

A Pedagogical Approach for “Wicked Problems”

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Food, Agriculture & Society (RSOC 3190)

3

- ▶ Wicked Problems
 - ◆ Food Security
- ▶ Class Project
 - ◆ Background
 - ◆ Goals
 - ◆ Steps
 - ◆ Support
 - ◆ Assessment



“Fresh Food” at a Dollar General in Alabama (Student Photographer: Woodland, J., 2015).

7/15/2016

Wicked Problems

- ▶ Hamm, M. 2009. *Principals for Framing a Healthy Food System*. *Journal of Hunger & Environmental Nutrition*, 4: 241-50.

Characteristic	“Wickedness”
Problem	<ul style="list-style-type: none">• No clear definition• Solutions may change problem
Stakeholders	<ul style="list-style-type: none">• Many with different ideas of the and real problem and/or causes
Stopping intervention	<ul style="list-style-type: none">• Determined by stakeholders, political forces, and/or resources
Assessment	<ul style="list-style-type: none">• Better or worse vs. good enough

Definition of Food Security (USDA ERS)

5

▶ “Secure” if **access** to enough readily **available** food for an active life that is

- ◆ Culturally appropriate, nutritionally adequate, and safe
- ◆ Obtainable in socially acceptable ways

▶ Classification

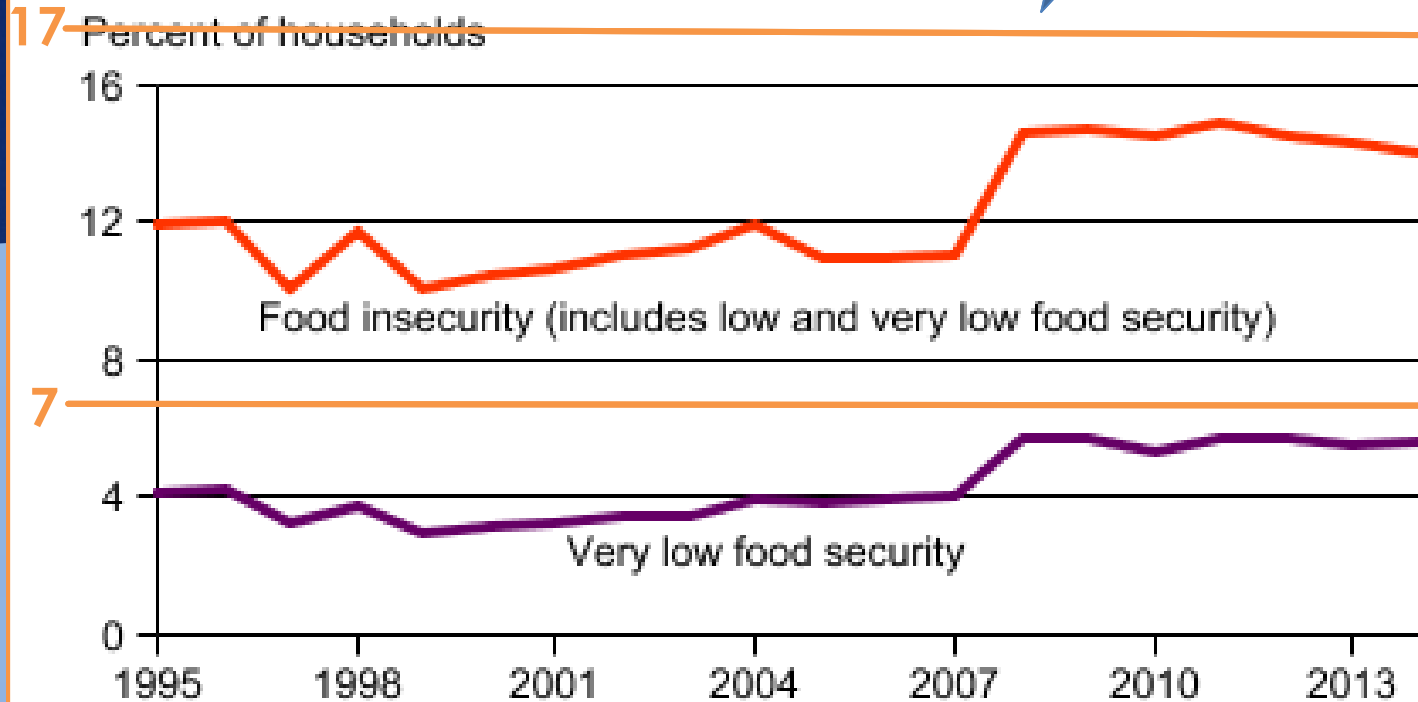
- ◆ **Low** security
 - ◆ Reduced quality, variety, or desirability
 - ◆ Little or no reduced intake
- ◆ **Very low** security
 - ◆ Multiple indicators of disrupted eating
 - ◆ Reduced intake

NA

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Alabama
 Low = 16.8%
 Very low = 7.2%

Trends in prevalence rates of food insecurity and very low food security in U.S. households, 1995-2014



Prevalence rates for 1996 and 1997 were adjusted for the estimated effects of differences in data collection screening protocols used in those years.

Source: Calculated by USDA, Economic Research Service using Current Population Survey Food Security Supplement data.

Food Insecurity Rates

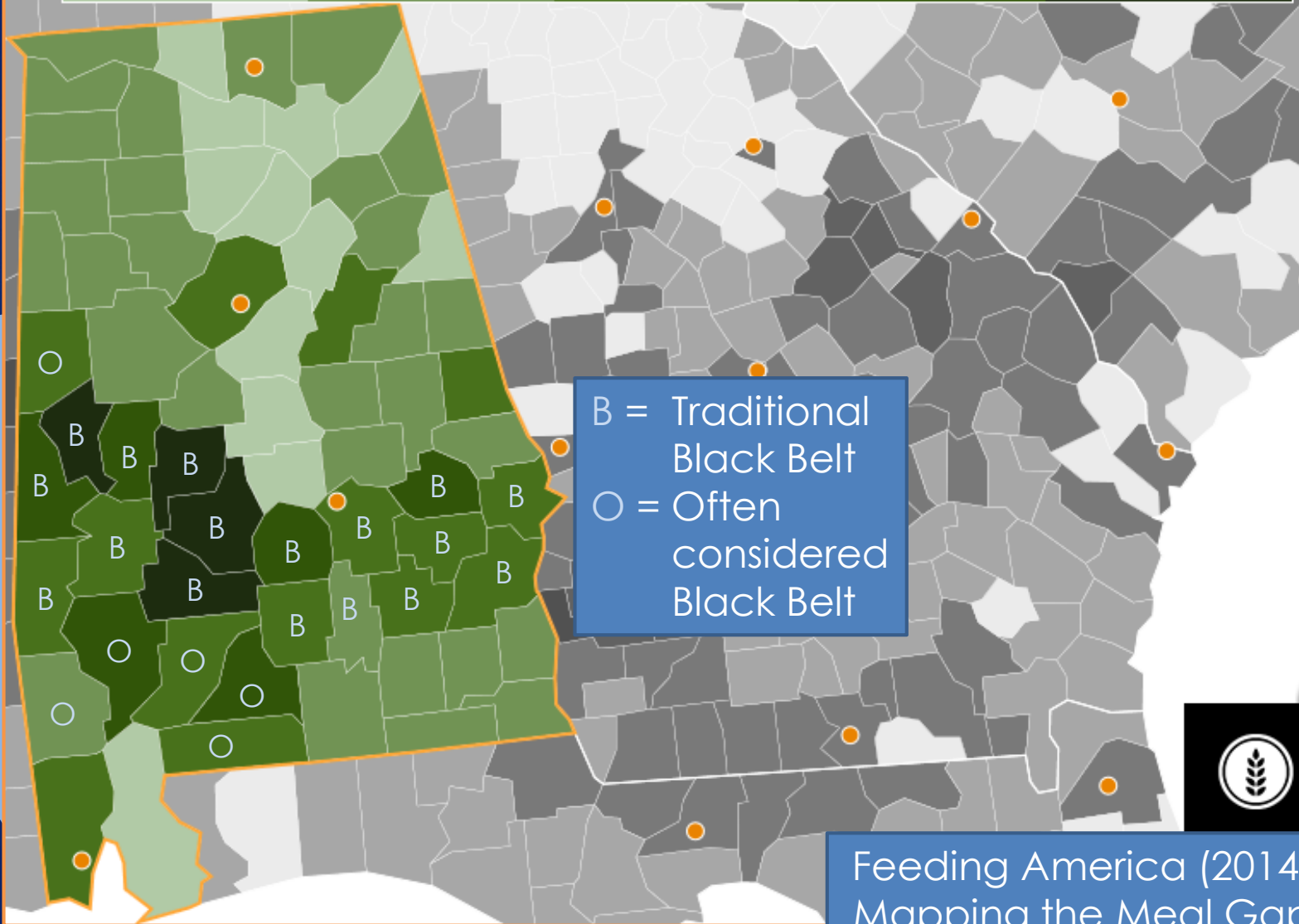
4-14%

15-19%

20-24%

25-29%

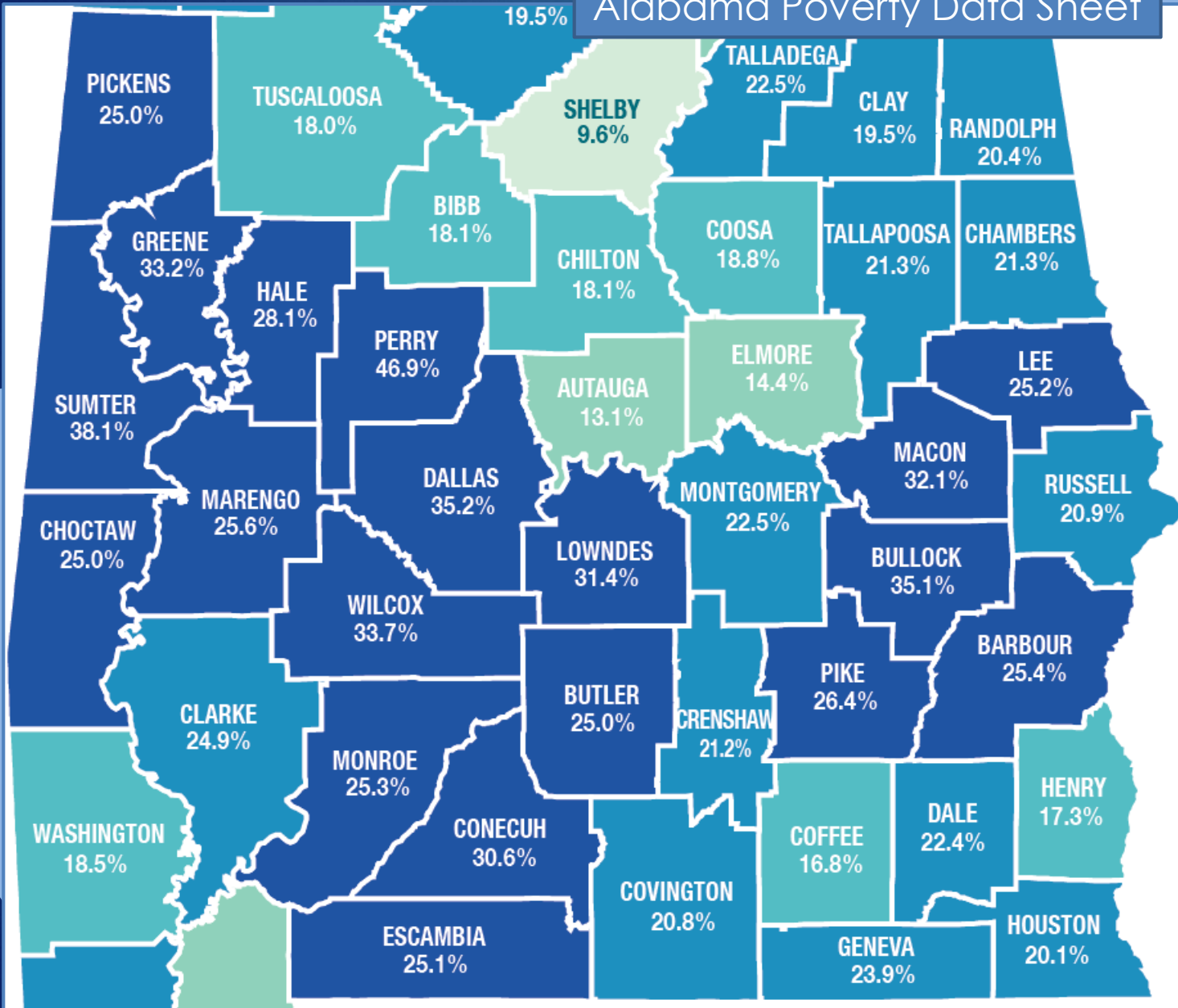
30% +



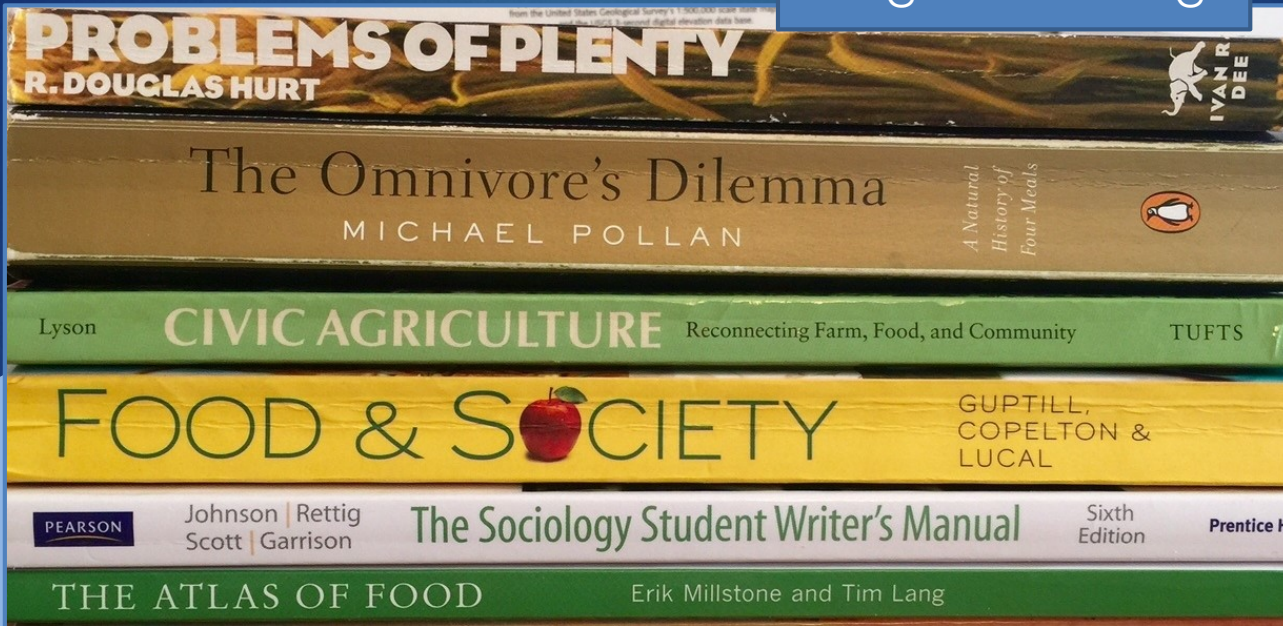
B = Traditional Black Belt
O = Often considered Black Belt

Feeding America (2014)
Mapping the Meal Gap

Alabama Possible (2016) Alabama Poverty Data Sheet



Assigned readings



Food, Agriculture & Society

RSOC 3190

Course Organization

11

1. Historical development

- ◆ **Topics included:** farm and rural development policies, transformation of southern agriculture, labor, science and technological change.

2. Outcomes and impacts

- ◆ **Topics included:** vertical and horizontal concentration, environment, labor, globalization, privatization of science, consumption, food safety.

3. Current trends

- ◆ **Topics included:** bi-furcation, scale, production-consumption alternatives, quality, community.

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Barbour

- lots of convenience & dollar stores
- many fast food options
- lack of variety
- rural
- lower socioeconomic demographic
- highly processed, low quality foods
- preserved foods
- farming / timber community

BULLOCK

- o RURAL AREA
- o SMALL FARMING
- o PIGGLY-WIGGLY GROCERY STORES
- o FAST-FOOD RESTAURANTS
- o HOME GARDENS
- o LESS DIVERSITY & LIMITED AVAILABILITY
- o IFFY SCHOOL LUNCH PROGRAMS

Black Non-Hisp. (%Pop)

Alabama	26.0
Russell County	41.4
Barbour County	46.7
Bullock County	70.0

In-class exercise
(09Nov15) in which
students responded
to the question,
“what do you expect
to see when visiting
your county?”

Russell

- Rural; farmland
- Higher amount of fast food restaurants compared to full-service restaurants
- Local exchange of food within communities
- church potlucks
- food stands
- reduced lunch cost participants
- PigglyWiggly
- close knit social bonds w/in community
↳ trust, commerce w/friends
- tension between local business & chains/companies
- lack of nutrition knowledge
- limited selection/quality within easy access
- lack of funding in areas under county jurisdiction



Economic
Research
Service



E-FAN-02-013



Electronic Publications from the Food Assistance & Nutrition Research Program

Community Food Security Assessment Toolkit

By Barbara Cohen, IQ Solutions, Inc.

ERS contacts: Margaret Andrews and Linda Kantor

Abstract

This report provides a toolkit of standardized measurement tools for assessing various aspects of community food security. It includes a general guide to community assessment and focused materials for examining six basic assessment components related to community food security. These include guides for profiling general community characteristics and community food resources as well as materials for assessing household food security, food resource accessibility, food availability and affordability, and community food production resources. Data collection tools include secondary data sources, focus group guides, and a food store survey instrument. The toolkit was developed through a collaborative process that was initiated at the community Food Security Assessment Conference sponsored by ERS in June 1999. It is designed for use by community-based nonprofit organizations and business groups, local government officials, private citizens, and community planners.

Keywords: Community food security, community assessment, hunger, food assistance programs, emergency food providers, food store access, food affordability, Thrifty Food Plan, community-supported agriculture.

“Collection of various types of data to provide answers to questions about the ability of existing community resources to provide sufficient and nutritionally sound amounts of culturally acceptable foods to households in the community” (pg8).

Approaching “Wickedness”

14

Key Objectives

- ◆ Experience evaluating and synthesizing data
- ◆ Use data to describe case and make empirically-based arguments
- ◆ Engage with lecture content and assigned texts
- ◆ Practice “soft skills” associated with team-based project

Sub-Objectives

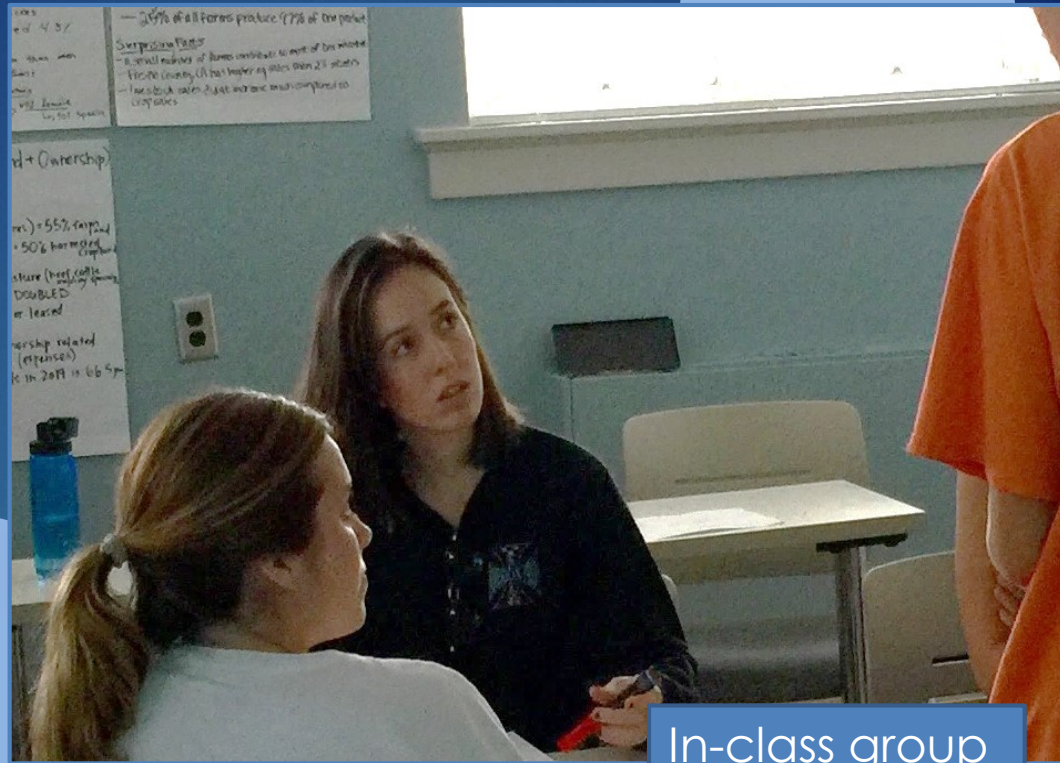
- ◆ Improve information literacy
 - ◆ Collect relevant statistics and build useful datasets
 - ◆ Visually represent data in meaningful ways
 - ◆ Use sociological concepts to explain findings
- ◆ Complete long-term assessment project

NA

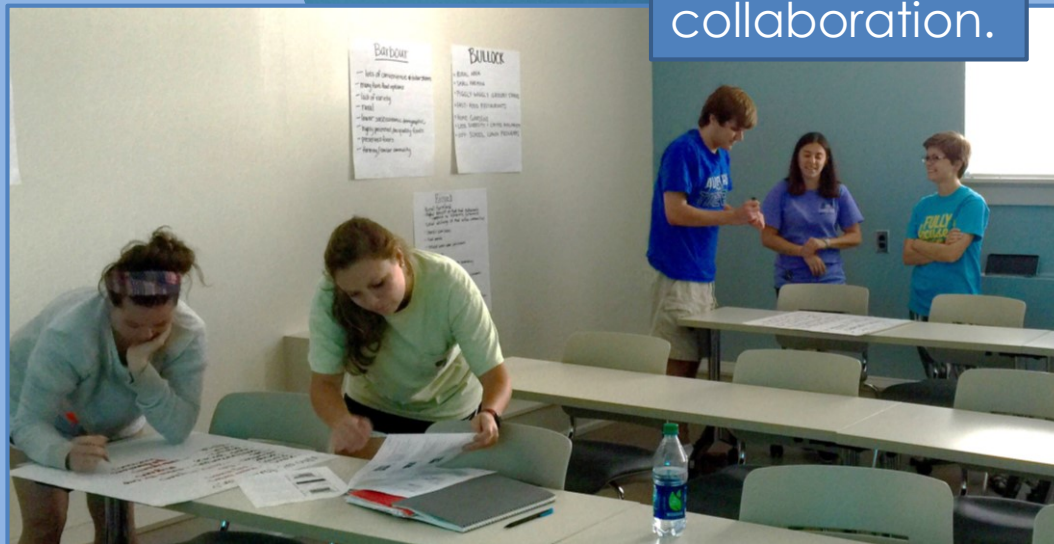
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Project

Community Food Security Assessment of an Alabama Black Belt County



In-class group collaboration.





Students working with resources at the library.

I. County

COMMUNITY FOOD SECURITY ASSESSMENT

Black Belt Region in Alaba... x +

www.encyclopediainfoalabama.org

Encyclopedia of Alabama

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Quick Facts

Home > Geography and Environment > Human Environment > Regions > Black Belt Region in Alabama

Black Belt Region in Alabama

Terance L. Winemiller, Auburn University at Montgomery



Crossing Edmund Pettus Bridge

Depending on the criteria employed to characterize the area, the Black Belt of [Alabama](#), named for its dark, rich soils, contains roughly between 12 and 21 counties in the central part of the state. Geographically, Alabama's Black Belt is part of a larger crescent-shaped area known as the Southern Black Belt, which extends from Maryland to Texas. The region's identity is rooted in both its physical and [cultural geography](#) and its historical development. During the twentieth century, Alabama's Black Belt became a hotbed of activity for the [civil rights movement](#) in the South. In [Macon County](#), [Tuskegee Airmen](#) trained at Tuskegee Army Airfield from 1941 through 1946. [Montgomery County](#) witnessed the [Bus Boycott](#) from 1955 to 1956. Highway 80 in [Dallas](#), [Lowndes](#), and Montgomery counties shaped the route taken by participants from the Black Belt and beyond during the [historic march](#) for equal rights from Selma to Montgomery in 1965. And the [Lowndes County Freedom Organization](#) (later the Black Panther Party) was an outgrowth of that march.

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External Links:

- [State of Alabama](#)
- [Alabama Black Belt Heritage Area](#)
- [Alabama Dept. of Education](#)
- [Alabama Department of Revenue](#)
- [Alabama Farmers Federation](#)
- [Alabama Humanities Foundation](#)
- [Alabama Maps](#)
- [Alabama Rivers Alliance](#)
- [Alabama Trust for Historic Preservation](#)
- [AUM Center for Business and Economic Development](#)
- [AUM Center for Demographics](#)
- [AUM Center for Government](#)
- [Black Belt Community Foundation](#)
- [Center for the Study of the Black Belt](#)
- [Discovering Alabama](#)
- [Energy Information Agency](#)
- [Geological Survey of Alabama](#)
- [Rural Studio](#)
- [Southern Spaces, Wayne Flynt](#)
- [University of Alabama Center for Economic Research](#)
- [U.S. Census Bureau](#)

Background

▶ General

- ◆ History
- ◆ Location



Russell County, Alabama

Classification: Metropolitan

Southern Rural Development Center -- <http://srcd.msstate.edu/data/center>

Demographics

	1990	2000	2010
Population	46,860	49,756	52,947
White Non-Hispanic (%Pop)	60.4	56.1	52.1
Black Non-Hispanic (%Pop)	38.5	40.6	41.4
Hispanic (%Pop)	0.6	1.5	3.7
0-24 Yrs (%Pop)	37.2	35.7	35.2
25-64 Yrs (%Pop)	50.1	51.2	52.1
65+ Yrs (%Pop)	12.7	13.1	12.7

Components of Population Change

	2000	2009
Natural (Births minus Deaths)	39	128
Domestic	-107	383
International	7	50
Net Migration	-100	433

Education

	1990	2000	2010
Less than H.S. (%Pop 25+)	43	33.5	23.4
High School Grad. (%Pop 25+)	30.8	33	33.4
Some College (% Pop 25+)	18	23.8	29.7
Bachelor's or more (% Pop 25+)	8.2	9.7	13.5

Housing

	1990	2000	2009
Housing Units	19,633	22,831	26,607
Building Permits	151	358	745
Avg. Bldg. Permit Value	\$42,788	\$60,913	\$141,118

Poverty & Unemployment Rate

	1990	2000	2009

PROFFER

Background

- ▶ General
 - ◆ History
 - ◆ Location
 - ◆ Economy
 - ◆ Sociodems

NA

Background

- ▶ General
 - ◆ History
 - ◆ Location
 - ◆ Economy
 - ◆ Sociodemographics
- ▶ Agrifood production
 - ◆ Who
 - ◆ What
 - ◆ How much



Research librarians searching for missing, historical, Census of Agriculture data.

Food Access

- Finances (store budget, resident income)
- Transportation (public transport, vehicle access)
(buses \$)
- Stores (# & what types)
- Government assistance
- Range of options/availability
- Store hours

Barriers to Food Access - Barbours

- lack of transportation
- low SES
- low store availability
- not enough healthy foods within stores
- low govt assistance participation
- low wages / longer hours
- lack of higher / good quality education
- lack of industry / commerce
- low diversity of food outlets

Food Access

- Transportation
- Purchasing Ability (Employment)
- # of food outlets
- Proximity & Concentration
- Government Assistance (Unemployment)
- Non-Profit Food Options (Food Banks, ^{Soup} kitchens)
- Low Government Representation

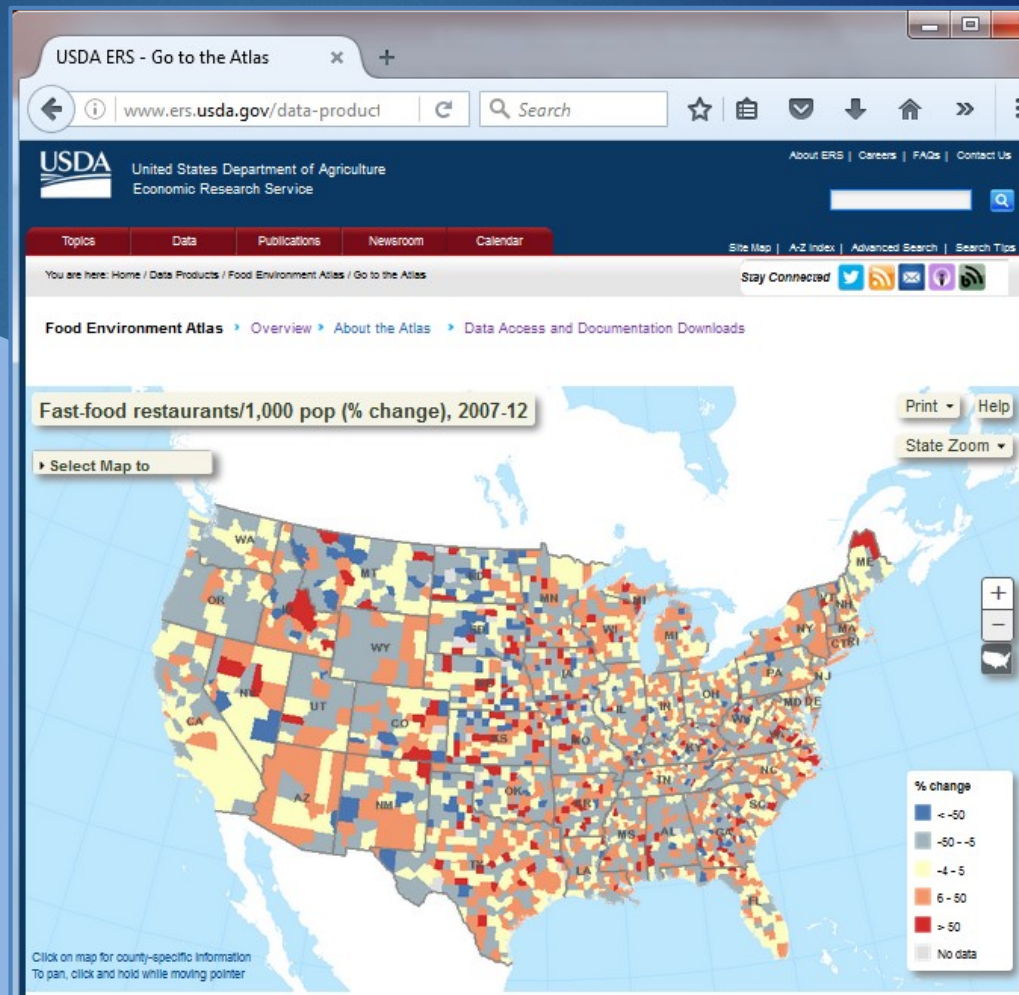
In-class exercise that asked groups to list the factors that might impact food access.

II. Access and Availability

COMMUNITY FOOD SECURITY ASSESSMENT

Food Access

- ▶ Outlets
- ▶ Transportation
- ▶ Food assistance



A116 State Food Insecurity

	A	B	C	D	E	F	G	H
65	Food Assistance	ASSISTANCE	SNAP	SNAP redemptions/SNAP-authorized stores, 2012	REDEMP_SNAPS12	CNTY10	Dollars/store	
66	Food Assistance	ASSISTANCE	SNAP	SNAP redemptions/SNAP-authorized stores (% change), 2008-12	PCH_REDEMP_SNAPS_08_12	CNTY10	% change	
67	Food Assistance	ASSISTANCE	SNAP	SNAP participants (% pop), 2009*	PCT_SNAP09	CNTY10	Percent	
68	Food Assistance	ASSISTANCE	SNAP	SNAP participants (% pop), 2014*	PCT_SNAP14	CNTY10	Percent	
69	Food Assistance	ASSISTANCE	SNAP	SNAP participants (change % pop), 2009-14*	PCH_SNAP_09_14	CNTY10	Percentage points	
70	Food Assistance	ASSISTANCE	SNAP	SNAP benefits per capita, 2008	PC_SNAPBEN08	CNTY10	Dollars/capita	
71	Food Assistance	ASSISTANCE	SNAP	SNAP benefits per capita, 2010	PC_SNAPBEN10	CNTY10	Dollars/capita	
72	Food Assistance	ASSISTANCE	SNAP	SNAP benefits per capita (% change), 2008-10	PCH_PC_SNAPBEN_08_10	CNTY10	% change	

Food Env Atlas documentation.pdf - Adobe Acrobat Pro

File Edit View Window Help

Open Create Misc Fill & Sign Comment

Food Environment Atlas Data Documentation

Data Released July 2015

Indicators are county-level measures unless otherwise noted with asterisks
 * State-level indicator
 ** Regional-level indicator

Definitions and data sources

Category: Access and Proximity to Grocery Store

Indicator: Population, low access to store

Geographic level County

Definition Number of people in a county living more than 1 mile from a supermarket, supercenter or large grocery store if in an urban area, or more than 10 miles from a supermarket or large grocery store if in a rural area.

Data sources Data are from the 2012 report, [Access to Affordable and Nutritious Food: Updated Estimates of Distances to Supermarkets Using 2010 Data](#). In this report, a directory of supermarkets, supercenters and large grocery stores within the United States, including Alaska and Hawaii, was derived from merging the 2010 STARS directory of stores authorized to accept SNAP benefits and the 2010 Trade Dimensions TDLinx directory of stores. Stores met the definition of a supermarket, supercenter, or large grocery store if they reported at least \$2 million in annual sales and contained all the major food departments found in a traditional supermarket, including fresh meat and poultry, dairy, dry and packaged foods, and frozen foods. The combined list of supermarkets and large grocery stores was converted into a GIS-usable format by geocoding the street address into store-point locations. Population data are reported at the block level from the 2010 Census of Population and Housing. These population data were aerially allocated down to 1/2-kilometer-square grids across the United States. For each 1/2-kilometer-square grid cell, the distance was calculated from its geographic center to the center of the grid cell with the nearest supermarket. Rural or urban status is designated by the Census Bureau's Urban Area definition.

participants (% eligible pop), 2008*	SNAP_PART_RATE08	CNTY10	Percent
participants (% eligible pop), 2010*	SNAP_PART_RATE10	CNTY10	Percent
online application, 2000*	SNAP_OAPP00	CNTY10	Classification
online application, 2005*	SNAP_OAPP05	CNTY10	Classification
online application, 2010*	SNAP_OAPP10	CNTY10	Classification
face interview waiver, 2000*	SNAP_FACEWAIVER00	CNTY10	Classification
face interview waiver, 2005*	SNAP_FACEWAIVER05	CNTY10	Classification
face interview waiver, 2010*	SNAP_FACEWAIVER10	CNTY10	Classification
vehicle exclusion, 2000*	SNAP_VEHEXCL00	CNTY10	Classification
vehicle exclusion, 2005*	SNAP_VEHEXCL05	CNTY10	Classification
vehicle exclusion, 2010*	SNAP_VEHEXCL10	CNTY10	Classification
road-based Categorical Eligibility,	SNAP_BBCE00	CNTY10	Classification
road-based Categorical Eligibility,	SNAP_BBCE05	CNTY10	Classification
road-based Categorical Eligibility,	SNAP_BBCE10	CNTY10	Classification
simplified reporting, 2000*	SNAP_REPORTSIMPLE00	CNTY10	Classification
simplified reporting, 2005*	SNAP_REPORTSIMPLE05	CNTY10	Classification
simplified reporting, 2010*	SNAP_REPORTSIMPLE10	CNTY10	Classification
al School Lunch Program			
ants (% pop), 2009*	PCT_NSLP09	CNTY10	Percent
al School Lunch Program			
ants (% pop), 2014*	PCT_NSLP14	CNTY10	Percent
al School Lunch Program			
ants (change % pop), 2009-14*	PCH_NSLP_09_14	CNTY10	Percentage points

Documentation and raw data from the USDA ERS Food Environment Atlas.

Food Availability

- ▶ Variety
- ▶ Quality
- ▶ Cost

Thrifty Food Plan Market Basket							
A	B	C	D	E	F	G	H
	Item	Availability (#)	Quality (#)	Container sold	Volume sold	Price / container	USDA FNS Authorized Subst (indicate which used)
Fresh Fruits and Vegetables							
24	Apples, any variety	1	2	\$/lb	-	1.19-2.39	Plantains
25	Bananas	1	2	\$/lb	-	0.79	
26	Grapes (green/red)	1	2	pre-weighed	0.5 lb	~1.49	
27	Melon (cantaloupe, honeydew, watermelon, o	1	2	each	-	3.69	
28	Oranges	1	1	each	-	0.79	Grapefruit
29	Carrots	1	1	bagged	1 lb	1.50	
30	Celery	1	1	bagged	1 stalk	1.59	
31	Green pepper	1	2	each	-	0.79	
32	Lettuce, loose-leaf (green/red)	1	2	bagged	9 oz	1.99	Any variety
33	Onions, yellow	1	1	\$/lb	-	0.79	
34	Potato, any variety	1	1	\$/lb	-	0.39	
35	Tomatoes, any variety	1	1	\$/lb	-	1.99	
36	Canned Fruits and Vegetables						
37	Oranges, mandarin, juice or light syrup	1	2	each	15 oz	1.97	
38	Peaches, juice or light syrup	1	1	each	15 oz	1.97	Canned pears
39	Mushrooms, pieces	1	1	each	8 oz	1.69	Mushrooms, whole
40	Spaghetti sauce	1	1	each	14 oz	2.00	Salsa
41	Tomato sauce	1	1	each	15 oz	0.83	Salsa
42	Frozen Fruits and Vegetables						
43	Orange juice, concentrate	1	1	can	12 oz	2.15	
44	Broccoli, chopped	1	1	bag	24 oz	3.59	Chopped greens
45	Green beans, any variety	1	1	bag	12 oz	2.00	Corn, okra, snow peas
46	Green peas, any variety	1	1	bag	12 oz	2.00	Corn, okra, snow peas
47	French fries, any variety	1	1	bag	28 oz	1.98	
48	Dairy Products						
49	Milk, 1% lowfat	1	1	each	gallon	3.88	Milk, skim
50	Milk, whole	1	1	each	gallon	3.88	Milk, 2%/reduced fat
51	Cheese, cheddar, any variety	1	1	each	8 oz	3.83	
52	Cheese, cottage, lowfat	1	1	each	16 oz	2.99	



Home Town Food, the only food retailer in the town. Its entrance is on the side of building in an alley (Student Photographer: Vaughn, B. 2015).

Personal Consumption

- ▶ Cost
- ▶ Source
- ▶ Quality
- ▶ Nutrition
- ▶ Waste

FOOD CONSUMPTION

- The amount of chicken
- Low cost when home-cooked food/meals
- Expected range of calories was constant
- Spent more \$ on weekends
- Difference in price when eating out versus at home

Food Consumption ^{surprises}

- workload negatively impacted nutrition
- spend more than predicted
- alcohol has lots of calories
- spend + eat more on weekend
↳ esp. eating out
- more time to cook on weekends → better nutrition (+vice versa)
- ~~food~~ food prices vary a LOT (via vendor + region)
- homecooked = way cheaper
- wasted more than expected

Consumption Surprises

- ate less + spent more than expected
- Gameday (Band) ate less
Gameday (Fan) ate a lot, \$\$\$
- entertaining guests so I ate out for social reasons
- days where we relied heavily on campus dining → more \$ + calories (mostly carbs + meat calories)

In-class, team, response to the question "what surprised you about your own consumption?"



Team responding to an audience question about their findings.

III. Findings

COMMUNITY FOOD SECURITY ASSESSMENT

Slide from a group presentation of results.

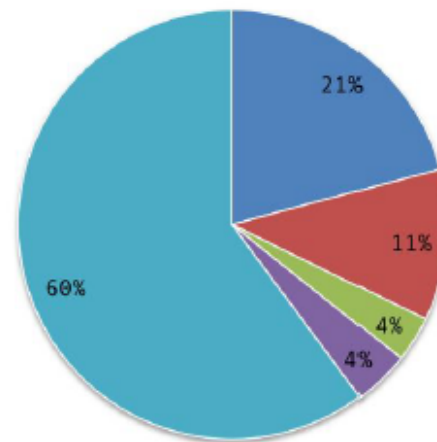
LIMITED ACCESS TO PUBLIC TRANSPORTATION

Eufaula Barbour Transit Authority

- only public transportation in Barbour County
- M-F 6am-5pm
- must make appointment 24 hours in advance
- \$2/one-way travel
(City of Eufaula, 2011)

10.6% of households in Barbour County do not have access to a car
(The Office of Primary Care, 2013)

Access to Stores: Barbour County

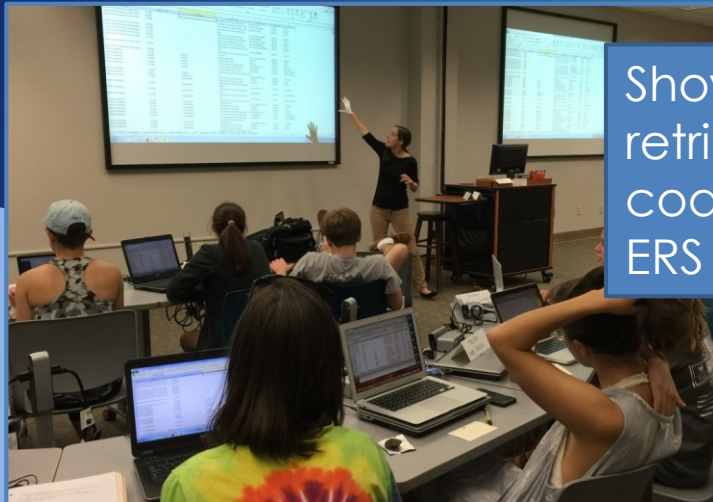


- % of population with low access to stores, 2010
- % of population with low income and low access to stores, 2010
- % of children with very low access to stores, 2010
- % of households with no car and low access to stores, 2010
- % of household with adequate access to stores, 2010

(USDA ERS 2015)

Project Support

Training & Guidance



Showing students how to retrieve online data and codebook from the USDA ERS Food Environment Atlas.

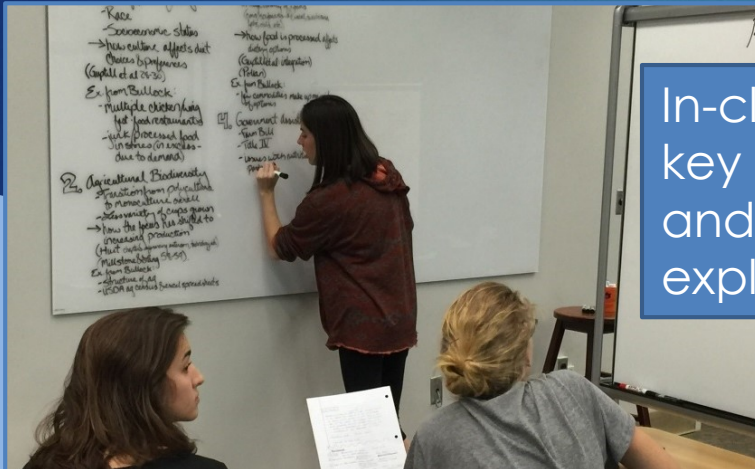


Challenging project team on their data use assumptions.

Project Support


29

Practice & Feedback



In-class, team, practice using key concepts from lecture and assigned readings to explain their findings.

In-class concept practices

 **Dr. Worosz,** [RSOC-3190-001](#) [+2 more](#)

Good morning Team Bullock,

The Quiz feature in Canvas will not permit group assignments, so my comments on, and questions about, your in-class

First, I hope you received the photographs from the library session that I sent yesterday. I know that writing on the whiteboard that went through, and tornado watch that we were under, gave me pause about trying to bring the large sticky sheet

Second, with respect to your responses, my numbers match the concept numbering that you used in the assignment.

1. Be specific how chick/wing is linked to culture. How can you show this with actual data?
2. ==
3. How linked to your county in terms of food security? Commodity options for what?
4. ==
5. Do you really mean "nutritional" education or does education refer to something else? Think back to your own consumption choices, especially, as well as the extent to your own knowledge.
6. ==

=> Missing from the assignment was a social issues statement – you'll need to think on this.

Third, as you prepare your presentation and final report, keep asking yourself, how do these data illustrate the state of food security in your course materials help you understanding what it means?

Instructor comments and suggested revisions posted to course Canvas site.

NA

7/15/2016

Initial Assessment

30

Indirect Measures

▶ Student response

- ◆ “Emphasis on sustainability and fairness really inspired me.”

- ◆ “Especially loved the field trip and project . . . got to see many of concepts we discussed in class first hand.”
- ◆ “Learned more than I ever thought I would about food security.”
- ◆ “Food security assessment was cool to learn from.”

NA

7/15/2016

Initial Assessment

31

Indirect Measures

- ▶ Student response
 - ◆ “Emphasis on sustainability and fairness really inspired me.”

Direct Measures

- ▶ Specialist response
 - ◆ “Got a lot out of ‘em’.”
 - ◆ “Every student should take this class.”

NA

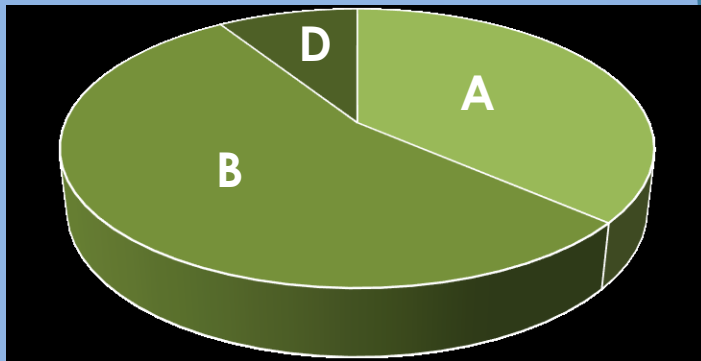
7/15/2016

Initial Assessment

Indirect Measures

▶ Student response

- ◆ “Emphasis on sustainability and fairness really inspired me.”
- ◆ “Grading was very harsh and difficult.”



Direct Measures

▶ Specialist response

- ◆ “Got a lot out of ‘em’.”
- ◆ “Every student should take this class.”

- ❖ “This class was by no means easy.”
- ❖ “The workload was kind of a lot.”
- ❖ “Hard at times.”
- ❖ “Lots of reading.”

Initial Assessment

33

Indirect Measures

- ▶ Student response
 - ◆ “Emphasis on sustainability and fairness really inspired me.”
 - ◆ “Grading was very harsh and difficult.”

Direct Measures

- ▶ Specialist response
 - ◆ “Got a lot out of ‘em’.”
 - ◆ “Every student should take this class.”
- ▶ Pre- and Post-test
 - ◆ Race and class
 - ◆ Empathy
 - ◆ Diversity
 - ◆ Entitlement

NA

7/15/2016

Thank you!

A PEDAGOGICAL APPROACH FOR “WICKED PROBLEMS”

MICHELLE R. WOROSZ

ASSOCIATE PROFESSOR