SCHOOL OF BUSINESS
Course Syllabus
(version 3.0)
Location Analytics- GISB 694w (4 units)
On-the-Ground Classroom Dates: 3/9/19, 03/23/19, 4/13/19, 04/20/19.
10am – 5pm
Classroom Locations:
Lewis Hall 102 for 3/9.
Armacost Library 104 (in Jones Center) for 03/23, 04/13, and 4/20

INSTRUCTOR
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COURSE SCHEDULE
The class meets from 10 am - 5 pm on consecutive Saturdays on from 3/9 to 4/20. There are equal numbers of online and face-to-face sessions.

CATALOG DESCRIPTION
GISB 694 (4 units):
Examination and analysis of the information systems topical areas of data-bases, big data, mobile technologies, social media, outsourcing, and how they underpin contemporary GIS. Includes planning, design, and consulting for GIS.

COURSE OVERVIEW
The course has the goal to understand contemporary information systems and systems planning that underlie GIS and describe and discuss the modern context of outsourcing and consulting. These special topics are updated as the GIS field evolves. Students learn through lectures, discussion, readings, case studies, an industry guest speaker, and labs. Cases concern the challenges in companies and government offices in achieving productive, effective, and successful spatial applications in the modern web-, mobile-, and social-media-driven environments. Spatial analytics and big data are emphasized. Hands-on lab assignments concern creating analytics dashboards that include maps, simple field digitizing of geographic coordinates and information, geo-coding addresses, querying and selecting spatial data, working with buffers and building a geodatabase.

COURSE LEARNING OUTCOMES
Upon successful completion of this course, students will be able to:
1. Apply concepts and skills of spatial analytics and spatial big data
2. Understand and apply concepts of mobile spatial technologies
3. Synthesize and be able to actively participate in the process by which GIS projects and applications can be planned, developed, implemented, and sometimes consulted on.

4. Be prepared to assess the costs, benefits, risks, and ethical issues of GIS projects and applications.
5. Apply hands-on GIS skills for inputting of locational information, geocoding, spatial data management, geodatabases, and 3-D mapping.

MAJOR TOPICS

- How information systems and GIS are related
- Spatial Big Data and Analytics
- Mobile Technologies and their increasing spatial importance
- Locational applications of Social Media and 3-D
- Ethics of contemporary spatial technologies
- Planning, developing, building, and implementing spatial solutions
- Costs, benefits, risks, and ethical implications of spatial projects
- Consulting and its role in GIS

Major topics should focus on content appropriate to the program goals, School of Business goals, and relevant thinking in the field.

Course Structure and Relationship to the GIS Emphasis.

This course mixes lectures, discussions, case studies, a guest speaker, and lab exercises. Student teamwork is emphasized for some assignments.

This course is the third one in the GIS Emphasis in the MBA. It builds on the base of GISB691 and GISB692. In particular, in GISB691, the basic concepts of GIS and use of marketing data were emphasized, and built on in GISB692, in which the student uses a wide variety of international government data and applies spatial analysis hands-on to problem solving. The present course expands the GIS experience with data to the use of spatial big data, spatial analytics, location-based social media, knowledge and hands-on skills on how to input spatial and attribute data into a geodatabase, how to join and relate data, and 3-D GIS. In addition, the present GISB694 course introduces the underlying concepts of planning, developing, and implementing a GIS, GIS consulting, and costs, benefits, and risks. The skills learned also are essential to achieving better results with the GISB 695 project.

LEARNING MATERIALS AND RESOURCES

Required:

1. Davenport, T.H. (2017*). Competing on Analytics: The New Science of Winning*. Cambridge, MA: Harvard Business School Press. ISBN-9781633693722
2. Gorr, W.L., and Kurland, K.S. (2017) GIS Tutorial 1 for ArcGIS Pro. Redlands, CA: Esri Press. ISBN 978-1-58948-466-5.
3. Tomlinson, R. (2013). *Thinking about GIS* (5th ed.). Redlands, CA: ESRI Press. ISBN-10: 1589483480
4. Short reading on spatial big data and analyticsff (Moodle posting, TBA).
5. Short reading on ethics and locational big data (Moodle posting, TBA).
6. Supplement for Tutorial 9-5 (Data clustering) in Gorr & Kurland Chapter 9

Note*. Digital versions of texts 1-4 are available and less expensive. Also, the Tomlinson (2013) textbook is a required textbook in GISB 695w. From the above textbooks, some chapters are covered in this course and some others will be covered in the following course.*

Recommended/Optional (as per program)

American Psychological Association. (2009). *Publication manual of the American psychological association*. (6th ed.). Washington, D.C.: American Psychological Association. ISBN-10: 1433805618 (http://www.apastyle.org)

Browne, M. N. and Keeley, S. (2014). *Asking the right questions: A guide to critical thinking* (11th ed.). Pearson Education. ISBN-10: 0321907957

Citation Styles

Citation style is American Psychological Association (APA).

ASSIGNMENTS

Outline the first week assignment.

The first-week assignment is to read Tomlinson chapter 1, Davenport 1-3, and start brainstorming the initial paper. The course will utilize Moodle for course materials, and GIS software for lab assignments. ArcGIS Pro, the Gorr & Kurland Tutorial Exercise files, and other software are available to each student in the Amazon Web Spaces (AWS). Other assignments are summarized in the course schedule that can be found at the end of this document.

Initial Paper

In the initial paper, the student searches for a real-world case of a large-scale GIS application which is a success and analyzes what problem was being addressed and why the GIS solution selected was a good fit to solving the problem. The student should consider the information accessed, type of platform and software, spatial analysis done, ease of use for the user, training, consulting, and outsourcing if relevant. How did all this blend together to a successful solution? What essential benefits were provided to the user and did they exceed the costs?

With the current technology, choose one innovation in IT that could benefit the case if replicated in the future somewhere else?

- You should discuss how an IT innovation could drive the future of traditional GIS applications (for example. think about autonomous cars and how the location aspects of IOT would be beneficial for Uber, what are the risks for company and customers?)

Note. The paper is done individually and is 5 to 6 pages in length.

Lab Exercises

The exercises are done by individuals. Assignments are turned in to the designated Moodle Dropbox by uploading the .doc or .docx file, with maps pasted in as .jpegs. For a classroom session, each lab exercise is started and usually finished in class, with the students answering specific essay questions that are posted on Moodle and including other outputs such as maps. For a virtual session the procedures are similar, with the student starting and working on the lab during that week. If the student doesn't complete the lab during the assigned week, he/she has until the week after to turn it in without penalty.

- **Session 1:**
  - Chapter 1: The ArcGIS platform.
  - Chapter 2: Map design
- **Session 2:**
  - Chapter 9: Spatial analysis
  - Chapter 11: 3D GIS
- **Session 3:**

    - Esri Insights Lab 1. Maryland building permits.
- **Session 4:**
    - Chapter 3: Map outputs for GIS projects
- **Session 5:**
    - Chapter 4: File geodatabases
    - Chapter 5: Spatial data
- **Session 6:**
    - Insights 2 Lab: Air Flight Delays
- **Session 7:**
    - Chapter 7: Digitizing
    - Chapter 8: Geocoding

Quiz on Davenport Book
This is a quiz given in-class that consists of several essay questions on the concepts in the Davenport book.

GIS Planning Report
In this paper, students formulate a spatial Big Data application for an organization they are familiar with. You will be planning a big-data/spatial-analytics application to solve problems the organization is facing. Refer to principles in the Tomlinson and Davenport textbooksyou're your experience with using Big Data. Students will describe and explain how the data can be collected and organized, how they can be updated, what types of analytics, spatial or non-spatial, can be done on the big data, what platforms ranging from mobile to servers are utilized, how this will support better decision-making, and how this solves problems that the company faces. Barriers or obstacles should be mentioned, and how they can be overcome. The potential risks and ethical problems should be discussed. Cost-benefit of doing this should be considered. The length is **4-5** pages in length. References must be cited and included.

Building a Spatial Big Data Solution (Term Paper)
Students will work in teams of 2. Each team will design a spatial big data dashboard solution for one of three big datasets (each is spatially-referenced) that will be posted on Moodle for analysis. The team will discuss some background on the organization, justify how each worksheet in solution is put together, explain how the dashboard will help executive decision makers in the organization, and explain how the spatial aspects of the dashboard will contribute to improved decisions. Students will also document what process they used to design, build, and implement the solution. Students will utilize Tableau or Esri Insights principally, but can optionally supplement the Tableau or Insights dashboards with an ArcGIS Pro to provide spatial analysis enhanced beyond Tableau's capabilities. The paper will be **5-7** pages, not including map images.

Participation
Students are expected to attend all sessions (in-class and virtual) and be prepared and participative. The participation grade is averaged over the entire course, with each session's participation grade counting a half point. Because of the limited number of in-class sessions and the applied and varied material to be covered in this eight-week class, students benefit most from the class session if they come fully prepared. Consequently, class attendance and participation are important and will be evaluated on its contribution to the learning process. The in-class activities assume that each student has read the assigned readings within the course study outline contained in this syllabus and is ready to participate.

Note on assignments. They can be turned in at a classroom session or sent by e-mail attachment to the instructor, denoting "GISB694w" in the message header. Do not submit them to Moodle.

GRADE WEIGHTINGS

Final grades will be based on the following weighted factors:

Item	*Type*	*Session Due*	*Weight*	*Learning Objectives*
Initial Paper	Individual	Session 2	12	1,2,3
Lab Exercises	Individual	Sessions 2-8	35	1,5
Mid-term Quiz	Individual	Session 5	10	1,3
GIS Planning Report	Individual	Session 7	19	1,2,3,4
Building a Spatial Big Data Solution Report (Term paper)	Group	Session 8	20	1,3,5
Participation	Individual	Sessions 1-8	4	all
TOTAL			**100**	

NUMBER/LETTER GRADING RELATIONSHIP

4.0 A	94% - 100%	2.0 C	73% - 76%
3.7 A-	90% - 93%	1.7 C-	70% - 72%
3.3 B+	87% - 89%	1.3 D+	67% - 69%
3.0 B	83% - 86%	1.0 D	63% - 66%
2.7 B-	80% - 82%	0.7 D-	60% - 62%
2.3 C+	77% - 79%	0.0 F	below 60%

GRADING CRITERIA

The nature of the written and oral assignments in this course is such that the quality of students' work may only be assessed through subjective evaluation. Therefore, all assignments will be evaluated on evidence of learning in accord with the objectives of the assignments, depth of analysis, organization and thoroughness as well as the ability to anticipate the elements affecting business. Assignments should demonstrate that you have analyzed the key issues in the course and text, and are thinking critically in the context of business. Assignments should be logically presented, effectively analyzed and supported, and carefully reasoned. Oral assignments should demonstrate effectiveness of delivery. All written assignments should be and accurate and coherent use of language; be typed, double-spaced; and contain a bibliography of cited sources in the literature and appropriate footnotes. All ideas, quotes and statistics borrowed from another author must be cited. If you did not collect the data to support your position, then you need to properly cite the authority that did. Evidence of individual contribution to any group projects will be gauged through the student's effectiveness and participation in class discussion of the project. Peer evaluation forms may be used to measure each group member's contribution to group work.

The evaluation criteria are more fully stated in the University of Redlands grading criteria as follows:

3.7, 4.0 A Outstanding
Student displayed exceptional grasp of the material, frequently with evidence of intellectual insight and original thought.

2.7, 3.0, 3.3 B Excellent
Work demonstrated a thorough grasp of the material with occasional errors and omissions. Assignments were thoroughly and completely done, with careful attention to detail and clarity, and with evidence of intellectual insight.

Note: Credit for a course graded below 2.0 cannot be applied toward a graduate degree. See the "Graduate Grading Section" in the UR Catalog.

1.7, 2.0, 2.3 C Acceptable
The quality of the work was acceptable, meeting minimal course standards, but not exceptional. Performance on the examinations and other assignments was satisfactory and demonstrated that the student was keeping up with the material and attending to detail.

0.7, 1.0, 1.3 D Poor
The quality of the work was not always satisfactory, but overall was passing. Assigned work was not always done, and when done was inadequate. Performance on examinations and other work was generally weak with regard to understanding of subject, proper formulations of ideas, and thoroughness.

0 F Failing
A grade of "F" indicates that the student failed the course. The quality and quantity of work was not of college level. A failing grade may be assigned for a variety of reasons such as failure to complete course requirements as outlined in the syllabus, inability to comprehend course material or ineptitude in dealing with it, consistently unsatisfactory performance on examinations and/or assignments, or excessive absences.

Grade of "Incomplete"

An "incomplete" is not given for poor or neglected work. A grade of "incomplete" is to be granted only for very special reasons and should occur only after a discussion between faculty and student, initiated by the student. The decision of whether or not to grant an incomplete is dependent on an emergency situation that prevents the student from completing (on time) the work necessary for the course. An incomplete grade will be converted to a permanent grade within eight weeks from the last night of the course. This means that the instructor must turn in the grade to the Registrar no later than the eighth week. Any incomplete work must be submitted to the instructor with enough lead time for the instructor to evaluate the work and issue a grade change. See U of R catalog for further guidance.

COURSE POLICIES
Attendance and Completion of Work
If a student must miss a class session, except for medical or personal/family emergencies, an alternative assignment covering part of the missed session's topics will be assigned by the

instructor and must be completed. Unexcused absences (those not cleared with the instructor before the class and/or are for reasons other than an emergency) will adversely affect the grade. If student misses more than one of the four on-the-ground class sessions, he or she will be encouraged to drop the course and take it in a subsequent offering. Students need to plan to arrive on time and not leave class before it ends. Repetitive late arrivals or early departures will reduce the class participation grade.

Assignments turned in late, without a compelling excuse or permission of instructor, will have the assignment grade reduced by one grade level.

Time Management
Each 4-unit (Carnegie Unit) graduate course is the equivalent of 180 hours. Thus an 8-week accelerated course is equivalent to 22.5 hours per week. Four hours are spent in class each week; the course has been designed with the expectation that homework will take about 18 hours per week. Although the amount of time that you spend studying may depend upon the subject matter, a student should expect to spend an average of 18 hours each week.

Disability Services
A student with a documented disability who wishes to request an accommodation should contact the School of Business Director of Student Services at (909) 748-8743 or SBStudentServices@redlands.edu for assistance.

Policy for Cell Phones and Laptops in the Classroom
Cell phones will be off or on vibrate during all class sessions (excluding the dinner break) to avoid distractions. Students should refrain from making or taking non-critical personal or business cell phone calls during class sessions. If a phone call must be taken, the student will exit the classroom.

Laptop use during class is limited to taking notes related to the lecture or class discussions and/or researching material directly requested by the instructor. Internet searches will not be used to support discussions or interaction during class time unless specifically requested by the instructor. Students will not use cell phones and/or laptops to surf the web, play games, read or generate personal or business email, or text others in class or outside of class for any reason during class time.

Academic Honesty
The University of Redlands Policy on Academic Honesty will be strictly adhered to and applied. The Procedures for Addressing Academic Honesty are set forth in the University of Redlands Catalog. It is expected that all students read and understand the Policy and the provisions outlined in the Catalog.

The highest standards of academic conduct are required. This is particularly true for the proper citation of course and research material in *all* written assignments. If you did not actually collect the data or independently arrive at the idea presented, then a proper citation must be used. Citations (in the form of parenthetical notes, endnotes or footnotes) must be used for quoted or paraphrased text and any time you borrow an idea from an author, the instructor, or your peers. Using someone else's sentence or organizational structure, pattern of argument and word choice, even if not exactly similar in every respect, warrants citation. It is students' responsibility to make sure that their citations and quotation marks **unambiguously** highlight the ideas, words, sentences, and arguments that they borrow from other sources. Paraphrasing is not simply changing one or two words in a sentence; it **completely** reconstructs someone else's idea in your own words. For

guidelines on appropriate citation, quotation, paraphrasing, and plagiarism, see materials provided by the Indiana University's Writing Tutorial Center at http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml or by the Purdue Online Writing Lab (OWL) at https://owl.english.purdue.edu/owl/resource/589/01 /

Discussion with the instructor and your peers is encouraged before the composition of written work; however, all written work, unless specified by the instructor, is to reflect independent composition and revision. Students working on group or collaborative assignments are expected to contribute equally to all tasks necessary for completion of the assignment.

Students are expected to follow all written and verbal instructions provided by the instructor with regard to written assignments, quizzes and/or exams. In addition to plagiarism, other impermissible academic behavior includes, but is not limited to, collaboration without instructor consent, falsifying research data, illicit possession of exams, using study aids during exams, unauthorized communication about an assignment or exam, handing in others' work as your own, reusing assignments or papers from other courses, and impeding equal access to educational resources by other students.

Time constraints, the demands of work and family, failing to read the University's Policy on Academic Honesty, unintentional misuse of sources, or a lack of preparation do not excuse academic dishonesty or otherwise mitigate the appropriate penalty. Penalty for a first offense is at the discretion of the instructor.

If a student is uncertain about appropriate methods of citation or has a question about the academic honesty policy, it is his or her responsibility to seek guidance from the instructor, a University official, or another reputable source.

Armacost Library Services
Any time you see the word "research" or related concepts in your syllabus or on an assignment, there is a good chance that you will be required to locate, read, and incorporate information into your coursework from someplace other than Google. The University uses part of your tuition to pay for access to a wide variety of tools and resources located beyond firewalls on the web, undiscoverable or inaccessible to the casual searcher. Please visit library.redlands.edu/business in order to browse the many resources available to you. All links requesting a login can be accessed by entering your myRedlands ID (firstname_lastname) and the same, case-sensitive password you use for all other University applications.

Feel free to use the navigation on the webpage to explore the resources provided for many other disciplinary areas you may be interested in exploring. There are descriptions of which databases contain various types of information, and pictures and demos on how to most effectively use them. If you have a question regarding the research process or gaining access to or using a source, please contact your librarian, Janelle Julagay, by email at janelle_julagay@redlands.edu or by phone at 909.213.8736 anytime. Drop-in office hours are listed on the website, and she is generally in the library at the main campus Monday-Friday during normal business hours.

Code of Student Conduct
At the time of new-student orientation, all School of Business students were directed to read the University's Code of Student Conduct on the University's website. If you need access to the Code of Student Conduct at this time, please click on this link: http://www.redlands.edu/docs/URSB/CodeofStudentConduct_Revised5222014.pdf.

COURSE SCHEDULE-1 GISB 694 (Subject to change)

Session/Date	Topics	Reading	Activities	Deliverable
Session 1 (classroom) 03/9/19	Introduction to course **Lecture/Discussion**: Introduction to Big Data and Analytics **Lecture/Discussion**: Planning and building a GIS Walgreen's Integrated GIS	Davenport 1-3 Tomlinson 1 Gorr/Kurland 1-2	Chps.1 and 2 Labs Initial Paper Idea Discussion Viewing big data	Initial Paper
Session 2 (online) 03/16/19	Analyzing a GIS Project Spatial Big Data **Video** "Spatial Big Data and Analytics at BART" (Available on Moodle)	Davenport 3-5 Gorr/Kurland 9,11 (**Note**: Tutorial 9-5 has a posted corrected version) Video on Spatial Big Data and Analytics (on Moodle)	Chps. 9 and 11 Labs	Chps. 1-2 Labs
Session 3 (classroom) 03/23/19	**Lecture/Discussion**: Mobile Technologies and GIS, Social Media and GIS **Video** Transformation with Big Spatial Data, Analytics" Damian Spangrud, Director of Solutions Esri	Davenport 6-8 Gorr Kurland 3-4 Tomlinson 3	Esri Insights 1 Lab Maryland Building Permits	Chps. 9 & 11 Labs
Session 4 (online) 03/30/19	Costs, Benefits, Risks Implementing a GIS	Gorr/Kurland 5-6 Tomlinson 4-6	Chps. 3 Lab Quiz (in-class)	Esri Insights Lab.

COURSE SCHEDULE-2 GISB 694w (Subject to change)

Session/Date	Topics	Reading	Activities	Deliverable
Session 5 (online) 04/6/18	Data Design Data Models Digitizing	Gorr/Kurland 7 Tomlinson 7-8	Chps. 4-5 Labs	Chp. 3 Lab
Session 6 (classroom) 04/13/18	**Lecture/Discussion:** Designing, Describing, Determining Requirements, and Building a GIS **Guest Speaker** Jim Herries, Geographer and Cartography Products Engineer, Esri "3-D GIS and Living Atlas" **Video and Discussion** "Enable Digital	Spatial Big Data Reading (TBA)	Insights 2 Lab (Air Flight Delays)	Chps. 4-5 Labs
Session 7 (classroom) 04/20/18	**Lecture/Discussion**: Ethics of Spatial Big Data Oral Big Data Project Reports Course Summary		Spatial Big Data Oral Project Report Chps.7-8 Labs	Spatial Big Data Project Report (Written and Oral) Insights 2 Lab
Session 8 (online) 04/27/18	Conducting a Complete GIS Big Data Project	Gorr/Kurland 8 Ethics reading (TBA on Moodle)		Chps. 7-8 Labs GIS Planning Report

GISB 694
Student Information Sheet
(This sheet will be e-mailed to, or turned in
to the instructor by the first day of class)

Name:

Company:

Job title:

Undergraduate university, degree, and major:

Other graduate degree (if appropriate)

How do you assess your own hands-on ability with ArcGIS?

Have you built an information system or a GIS in an organization? If so, please explain what it was and what your role was?

What do you expect to get out of this course?

Do you have suggestions for modifying, improving, or adding topics to the course?