SUS 240 Human Systems (Researching Peoples in Places)
Dr. Angela Halfacre
Spring 2013
Furman University

Professor: Dr. Angela Halfacre
Professor of Political Science and Earth and Environmental Sciences

Lecture/Seminar Meeting Times: 1-2:15 Tuesdays and Thursdays
Laboratory Meeting Times: 2:30-5:20 Tuesdays
Class Location: Center for Sustainability Class Room
Office: Center for Sustainability
Office Hours: Wednesdays 1:00-2:30, Thursdays 2:15-3:15, and by other appointment.
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EMAIL: angela.halfacre@furman.edu (please include your phone number in your email)

Context
Sustainability science is a new multi-disciplinary (or interdisciplinary or transdisciplinary) field that explores the interactions between environmental systems (e.g., geosphere, atmosphere, hydrosphere, biosphere) and human systems (e.g., lifestyles, values and norms, security, health, economy). The field analyzes dynamics between nature and society, society and nature. Because human behavior is often the primary cause of environmental problems, sustainability ultimately involves the efforts of people to achieve a sustainable balance with the natural places in which they live.

Course Description
Human Systems (a core course within the Sustainability Science major) introduces students to the range of sustainability science research methods used to study human interactions with the environment. Understanding human systems requires a multi-disciplinary perspective involving fields such as anthropology, earth science, ecology, epidemiology (public health), geography, health sciences, history, psychology, political science, and resource economics. Conservation psychology and comparative cultural (ethnographic) studies provide especially critical insights into how people value nature and use, abuse, or conserve its resources. The science of human behavior is applied to complex, often interrelated, issues that involve ethics, human health, poverty, equity, food security, and sustainable resource use. In this course, students will explore the effects of human activities, consumption patterns, and the complexity of human behavior on sustainable development. Studying how people interact with place is the focal point of this course. Understanding how people perceive, exploit, and protect their natural environment is our overarching objective, for such fundamental issues undergird the field of sustainability science.

Guiding Course Questions
This course focuses on showing students the different methodologies used by researchers exploring basic questions such as: How do the values, norms, beliefs and behaviors of human beings impact interactions and understandings of society? How do these human patterns affect other species? How do livelihoods influence attitudes about the natural world? What are local and global patterns of consumption, migration, poverty, infectious disease, food access (security), and natural disasters? What role do religion, ethics, and environmental justice play in affecting environmental exploitation? What roles do leadership, governance, public-private partnerships, and civic engagement play in shaping environmental and other resource decisions? How do local and global economic trends and resulting inequities, including the recent “Great Recession” affect human systems? What are the politics of place, and what can we learn from environmental history? What is the significance of scale (local, regional, global) for human systems and its linkages to other systems including global or environmental/planetary, social or organizational/institutional?
Course Format
This course includes lectures, seminar discussion sessions, and laboratory exercises. Lectures and seminar discussions will examine cutting edge understandings of human systems within sustainability science. Field experiences on campus and in Upcountry South Carolina will be an essential component of the course. Most classes and all lab exercises focus on a particular human systems concept and a sustainability science research method.

Required Readings


Several additional readings and reviews of Internet resources will be distributed on Moodle or in class. Students will identify their own additional readings to inform their own individual and team research interests as part of their course assignments.

Classroom Policies and Procedures
Class and laboratory attendance is expected. You are responsible for all material presented in lectures, assigned reading, any supplemental material, class discussion, video, in-class and field trip activities. Participation in class and laboratory discussion is also expected.

Class and lab attendance will be taken. Do not arrive late to class or lab. Arrival 10 minutes after class or lab starts constitutes an unexcused absence. More than three unexcused absences from class or lab will affect your final grade. One point for every additional unexcused absence (beyond three) from a class or lab will result in one point deducted from your final grade point average.

Generally, an absence is excused if the student has a note from the infirmary or a doctor or if the student is representing the University in some documented and excused capacity. Students who know that they are going to be absent when assignments are due are expected to turn in papers and schedule their make up test in advance of their absence. In the case of unexpected absences due to illness, students are expected to make up the work they missed.

Please place Personal Data/Digital Assistants (PDAs) and cell phones in their silent mode and do not use these devices during class. Use of laptop computers and similar devices is also prohibited. Class lectures and discussions cannot be recorded.

Student use of PDAs, cell phones, or laptops during class or lab without instructor permission will result in dismissal from the class or lab (and be counted as an unexcused absence).

If you require classroom accommodations or modifications because of a documented learning disability or other special needs (visual, hearing, psychological, etc.), please inform me at the beginning of the semester. Also make sure to contact the university’s Coordinator of Disability Services (294-2322) during the first week of the semester. Please feel free to see me privately if you have any concern. I will work with you to make your experience in this course a positive one.

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Evaluations

Students will be evaluated on:

Sustainability Science Human Systems Research Project (Team) 30%

First Test (short answer and essay) 25%

Second Test (short answer and essay) 25%

Sustainability Science Human Systems Literature Review 20%

A Note about Deadlines: As per departmental policy, late assignments will not be accepted.

Sustainability Science Human Systems Research Project (TEAM). One of the critical learning objectives of this assignment is to place students into a research team similar to the professional interdisciplinary (and what some call transdisciplinary) sustainability science working groups. To assist with this assignment, each laboratory exercise focuses on a sustainability science research method and a sustainability science/human systems concept. Students will become familiar with a survey of sustainability science research methods from ethnographic to experimental, spatial to multivariate statistical analysis. Through these laboratory exercises, students working in teams will identify a research question and apply one or more of these methods to address a key question for a required course assignment. Your research presentation and paper will be evaluated on clarity of thesis, integration of course material (framing of the topic with relevant scholarly literature), use of evidence to support your arguments, depth of analysis, and style/grammar. More information about this unique experiential research project is included in appendix one.

Sustainability Science Human Systems Literature Review. Understanding human perception and behavior is one of the most challenging aspects of sustainability science. In this assignment, students will identify a particular question of interest to them regarding human perception, human behavior, or both. Examples include subsets of the course guiding questions to other queries stimulated by our course readings, discussions, and laboratory exercises. I encourage you to identify a focus that may lend itself to complementing your later research work in the sustainability science major. The resulting review of scholarly resources on the topic will be no longer than four single spaced pages, and will include at least 10 peer reviewed/academic sources. The review will be evaluated on the clarity of thesis (based on the literature reviewed; e.g., is there an overarching finding from the previous literature that connects the research reviewed?), identification of relevant scholarly themes, integration of scholarly themes (summaries of articles are discouraged, rather students should summarize the key themes and cite accordingly), critical analysis of previous work (What are the strengths? What are the weaknesses? What are the gaps in the research to date?), and style/grammar. More information about this assignment will be shared in class.

A Note about Tests. Students will take two in-class short answer and essay tests, each of which will constitute 25 percent of your final grade. The tests will cover the material presented throughout the course. A study guide will be distributed prior to each test.

COURSE GRADE: The grading scale is: 100-98=A+; 97-92=A; 91-90=A-; 89-88=B+; 87-82=B; 81-80=B-; 79-78=C+; 77-72=C; 71-70=C-; 69-68=D+; 67-62=D; 61-60=D-; 59 and below=F.
Office Hours
In addition to my professorial duties, I also serve as the Director of the David E. Shi Center for Sustainability. Because of my administrative responsibilities, my office hour schedule (noted at the top of this syllabus) may be altered during some weeks of the semester. I will let you know in class or via email any alterations. Other times are also available by appointment. As possible, please plan ahead to meet during the scheduled office hour times. Look forward to seeing you!

Test Policy
Absences on test days will not be excused unless the student provides verifiable documentation of accident, illness, or college or legal obligation. Unexcused absences will result in a score of zero for that test. A make-up test for excused absences will be by arrangement with the instructor within one week of the test date.

Integrity
Integrity gives the educational enterprise its legitimacy. Honesty, respect, and personal responsibility are crucial principles that guide academic life at Furman, in and out of the classroom. Academic misconduct in any form (plagiarism, cheating, inappropriate collaboration, and any other efforts to gain an unfair academic advantage) threatens the core values of the campus community and will have severe consequences, including failing the course, and/or suspension or dismissal from the university. Academic misconduct will not be tolerated in this course. Plagiarism involves the presentation of someone else’s ideas or language as your own. Cheating is giving or receiving unauthorized assistance on any graded assignment. If you are uncertain about such academic protocols, meet with me to discuss the issues. If you have any doubts about issues related to academic integrity, tell me. You should also be familiar with the information available at www.furman.edu/main/integrity.htm.

Course Outline#
Please note readings and other reviews of Internet sources listed are to be completed by the date indicated throughout the syllabus.

As with the field of Sustainability Science, this course is problem-based and solution-driven. Accordingly, we will grapple with a series of practical questions throughout the course as a means of employing and the basic methodological approaches associated with the field of Sustainability Science. Since the course is interdisciplinary, we will also benefit from several the sharing of different disciplinary perspectives from other Furman faculty and community leaders through our laboratory field experiences.

Please note that all reading assignments are DUE ON the DATE where each is listed; for example, if an assignment is listed on March 17, it is due on that date; if readings are listed under April 1, these readings should be completed so you can participate in class discussion April 1.

Classes are 1:00-2:15 on Tuesdays and Thursdays, and laboratory is 2:30-5:20. However, please note for some field experiences I will provide the lecture during the 1:00-5:20 class and lab timeframe due to the need for travel as well as on site discussions about the places included in the course.

I. Introduction

Tuesday, January 8

Class Topic (1:00-2:15): Introduction – Researching Peoples in Places

Readings/Resources:
II. Sustainability Science’s Approach to Human Systems Theory and Practice

Thursday, January 10

Class Topic: Researching the Underpinnings of Sustainability Science

Readings/Resources:
*“Sustainability Research: An Introduction” (Franklin and Blyton in Franklin and Blyton)

Guidance/Assignments: Come to class prepared to share your initial, individual sustainability science human systems research ideas and interests.

Tuesday, January 15

Topic: Cultural Heritage, Conservation, and Sense of Place

Readings/Resources:
*“Developing and Delivering Social Science Research for Sustainability” (Peattie in Franklin and Blyton)

*“Conservation: Animals Without Borders” The Economist March 2012

*Review www.nps.gov/carl/index.htm

Guidance/Assignments: Bring a field journal and pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack. We will be exploring notions of cultural heritage and sense of place theory along with various place-based research questions on site.

LABORATORY: DEDUCTIVE AND INDUCTIVE RESEARCH APPROACHES FOR HUMAN SYSTEMS
Field Experience -- Connemara, Flat Rock, NC – People, Places and Stories of the Carl Sandburg National Park

Thursday, January 17

Topic: Environmental Decision-making and Rational Choice

Readings/Resources:
*“Negotiating the Terrain: Doing Research Abroad” (Obara and Robinson in Franklin and Blyton)

Guidance/Assignments: In this class, we will examine how different understandings of land and livelihoods impact personal choices and decisions as well as public policy dynamics.

Tuesday, January 22

Topic: **RISK (Cultural Theory + Psychometric Paradigm = Cultural Cognition) and Environmental Justice**

Readings/Resources:

* **Statistics: A Very Short Introduction** (all chapters except Chapter 4)


* Review [www.r-project.org](http://www.r-project.org) and [www.hmdc.harvard.edu/projects/SPSS_Tutorial/spsstut.shtml](http://www.hmdc.harvard.edu/projects/SPSS_Tutorial/spsstut.shtml)

Guidance/Assignments: Bring to class a list of all the “risks” you experienced since you awoke this morning.

LABORATORY: **SUSTAINABILITY SCIENCE QUANTITATIVE DATA ORGANIZATION AND ANALYSIS** (including overview of R Software and SPSS Software)

Lab guest: Dr. John Quinn, Biology Department, Furman University

Thursday, January 24

Topic: **Media Discourse and Media Politics**

Readings/Resources:

**“Making Sense of Climate Change: Notes on Interpretive Policy Analysis and Discourse Analysis in Sustainability Research”** (Feindt and Netherwood in Franklin and Blyton)


Guidance/Assignments: Bring the completed assigned media worksheet to class.

Tuesday, January 29

Topic: **Consumption and “Human Nature”**

Readings/Resources:

**“Happiness,” “Nature,” and “Posterity” (Coyle)**

Guidance/Assignments: Come to class prepared to discuss your notion/conceptualization of happiness. We will likely meet at an alternative location for this class (to access Geographical Information Systems or GIS); more details will be shared in class.

LABORATORY: SPATIAL, SYSTEMS MODELING  
Lab guest: Dr. Suresh Muthukrishan Earth and Environmental Sciences Department, Furman

Thursday, January 31  
**Topic: Citizen Participation, Social Capital, and “Bowling Alone”**  
**Readings/Resources:**  
**“Fairness” and “Trust” (Coyle)**

Guidance/Assignments: Bring the citizen participation exercise to class. Submit your team research proposal electronically to angela.halfacre@furman.edu no later than 11:00 am.

Tuesday, February 5  
**Topic: Faith Development and Conceptualizing Stewardship**  
**Readings/Resources:**  
**“Case Study Method in Sustainability Research “ (Evans in Franklin and Blyton)**


Guidance/Assignments: Bring the completed self-assessment exercise to class and laboratory. Bring a field journal and a pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack.

LABORATORY: CASE STUDY METHOD (including Examining Stewardship and... You)  
Field Experience -- Triune Mercy Center, Greenville, SC  
Lab guest: Dr. Elaine Nocks, Professor of Psychology Emeritus, Furman

Thursday, February 7  
**Topic: Catastrophe Capitalism**  
**Readings/Resources:**  
**“Grounding Rapidly Emerging Disciplines: The Fair Trade Towns Movement” (Samuel in in Franklin and Blyton)**

Guidance/Assignments: Come to class prepared to discuss how community development, in a variety of forms, can be conceptualized.

Tuesday, February 12

**Topic: Leadership and Entrepreneurship**

Readings/Resources:

*“Sustainable Futures: Futures Studies and Food Supply Systems”* (Morgan and Bailey in in Franklin and Blyton)

*Review [www.mushroommountain.com](http://www.mushroommountain.com)

Guidance/Assignments: Bring the completed entrepreneurship exercise to class and laboratory. Bring a field journal and a pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack.

LABORATORY: HUMAN SYSTEMS THEORY APPLICATION
Field Experience (on site 1:45ish to 4:15ish) -- Mushroom Mountain

Thursday, February 14

**Test One**

**III. Sustainability Science’s Approach to Understanding Human Systems: Problem-Based, Solution-Driven**

Tuesday, February 19

**Topic: Migration**

Readings/Resources:

*“Elite and Elite-lite Interviewing: Managing Our Industrial Legacy” and “Surveying the Field: Applying the Just Sustainability Paradigm”* (Vaughan in in Franklin and Blyton)

*“Border Follies: Liberalising Migration Could Deliver a Huge Boost to Global Output”* *The Economist*, November 2012

Guidance/Assignments: Ask relatives what they consider to be your family’s country of origin; come to class prepared to discuss the various places your family has lived (and why they moved).

LABORATORY: INTERVIEW AND SURVEY DATA COLLECTION [Including Interviewing (Individual and Focus Group) and Survey Techniques]

Thursday, February 21

Topic: **Coping with Complexity**

Readings/Resources:
**“Measurement”, “Values”, and “Institutions”** (Coyle)


Guidance/Assignments: Come to class prepared to discuss the research approaches and methods we have examined to date and how they apply to our understandings of human systems “progress”.

Tuesday, February 26

Topic: **The Impact of the Great Recession upon Consumer Behavior**

Readings/Resources:
**“The Manifesto of Enough”** (Coyle)


Guest speaker: Dr. David E. Shi, President Emeritus, Furman

Guidance/Assignments: In this class, we will examine consumption trends on a variety of scales. This will include some fieldwork on campus; bring a field journal and a pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack.

LABORATORY: DOCUMENT ANALYSIS

Thursday, February 28

Topic: **Epidemiology and Ethnography**

Readings/Resources:
**“Ethnographic Practices and the Practices of Biosecurity”** (Eticott in Franklin and Blyton)

**“Outsmarter Outbreaks”** Science 30 November 2012: Vol. 338 no. 6111 pp. 1161-1162
DOI:10.1126/science.1232327


Guidance/Assignments: Consider which data would be important to gather to understand the relationships among demographics and disease. Bring the completed epidemiology exercise to class.

Tuesday, March 5  SPRING BREAK

Thursday, March 7 SPRING BREAK

Tuesday, March 12

Topic: **Constructionist Approaches and Generativity (generation/age cohort perceptions)**

Readings/Resources:
**“Mediating Sustainability: Constructivist Approaches to Sustainability Research”** (Lee and Stech in Franklin and Blyton)


Guidance/Assignments: Come to class to discuss your experiences with older adults regarding their environmental perceptions and understandings of how human systems should function. Bring a field journal and a pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack.

LABORATORY: **CONSTRUCTIVIST APPROACHES**  
Field Experience -- The Woodlands at Furman  
Lab guest: Dr. Michelle Horhota, Psychology Department, Furman

**IV. Reporting Sustainability Science Research**

Thursday, March 14

Topic: **Ethics, Values, and Disseminating Sustainability Research**

Readings/Resources:
**“Generalizing Sustainability Research: Some Reflections from a Study of Work-Life Integration”** (Blyton and Jenkis in Franklin and Blyton)
*Review http://www2.furman.edu/sites/IRB/Pages/default.aspx

Guidance/Assignments: Come to class ready to ask our guest speaker questions about how to apply for Institutional Review Board (IRB) permission at Furman.

Guest Speaker (1:30-2:15): Brianne Pochard, Grants and Research Administration

Tuesday, March 19

Topic: **Sustainable Agriculture, Horticulture Practices, and Sharing Sustainability Stories**

Readings/Resources:
**“Engaging the Media: An Academic’s Sojourn in the Newsroom” (Frater in Franklin and Blyton)**

Guest Speakers: Dr. Courtney Quinn, Shi Center for Sustainability, and Jenn Summers (Biology Major ’13), Furman

Guidance/Assignments: Bring a field journal and pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack.

LABORATORY: COMMUNICATING SUSTAINABILITY AND QUALITATIVE ANALYSIS
Field Experience -- Mastering “Gardening for Good”, Community Garden (located adjacent to the Swamp Rabbit Café in Traveler’s Rest, SC)

Guest Hosts: Russell Stall, Executive Director of Greenville Forward and Reece Lyerley, Director of Gardening for Good

Thursday, March 21

Topic: **Project Workshop**

Readings/Resources: Organize your selected readings to date for your individual research.

Guidance/Assignments: This workshop provides you time to consider your own individual research application.

^Please note I will be in Charlotte, North Carolina for The Duke Endowment Summit Tuesday, March 19 through Friday, March 22 and in Charleston, South Carolina, for the Coastal Conservation League’s Advisory Council meetings from Friday, March 22 through Monday, March 25.

Tuesday, March 26

Topic: **Solution-Driven Research I and Reporting Values Reflection, Perceptions, and Behavior of Non Human Animals**

Readings/Resources:

Guidance/Assignments: Bring a field journal and pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack.

LABORATORY: ANALYZING AND REPORTING BEHAVIOR  
Field Experience -- Greenville Zoo  
Lab guest: Jack Byrne, Director of Sustainability Integration, Middlebury College

Thursday, March 28  

**Topic:** Solution-Driven Research II  

Readings/Resources:  
**“Engaging with Policy-Makers: Influencing Sustainability Policy through Academic Research” (Roberts in Franklin and Blyton)**

Guidance/Assignments: Come to class prepared to discuss your individual and team research projects.

Tuesday, April 2  

**Topic:** Studying Human Systems through Space and Place  

Readings/Resources:  
**“Sustainability Science and a New Spatial Imagination: Exploring Some Analytical and Methodological Considerations” (Marsden in Franklin and Blyton)**

Guidance/Assignments: We may meet in an alternative location; details to be shared in class.  

LABORATORY: FishBank (a modeling exercise that explores sustainable fisheries)

**Thursday, April 4**  

**Test Two**

**V. Distilling the Essential Elements of Sustainability Science**

Tuesday, April 9  

**Topic:** Human Systems, Scale and Systems Thinking  

Readings/Resources:  
*Review* http://www.splitcreek.com
Guidance/Assignments: Come to class prepared to compare and contrast Connemara’s goat dairy operation with Split Creek Farm’s approach. Bring a field journal and pen. Dress in layers, wear comfortable walking shoes, and bring water, rain gear, and a snack.

LABORATORY: REPORTING SCALE AND SYSTEMS THINKING
Field Experience -- Split Creek Goat Farm, Anderson, SC

Guidance/Assignments: **Sustainability Science Human Systems Scholarly Literature Review Due; bring a hard copy to class and also submit to angela.halfacre@furman.edu before 1:00 pm.**

**Thursday, April 11**  Class moved to the Furman Engaged research fair

**Friday, April 12**  FURMAN ENGAGED!

**Tuesday, April 16**

**Topic: Project workshop**

Guidance/Assignments: This class and lab will be a workshop for your team research project report methods.

LABORATORY: DISTILLING THE ESSENTIAL ELEMENTS

**Thursday, April 18**

**Topic: Project workshop**

Guidance/Assignments: This class and lab will be a workshop for your team research project report methods.

**Tuesday, April 23**

**Topic: Sustainability Science Human Systems Class Research Presentations**

Guidance/Assignments: This will be an invitation-only event, and include some key reviewers from our campus and community to provide feedback for your research projects. Format to be shared in class.

**Friday, April 27**

**FINAL EXAM – Course themes recap and discussion and final “deliverables” (research project papers) due. Format to be shared in class.**

#Dr. Halfacre reserves the right to alter the course outline as needed.
Appendix I

Sustainability Science Human Systems Research Project (TEAM)
SUS 240 Human Systems
Dr. Angela Halfacre
Furman University

Students are required to conduct a team-based sustainability science research project examining human systems for this course. In this assignment, students will pinpoint a focused research question and identify and analyze relevant data for your project.

Teams will be organized no later than the second week of class. Each team will identify a research focus by exploring the course concepts and methods and spending time with their professor finalizing a best project topic. For this project, student teams are required to write a paper and develop a short presentation for invited reviewers (including class members) on April 23. Reviewers will be selected based on the team research topic. Presentations will be no longer than 15 minutes. Papers should be no longer than 12 single spaced pages (not including appendices). Papers will be submitted for your course final exam project on Friday, April 27.

The general format of the research presentation and papers are elaborated on in detail below; these are guidelines to help you focus your project and present the research professionally.

For your class presentation, all these elements will be represented in a brief form.

1) **ABSTRACT** – This abstract should be approximately 250 words and follow the format we discuss in class (see any peer-reviewed article for a targeted journal and you can also model your approach in this way).

2) **INTRODUCTION** – This is a description of your research problem. Describe the importance of the problem you wish to examine. What will your research contribute to sustainability science?

   Present as much information (general to your specific research project) as you think necessary to orient your reader to the situation or problem you investigate. You should take pains to convince your audience that the topic you wish to study is important and that you have NARROWED the topic.

   To elaborate, describe the problem and discuss its relationship to sustainability science, with an emphasis on human systems. A research question and hypothesis should be included in this section. Specifically, you should present a clear, coherent, and logical argument as to why this problem is important (i.e., background of the problem should be outlined). You should describe what research you wish to pursue and why this research is necessary.

   In this section, you should briefly should mention some previous literature/research in framing your problem and how your project will further previous findings.

   Again, a research question and hypothesis should be included in this section. [Repetition indicates IMPORTANCE.] Explain the research question which you have selected to investigate. What will your research contribute to sustainability science? In this section, you should state a thesis.
3) LITERATURE REVIEW -- You should elaborate findings from previous literature/research in framing your problem and how your project will further previous findings.

THIS WILL BE A **LENGTHY** COMPONENT.

Review some of the background information on this topic/research question. Library research should assist you here. Explain how the topic of your study and the issues around it has arisen in the scholarly literature. Why is it important? Why is it substantively significant? Describe how this topic has been approached by other natural, physical, or social scientists or analysts. What hypotheses have they attempted to test? How will your analysis fit in? Will you duplicate the research or fill in the gaps? Academic works will be important sources here.

4) DATA AND METHODOLOGY – Outside readers should be able to make a determination of the appropriateness of the proposed research design for achieving the stated goals. Include a detailed description of your research design, any data collection efforts, and data analysis techniques.

Describe the data you use in the analysis. For example, if you are using a survey data set to guide your research, you should include the sample size, purpose of the study, and how the data was collected.

Detail how you will operationalize the variables of interest. Describe what method(s) you employ to analyze the data.

5) RESULTS. Based on previous literature and your subsequent research design, what are your findings? Carefully report these, and be sure to describe tables, graphs or figures to present your material.

Your tables and figures should be included after the narrative, and you should indicate in the text of your manuscript where the table, graph, or figures should be located.

Ex. ***Table 1 About Here***

The way you present findings will vary across projects.

6) DISCUSSION/CONCLUSION. Provide a summary of your findings. Outline the results and their potential application/implications with respect to sustainability science, and identify those users and groups who will benefit from the work. Discuss the advantages/strengths and disadvantages/weaknesses of your research design, and what other data and techniques should be used for further study.

Discuss the degree to which your empirical analysis supports your hypothesis and general proposition and lends insight to the original question which guided your analysis. Further, in this section, you should discuss the implications of your findings. Generally, what do your findings tell us about sustainability science? Based on your findings, what future research should be done in this area?

7) REFERENCES. You must use at least 20 academic (e.g., peer-review articles, university press books, other academic publisher books) sources that you have examined and are cited in your research.

Be sure your bibliographical entries are in a consistent, appropriate format.
8) APPENDICES. Please include any appropriate appendices. These may include question wording, coding descriptions, or other information.

COMMENT: The written portion of your paper should be no more than 12 single-spaced pages, excluding tables and appendices. Please avoid making the discussion of research findings a recipe-like account; instead provide a careful, thorough analysis. Remember, I am here to help you in any way I can. Let me reemphasize that I am here to help you. I am happy to meet with you about the paper, provide guidance throughout the process, review early drafts, and provide feedback. The earlier you voice your concerns or ask me questions, the better able I will be to assist you.

As in all assignments for this course, I am here to help you. I am happy to meet with you about your research.

Sustainability Science Human Systems Research Project
Proposal Guideline—Due January 31
SUS 240 Human Systems
Dr. Angela Halfacre
Furman University

FOR YOUR PROPOSAL, YOU OR YOUR TEAM SHOULD INCLUDE THE FOLLOWING ELEMENTS:

1) EACH MEMBER’S CONTACT INFORMATION – Please include email and best phone numbers.
2) RESEARCH QUESTION – The question should guide your research/policy analysis.
3) RESOURCES/INITIAL BIBLIOGRAPHY – You must be able to find enough published information and original data to analyze the topic. It should include a list of at least five academic sources (from the course materials, library materials, etc.) that you have examined and think will be useful in your research. You should also list at least two potential interview respondents. Please include their professional title and contact information.
4) TENTATIVE TITLE
5) INITIAL QUESTIONS – Any initial questions you or your team has about the project.