Slide 1:

SECRET CODE

Slide 2:

How's your project going?

28% 1. I have already drafted survey questions.

31% 2. I have a testable hypothesis in mind.

14% 3. I have a DV or IV in mind, but not both.

4. I have a *topic* but not a *variable* yet.

5% I don't even have a *topic*. I'm behind.

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Slide 3: Where we are...

Where we are...

Date	Things Due	Reading (15th)	Category	TOPIC	Lab #	Lab Assignment	Type	T	R
				DEADLINES / **LECTURE** / **LABS**					
Tue Jan 21			Orientation	Orientation					
Thu Jan 23		chapt. 1	Orientation	Inquiry & Research	1	Empirical Claims	Topical		1
Tue Jan 28		chapt. 4	Orientation	Research Design	(2)	Mini-Design	Solo	1, (2)	
Thu Jan 30			Orientation	SPSS Intro	3	Computing (miles)	Data		(2), 3
Tue Feb 4	HW1 Article Review	chapt. 2	Orientation	Explanation & Theory	4	Writing Hype	Topical	3,4	
Thu Feb 6		ch 17 & p 427	Orientation / Measurement	Researching Research (guest) / Recoding (in lab?)	5	Recoding (colleges)	Data		4, 5
Tue Feb 11		pp. 124-137	Orientation	Conceptualization	(6)	Measuring Love	Solo	5, (6)	
Thu Feb 13	HW2 Annotations	pp. 138-150	Measurement	Operationalization	7	Internal Validity	Topical		(6), 7
Tue Feb 18		pp. 421-426	Measurement	Elementary Stats	8	Univariates (gsssub)	Data	7, 8	
Thu Feb 20		chapt. 3	Orientation	Misuses of Research	EC1	Ethics (extra credit)	Solo		8, EC1
Tue Feb 25	HW3 Dataset Basics	p.415-420, 434-438	Measurement	**Quantitative Analysis**	9	**Coding Heroes**	Topical	EC1, 9	
Thu Feb 27		ch 6 & 427-429	Measurement	Indices & Scales	10	Lab (abort)	Data		9, 10
Tue Mar 4		pp. 249-256	Measurement	Surveys: Wording	11	Draft Survey Questions	Topical	10, 11	
Thu Mar 6	HW4 Welfare Analysis	chapt. 7	Measurement	Sampling & Errors	(12)	Apartments	Solo		11, (12)
Tue Mar 11		p.426-427,429-433	Description	Crosstabs	13	Crosstabs (gss84)	Data	(12), 13	
Thu Mar 13	MIDTERM		-	Project Overview (mandatory lecture)	-		-		13
Tue Mar 18				(Happy Break)					
Thu Mar 20				(Happy Break)					
Tue Mar 25	HW5 Indices	pp. 256-263	Measurement	Surveys: Format	14	Draft Survey Format	Topical	14	
Thu Mar 27		-	Description	Testing (Ordinal) Association	15	Ordinal Tests (USDecline)	Data		14, 15
Tue Apr 1		chapt. 8	Observation	Experimental Research	16	Review Survey Draft	Topical	15, 16	
Thu Apr 3	HW 6 Proposal	-	Description	Three Interval Tests	17	3 Tests	Data		16, 17
Tue Apr 8		pp. 263-288	Observation	Surveys: Mode	(18)	Conduct Survey	Solo	17, (18)	
Thu Apr 10		pp. 433-434	Description	Multivariate & Modeling	19	Multiple R (multireg)	Data		(18), 19
Tue Apr 15	HW7 Three Tests	ch.13 & 428-429	Orientation	Qualitative Analysis	(20)	Jaywalking Study	Solo	19, (20)	
Thu Apr 17		pp. 420-421	Observation	Data Entry	(21)	Data Entry	Solo		(20), (21)
Tue Apr 22		chapt. 10	Observation	Fieldwork & Ethnography	(22)	Grounded Theory	Solo	(21), (22)	
Thu Apr 24	HW8 Experiment	chapt. 15	Description	Control Variables & Elab	EC2	Elaboration (extra credit)	Data		(22), EC2
Tue Apr 29		chapt. 11	Description	Unobtrusive Research	23	Content Analysis	Topical	EC2, 23	
Thu May 1	HW9 Survey Analysis	pp. 316-318	Observation	Focus Groups	24	Evaluation Design	Topical		23, 24
Tue May 6		chapt. 12	Description	Oral Presentations	(25)	Oral Presentations Eval	Solo	24, (25)	(25)
Thu May 8				(no class meeting - due 5pm, firm!)				-	-
Thu May 15	Final Exam								

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Slide 4:

1. Today's reading was about...

1. Quantitative analysis

   77%

2. Qualitative analysis

   5%

3. Qualitative methods

   0%

4. Experimental Research

   0%

5. All of the above

   19%

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Slide 5:

Coming Up...

◆ Next emailed Progress Report OTW
  - Just returned lots, almost caught up, woot woot
◆ Already some lecture/lab splits (e.g. no HW)
  - Reminder: you must pass each to pass the other
◆ Midterm opens in 9 days
  - MC/OB/ON, 7 days, no other time limit, **no** extensions!!
◆ Project planning
  - So far, ~12 students have had the 1-on-1 meeting
◆ Question drafts are in lab next week (7 or 9 days)
  - Read "Survey Project" page in Canvas!
  - Seriously! Read it!! TODAY! ☺
  - And... let's take a poll :)

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Slide 6:

SOC497/L: SOCIOLOGY RESEARCH METHODS

Quantitative Analysis

Ellis Godard

Outline

- **Quantitative Overviews**
  - Ideas & Methods
- **Datasets**
  - Data Entry & Data Cleaning
- **Coding**
  - Codebooks & Codes
  - Guidelines & Sources
  - Examples & Lab

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Quantitative Methods

- Experiments
  - Later lecture & HW8 (no experimental lab)

- Surveys (!)
  - How many are we doing…?

- Pre-existing data / secondary analysis…

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Overview

- Lots of names & jargon, but narrow idea:
  - Want to describe aspects of the world we see
- Goal of being scientific
  - Safest method of inquiry – aims to *reduce* bias
  - Correctable – by testing ideas
  - Clear criteria for evaluation – esp. testability
  - Systematic – to reduce errors & biases
- Focus on careful data
  - Want ideas that order it, *connected to it*
  - Want "accurate" data (precise, reliable, valid)
  - 1 Choice is Qual or Quant (methods! epist?)

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Pre-Existing Data

- Many common data sources
  - Surveys: GSS, NORC, etc.; ICPSR
    - General Social Survey from NORC (www.umich.edu/gss)
  - Organizational data
  - Government: census, employment, crime (UCR), tax…
- Permits *secondary* analysis
  - Analyzing data previously collected
  - Strengths: Time, cost, effort, reliability/comparability
  - Weaknesses: Limited to measures taken, & errors/mistakes
    - Ideally, would enter data yourself – but errors even then (…)
    - Note: Class will collect *primary* data by end of semester

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Quantitative Analysis

- Asks "How much?"
  - Vs. qualitative "is it", or "what/why is it"
  - Needn't be numeric (more/less ordinality)
- No ontological bias
  - No more realist or positivist than qualitative
    - Coding is part of data reduction
    - Data reduction is part of summarizing observations
  - Anti-quantitive bias is realist (uber-positivist)
    - Suggests something out there is being "missed"
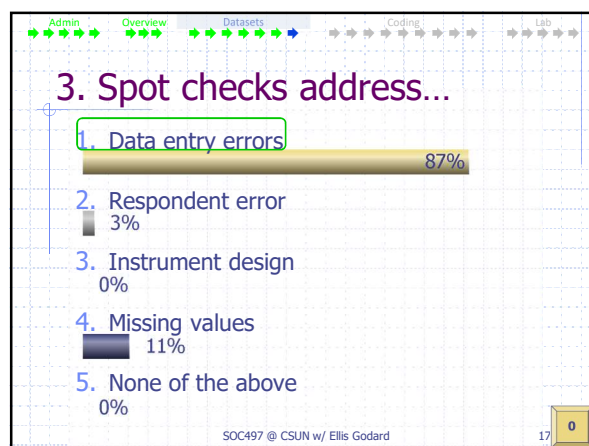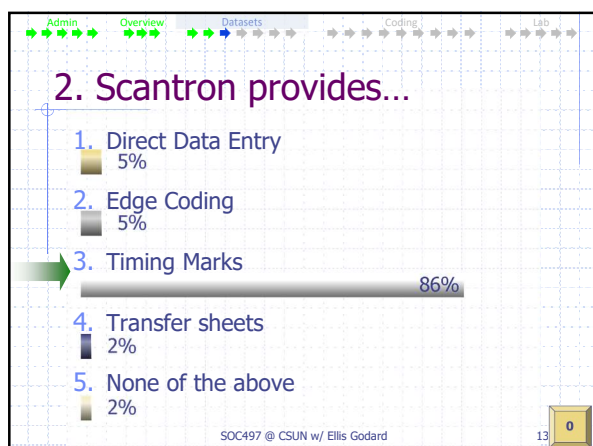   - We're just being empiricist – doing best we can

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4 Data Entry Options

- Direct data entry
  - If your *instruments* (e.g. questionnaires) are adequately designed, enter data directly from them
- Transfer sheets
  - Each column represents a variable, each row represents a responses from a particular case.
- Timing marks
  - Esp. for use in optical/scannable forms, e.g. Scantron
  - Rigid tolerances, learning curve to design/employ
- Edge coding
  - Response options are coded on the outside margins
  - Entry requires matching responses & marks

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2. Scantron provides…

1. Direct Data Entry
   5%
2. Edge Coding
   5%
3. Timing Marks
   86%
4. Transfer sheets
   2%
5. None of the above
   2%

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3. Spot checks address…

1. Data entry errors
   87%
2. Respondent error
   3%
3. Instrument design
   0%
4. Missing values
   11%
5. None of the above
   0%

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Data Cleaning: Finding Dirty Data

- Problems
  - Data entry errors
  - Respondent error
  - Instrument design error
- Identifications
  - Spot checks (for data entry errors only)
    - You'll do, in data entry labs!
  - Data validation (for all three)
    - Code cleaning
      - only allowable codes are used (no 3's for gender)
    - Contingency cleaning
      - Q5: did you have contact w/ police in last year?
      - Q6: How were you treated by them?

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Codebooks

- Clarifies datasets; a.k.a. "data definitions"
  - Describes variables (names, labels, etc.)
    - Should include exact wording of survey questions
  - Details attributes, esp. by numeric codes (1=M)
- May exist in advance; may develop over time
  - Measurement evolution
- In SPSS
  - For current (opened) file:
    - Utilities – variables (for one variable at a time)
    - Utilities – file info (for that file's codebook)
  - For other (not current/open) files:
    - Varies by version (e.g. File > File Info)

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Data Cleaning: *Resolving* Dirty Data

- Exclude errors – make them "missing"
  - Values, if won't affect your results
  - Cases, if all values but not many cases
- Ignore some inappropriate contingencies
  - E.g. exclude cases that didn't have contact
    - In SPSS: Data – select cases
- Some errors unresolvable
  - Esp. if not involved in the data collection…

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Codes: A Constant Requirement

- Necessary for quantitative analysis
  - Conversion of open-ended responses to categories
    - Your lab today (Heroes)
  - Reduce idiosyncratic items to attributes, composing one or more variables
    - One of the last labs (Personal Ads)
- Important in qualitative work, too (use varies)
- Necessary for large samples
- Tech advances facilitate analysis *and* coding
  - Software – Atlas, Dedoose, nVivo, NUDIST, webQDA

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Coding Guidelines

- Scheme should be appropriate to the theoretical concepts being examined
  - For ideas about upper incomes, don't need to code teens, etc.
- Code to get as much detail as you can.
  - Lost details cannot be recreated
  - You can always combine later on
- Once you have codes, count them
  - *Specified* qualities, not "just" qualitative ☺

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Non-Numeric Example (Sp25)

What does "scientist" make you think of? (from Intake)

- Some names
  - Isaac Newton
  - Albert Einstein
  - Elon Mus ("not a fan")
  - Francis Collins
  - Nikola Tesla
  - Bill Nye the science guy
  - Sheldon (Big Bang Theory)
- Some elements
  - Fun facts
  - Experimenting
  - conducting research
- Miscellaneous
  - dexters laboratory, some crzy intense. math and some hard questions being answered about society or humanity

- Some descriptions:
  - Very clever person, genius
  - someone with a white coat in a lab with glass beakers who is data-driven, logical and good with numbers.
  - Someone who is always curious and looking to discover!
  - someone who studies the world by looking at it carefully and asking important questions before they test their ideas with scientific methods.
  - Someone who investigates and researches
  - Old guy in a lab coat mixing chemicals.
  - someone who is curious, thoughtful, and focused on discovering new things.
  - people in a lab with lab coats and microscopes

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Developing Coding Categories

- Two basic approaches
  - Begin with an established coding scheme
    - derived from your research purpose,
    - or use an existing coding scheme
  - Generate codes from your data
    - Arrange cases into groups, based on similar attributes (types)
    - expand or collapse attributes as needed – how many categories?
- Regardless of approach
  - Categories should be exhaustive *and* mutually exclusive
  - Coding should facilitate some form of *comparison*

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Non-Numeric Example (Fa24)

- A lab coat and with glasses and a messy table filled with papers.
- A person who questions and searches for answers
- Albert Einstein (10!)
- Bill Nye
- Cloudy With A Chance Of Meatballs
- Darwin
- dexter
- Doctor Doom
- Facts, experiments
- Galileo Galilei
- Honestly, first thing that came to mind was Frankenstein. After that, I thought of someone that invents things like Nikola Tesla or Bejamin Franklin
- I don't think of anyone. I am currently trying to learn more about science after growing up religious
- I think of Walter White, the teacher that started cooking Meth...
- I think scientists understand the world. For example like climate they identify the weather for the next days.

- I typically think of scientists that work on nature related things like plants, animals, geology etc
- Issac Newton
- Neil deGrasse Tyson, Stephen Hawkings, & Ada Lovelace
- Someone interested in life
- Someone that utilizes data and has a laboratory
- Someone wearing a lab coat who does experiments with liquids.
- someone who explores and analyzes information
- Someone working in a lab.
- Space, experiments
- when I think about a scientist a lab coat and sterile environment comes to mind
- When I think of a scientist I think of laboratories and experiments.
- When I think of a scientist, I think of a person dedicated to research.

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Coding Numeric Data

- What is your gross annual pretax income?
  - Many attributes, ranging from 0 to... ??
  - Could recode it into fewer categories, e.g.
    - 0 to 2999, 3000 to 5999, 6000 to 8999, etc.
- Many variables have coding conventions
  - Authorities develop conventions
    - GSS, Census, etc.
  - Don't reinvent the wheel – unless it's flat

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Coding Open-Ended Answers

- Creating a variable from varied responses
- Many possibilities – one could be 2 values:
  - Tools and rituals:
    - Lab coats, beakers, measuring devices, etc.
  - Culture and personality:
    - Someone who thinks a lot, solves problems, etc.
- Also asked to name two heroes or mentors

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Slide 26

4. Which is not true of codes?

1. They should be exhaustive
   17%
2. They should be mutually exclusive
   3%
3. They should facilitate comparison
   3%
4. They're best for qualitative data
   70%
5. They permit quantitative analysis
   7%

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Slide 30

5. To measure nominal dispersion use…

1. Mode
   2%
2. Median
   0%
3. Variance
   0%
4. Variation Ratio
   93%
5. Standard Deviation
   5%

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Slide 27

Last Lab Exercise

- ◆ Review of Elementary Statistics
  - Shape
  - Central Tendency
  - Dispersion
- ◆ But Beyond a Basic level
  - *Not* just picking the right variables (NOI)
    - But that's beyond critical @ this juncture
  - *Not* just find the pieces (e.g. mean of EDUC is 12.4)
    - At *least* that, but should be able to do more…
  - Tell story! Describe the sample! *Use* the stats!
    - This is 497, not 424 – you're *using* stats, not (?) learning 'em

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Slide

Team Scores

Points	Team	Points	Team
4.75	I have a DV or IV in…		
4.4	I have a topic but n…		
4.17	I have already draft…		
4	I don't even have a …		
3.55	I have a testable hy…		

Slide 28

Next Lab Exercise

- ◆ Coding Heroes
  - Handout on the web
  - Uses intake form answers
- ◆ 3 key tasks:
  - Invent coding scheme
  - Do basic coding
  - Summarize w/ elementary statistics

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