.g. population, housing, employment, education, or other information you think relative to your poverty and health study). Throughout the case, keep in mind the cartographic principles that were addressed throughout the course. You will be graded on the quality of your maps and application of GIS in your poverty study. You should definitely make more than one page of maps; in fact, it’s encouraged. **Don’t try to squeeze too many small maps on one layout.**

**NOTE:** We recommend that you save your CASE onto a Flash Drive that can be turned in. You do not need to turn in printed material. You are welcome to either save data as either in a geodatabase or as individual shapefiles, whatever works best for you!

***You will be graded on what you turn in and it must be able to open from any computer. Be sure to check this; you will automatically lose 10% of the points if upon opening your assignment there are **red exclamation points**!
The following includes the bare minimum that must be included in your Case:

- Brief overview of the state and county you selected (in a Word Document). Describe poverty in your study area - Is it getting worse? Are certain demographic groups doing better, worse?
- Proper naming, labeling, and design principles.
- State map with appropriate county located on the map. Also, create a bookmark to the outline of a particular city in your county.
- At least 2 tract-level, county Choropleth maps showing census variables that may be related to poverty and/or public health.
- A map(s) showing how the census variables relating to poverty and/or public health you have selected have changed over some time period. Perform some analysis of **county-level** change.
- A map showing “long term” change in poverty at the tract level for any city or place using 2000 and 2010 Census Data (SF3) &. Keep the size of the place “manageable” – for example, I wouldn’t choose “Pittsburgh” for Allegheny County given there are lots of smaller cities available. However, don’t choose a city/place that is so small that there are only a handful of census tracts.
- Minimum and maximum scales.
- At least one hyperlink to a relevant website or relevant photograph.
- .PDF, .BMP, or .JPEG output file
- Graph included in layout map
- **BONUS**: Add a local transportation layer such as bus routes, railroad lines, or other transportation routes for your selected areas.

**What to Turn in:**

ArcMap document(s)
Personal geodatabase/individual shapefiles
Word document
Pdf document
Hints:
You want to study, download and display GIS files for at least the following layers:

- County Boundaries
- Census Tracts for entire state
- Line Features - Roads (for just your county)

Download Census data to join to your maps:

- Comparison Census SF3 tables for your state and your selected county
  (i.e., Employment Status and educational attainment)
- Detailed Census tables for the variables you are using to study poverty.

When you download your data from the census, you will end up with a zip file containing several files. The one you want will look something like this: dt_dec_2000_sf3_u_data1. This is the file you want. It will be easier to 1) rename this file, 2) rename the variables inside of the file (because they will default to something like P004001, which doesn't make much sense to me or you), and 3) delete any supplemental variables that you don't need.

Important Websites:
TIGER = Topologically Integrated Geographic Encoding and Referencing Files
https://www.census.gov/geo/maps-data/data/tiger.html

National Historical Geographic Information System
https://www.nhgis.org/

U.S. Census American Fact Finder
http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

ALL WORK MUST BE YOUR OWN!
Case #2 - Due Week 9

Transportation to work
According to the American Community Survey of the U.S. Census Bureau, 91% of households have at least one vehicle available, 90% of workers in 2006 traveled to work in a car, truck, or van (excluding those who worked at home), 45% of workers who commute (among workers who used a car, truck, or van to get to work) took less than 20 minutes, and for 14% of commuting workers, the commute lasted 45 or more minutes. $87.6 billion is the estimated revenue in 2006 of the nation’s automotive repair and maintenance businesses.

Sources: 2006 American Community Survey (ACS), 2009 Statistical Abstract, Table 1244

Objective:
Your task in this case study is to create maps comparing U.S. Census ACS transportation data at the census tract level for your county from Case #1.

Start with the following:
- Use your Case #1 U.S. County for your study area.


- Download the 2010 American Community Survey table “S0801 Commuting Characteristics by Sex” 5 year estimates from the American Factfinder website http://factfinder2.census.gov/

  Hint: First choose the census tracts for the county of your study area, then search for the table S0801.

- Download other map features that you think are relevant to your study area, such as water features.
The Assignment:

Your task is to create maps that spatially compare 6 of the following transportation variables (see below) by census tract from the ACS table S0801 Commuting Characteristics by Sex, Means of Transportation to Work for Workers 16 years and over. Note: The means of transportation data in this file already has values that are percentages.

- Car, truck, or van
- Drove alone
- Carpool
- In 2-person carpool
- In 3-person carpool
- In 4-or-more person carpool
- Workers per car, truck, or van
- Public transportation (excluding taxicab)
- Walked
- Bicycle
- Taxicab, motorcycle, or other means
- Worked at home

You can use additional resources beyond those provided, but you should use these as a guideline. The case is intended to give you freedom to explore the U.S. Census to obtain data, ESRI’s Web sites to gather GIS layers for your study area of interest, and the internet in general to obtain data for your study area of interest. You should include other layers or data information that you think is useful to better understand transportation patterns in your county!

You will be graded on the quality of your maps and application of GIS in your transportation study. You should definitely make more than one page of maps; in fact, it’s encouraged. Don’t try to squeeze too many small maps on one layout.

Note: We recommend that you save your CASE onto a Flash Drive that can be turned in. You do not need to turn in printed material. You are welcome to either save data as either in a geodatabase or as individual shapefiles, whatever works best for you!
**You will be graded on what you turn in and it must be able to open from any computer. Be sure to check this; you will automatically lose 10% of the points if upon opening your assignment there are **red exclamation points**!**

**The following includes the bare minimum that must be included in your Case:**

- Brief overview of the state and county you selected (in a Word Document). Include a brief description of transportation observations found in your maps. Include a title, your name, the US Census variables used, and observations found in your maps. Include statistics or graphs to support your observations. For instance, are certain demographic groups traveling to work differently?

- Proper naming, labeling, and design principles.

- At least 2 tract-level, parish Choropleth maps showing census variables that may be related to transportation and mobility.

- Local transportation layer such as bus routes, railroad lines, or other transportation routes which are appropriate for your study.

- .PDF, .BMP, or .JPEG output file

- Graph included in layout map

**What to Turn in:**

- ArcMap documents
- Personal geodatabase/individual shapefiles
- Word document
- Pdf document

**Hints:**

- Import the downloaded US Census data table(s) and shapefiles. Join the transportation table to the census tracts. Study the table and its values carefully. Some data “cleaning” will be necessary. Use the US Census Bureau’s website to answer questions about the data.

- Carefully consider colors, map elements, classifications, zooms, scales, etc. Include a scale and north arrow.

**ALL WORK MUST BE YOUR OWN!**
March 29, 2017

TO WHOM IT MAY CONCERN:

On behalf of the G&A faculty, I approve/support the following proposed courses:
  • Geog 4143 (cross-listed as SOCL 4441) and
  • SOCL 4441 (cross-listed as GEOG 2043).
If you have any questions, please contact me at fwang@lsu.edu or call 578-6629.

Sincerely

Fahui Wang, PhD
James J. Parsons Professor of Geography
Chair, Department of Geography & Anthropology