ANTH 319: Research Methods in Archaeological & Biological Anthropology

A Guide to the Craft of Research

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THE CRAFT OF RESEARCH: INTRODUCTION

This course pack will take you step-by-step through the research process. It contains all the resources, references and worksheets to guide you through the stages of:

1) Research Design
    a. identifying research questions and purpose
    b. designing methods and approaches
    c. writing a proposal
2) Research Management
    a. selecting appropriate samples & evidence
    b. building and managing databases
    c. analysing data
    d. presenting data
3) Dissemination
    a. disseminating results to academic audiences
    b. disseminating results to general audiences
    c. disseminating results using digital technology

It also contains the details of all the assignments for this course (including rubrics). These assignments have been created to provide you with the opportunity to think critically about each element of the research process and to receive feedback on your research and progress at every stage. The assignments are as follows (see syllabus for deadlines):

I. Research Proposal
II. Database & Critical Reflection
III. Analysis/Presentation & Critical Reflection

You will also be responsible for giving one 10-minute Presentation that critically assesses a research project in biological anthropology, archaeology, or bioarchaeology during the course of the semester (see page 5).

Your Final Project will bring all of these threads together to present a final, polished research portfolio that you can use in the future (see page 42).

The Craft of Research ANTH 319

Biological Anthropology & Archaeology



Narrow your focus to a **research topic**

Consult the Literature to understand existing research, problems, and approaches

Define your **research questions:** the primary problems that you will focus on addressing



Analyse the data (quantitative, qualitative or mixed methods)

Select appropriate data for the research & **build your database** (ie. define variables, sample & code)

Write a **proposal** that highlights the context and merits of your research



Interpret your findings (what do they mean?)

Based on the findings, who is your **audience?**

Communicate your findings to this audience (consider voice, format, access)

Top Tips for Research

Keep notes about your work

Create a research or writing group

Invite feedback throughout process

Build networks

Keep up to date with news in the field

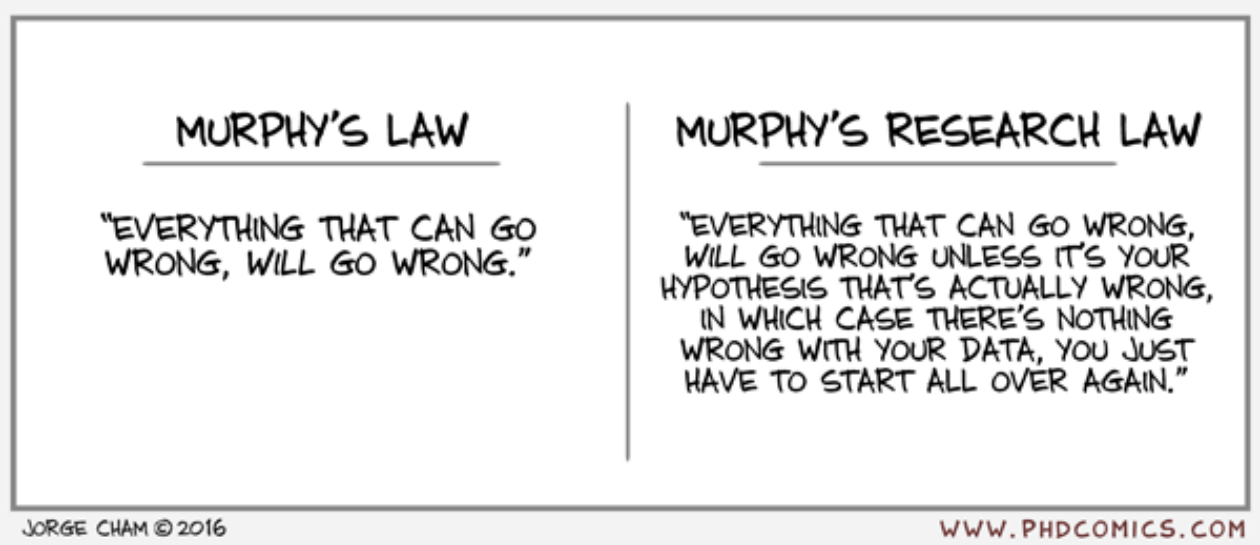
Try new things

Keep Asking Questions

TIPS FOR RESEARCH SUCCESS

1. **TAKE NOTE!** Jot down your steps, observations, interpretations and ideas as you go. The further you go in research, the less you will remember about previous steps. When it comes time to write about your findings, you may have difficulties recalling the details.
2. **NO SHORTCUTS:** Take time to think critically about each stage of the research process, invest the appropriate amount of time into each step, and don't cut corners.
3. **REALITY CHECK:** Be realistic about the types of evidence you have access to, the amount of time that you can commit to a project, and the impact that your findings will have.
4. **ASK FOR HELP** when you need it. Sometimes we have ideas that require other people's expertise. Collaborations can be very valuable, but always give credit to the work of others.
5. **ON INTEGRITY:** We have ethical responsibilities to living people. Take time to consider the impact of your work on others. Consult where necessary. Treat everyone with respect.
6. **THINK OUTSIDE OF THE BOX**. Try new things. Get creative. Push beyond convention.
7. **A. FAIL OFTEN:** Don't be afraid of failure. It happens to all of us, especially when we try new things. But if you learn from it, it's not really a failure.

   B. FAIL PUBLICLY: Share your 'failures' with others – they can learn from it too. The more people benefit from it, the less it seems like a failure.
8. **THIS IS A NEVERENDING CYCLE:** Research is messy. You will often have to go back and redo steps, rework parts of projects, and rethink your expectations. This is always part of the process, so try not to get frustrated or be disappointed!



ASSIGNMENT – PRESENTATION:
CRITICAL ASSESSMENT OF EXISTING RESEARCH

An important part of learning how to craft and carry out good research in anthropology comes from analyzing the work of others, understanding what worked in their projects, and what the limitations were. As a way of seeing as many examples of research as possible, we will share the responsibility as a collective.

Everyone in the class will **select one research case study** in biological anthropology, archaeology, or bioarchaeology. This case study must be an existing research project that has been completed, or is in the process of being completed, and there must be enough information for you to be able to evaluate it in great depth. Your sources may include published books or journal articles, websites, social media or a combination of sources.

You should present enough background information on the case study and the researchers involved to provide the context necessary for the rest of the class to also evaluate the research project. A brief synopsis should answer the basic who, what, where, when, why and how questions.

It should also **address the following questions**:

1) Why was the research project carried out? What were the research questions that it sought to address, and why were they considered important?
2) How did the historical, geographic or professional context of the research impact the project and its success? (i.e. situate the researchers and their methods/approaches within the discipline)
3) Was the project successful in answering the primary research questions? Why, or why not?
4) What were the strengths of the research design?
5) What were the weaknesses of the research design?
6) How were the research results disseminated?
7) What future avenues of research could be pursued, based on the findings of this project?

The presentation should be **no more than 10 minutes in length**. It should use visual aids, such as Powerpoint/Prezi to help illustrate the case study and your discussion.

It will be assessed based on the demonstration of knowledge, understanding and critical thinking, but also on structure, style and effectiveness of presentation (see rubric on following page). Be as creative and engaging as you can, try new things, and explore the things that make you curious!

PRESENTATIONS WILL TAKE PLACE IN CLASS **EVERY WEDNESDAY**. A SIGN-UP SHEET WILL BE DISTRIBUTED IN CLASS AT THE BEGINNING OF THE SEMESTER. IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOU HAVE A PRESENTATION SLOT.

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ANTH 319
Presentation Feedback Form

Name(s):	**Mark:**
Presentation Topic:	**%**

	Circle
1. Relevance Was the case study relevant to this course? Did the discussion engage closely with the topic and the remit that was given?	1 2 3 4 5 6 7 8 9 10
2. Knowledge Did it demonstrate breadth of knowledge and wide reading?	1 2 3 4 5 6 7 8 9 10
3. Understanding ** Did it demonstrate an understanding of the complexity of the data and interpretations of the case study?	2 4 6 8 10 12 14 16 18 20
4. Critical skills and originality ** Did it include critical analysis of the case study? Where relevant did it demonstrate originality of thought?	2 4 6 8 10 12 14 16 18 20
5. Structure Was it well structured with a good introduction, discussion and conclusion?	1 2 3 4 5 6 7 8 9 10
6. Running to time Was it to time?	1 2 3 4 5 6 7 8 9 10
7. Presentation Was it audible and well paced? Did it engage the audience? Was it professional?	1 2 3 4 5 6 7 8 9 10
8. Visuals Were appropriate maps, drawings and photographs used and were they correctly credited? Was the text clear and concise?	1 2 3 4 5 6 7 8 9 10
Additional comment & suggestions for improvement	

****** Note**:** This category is more heavily weighted than most categories for this assignment

1. RESEARCH DESIGN

The diversity of approaches to research in Anthropology can be overwhelming, particularly when considering a cross-section of all the sub disciplines. All anthropological research includes **systematic investigation or study to establish new knowledge, understandings and conclusions**. Different materials, sources, and techniques may be used in that process, however the methodical, organised and ethical manner with which we approach research questions or problems remains.

What is research design?

Like a blueprint or a roadmap, underlying any research project are the decisions and strategies for collection, management, and analysis of data that are integrated into a program of study. This lays the groundwork for systematic investigation.

Why design research?

By planning each step of the research process, we can ensure that we effectively and efficiently address problems and questions that we have. It is important to critically evaluate each element of research to ensure that they are all aligned with the same goals of the project. This saves time in the long run and helps to avoid creating the gaps or weaknesses that may impact how convincing your findings are when it comes time to disseminate the results.

What steps are involved in designing research?

To design effective research:

- Narrow Topics of Interest
- Select a Case Study or Context
- Establish Research Questions/Purpose
- Select Appropriate Methods
- Select Appropriate Data

The following section will take you through each step of designing research. We will use these steps to develop independent research projects to pursue throughout the semester, however these same steps can be applied to a range of research contexts, from academic to government to commercial.

1A. IDENTIFYING RESEARCH QUESTIONS AND PURPOSE

In this subsection, we will work on narrowing down broad topics of interest and possible case studies to direct research questions that will guide your studies.

Tasks:

1. Begin by reading Booth et al.'s (2008) *Chapter Three: From Topics to Questions* and *Chapter Four: From Questions to a Problem* (CoursePack)
2. Review the existing database (information in class) that you wish to use, and do a review of related literature. Access at least **5 sources** of related anthropological research.
3. Complete Exercise #1 (following pages).

EXERCISE 1: RESEARCH TOPICS, QUESTIONS, PURPOSE

STEP 1. Start with defining your own topics of interest and then deciding on a case study (Option 1), or it might be easier to start with the case study before the topics it stimulates (Option 2).

Option 1: Start here

TOPICS OF INTEREST: *A Research Topic should be specific enough that it can be mastered in the allotted time, and is relevant to contemporary research in the discipline.*

I am interested in studying…

Option 2: Start here

CASE STUDY: *Think about the temporal and geographic range, the evidence available, its limitations, and the context of research.*

I have the following to work with:

STEP 2.

RESEARCH QUESTIONS: *Narrows down broad topics to manageable scope, often articulating a particular problem. What intrigues you about the topic? What questions are evident in the literature, blogs, or online resources? What might the general public want to know about it?*

STEP 3. Narrow your research question by thinking about how you will answer it and the contribution or impact it will have in anthropology, and beyond.

RESEARCH QUESTIONS: *Discard questions that have already been answered, or whose answers would be speculative, or that do not contribute to larger issues of interest in anthropology. Transfer remaining questions here – can they be combined into a more significant question? Does one stand out? Are there any that are too big but could be tackled in stages? If you are still having trouble narrowing your questions, ask 'so what?' about each one. Survey your peers. Ask the prof!*

STEP 4.

SUMMARY: *If you can succinctly complete the statements, you have just designed your research project!*

I AM STUDYING…

BECAUSE I WANT TO…

IN ORDER TO…

This is research gold! Whenever you lose track of where your research is going, come back to this statement

1B. DESIGNING METHODS AND APPROACHES

So you have you have a topic, you have a research question, and you have a sense of purpose… what do you do next? How do you know how best to answer that question?

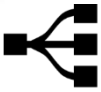
Tasks:

1. Read the following overview and Creswell (2014) Selection of a Research Approach, and complete exercise #2 to define your hypothesis and variables.
2. Read the overview on page 13 and complete exercise #3 to define your approach.

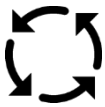
In most cases, it is possible to make predictions about the answer to research questions, based on prior studies. We often refer to these predictions as **hypotheses**. The hypothesis plays a central role in experimental research, but anthropologists also use it to focus and define research procedures.

Predictions or Hypotheses are usually based on concepts of:

Cause & Effect [event(s) produce(d) specific results]



Relationship [a particular variable is directly connected to another]



Process [a predictable sequence of steps or stages]

In each case, there are particular variables or attributes that can be observed, measured and analysed as evidence to answer the research question. **Variables** are elements, features or factors that vary or change, and therefore can be observed, measured and analysed to reflect particular processes, relationships or events. Each variable has a different role depending on its relationship to other variables, primarily:

INDEPENDENT VARIABLES: variation does not depend on another variable

DEPENDENT VARIABLES: variation is directly dependent on another variable

MEDIATING VARIABLES: underlies or intervenes between the independent and dependent variables

CONTROL VARIABLES: may alter dependent or independent variables, but is not the focus of the research so it is kept constant to minimise effect on results

In order to design sound research methods, it is important to understand each variable that is at play, and their (anticipated) relationship to one another. Take a moment to brainstorm the variables relevant to your research question, and if possible, visualise their relationship.

Exercise #2: Research Variables

RESEARCH VARIABLES: What variables are relevant to your research project?

RESEARCH VARIABLES: How do you think they relate to one another?*****

INDEPENDENT **DEPENDENT** **MEDIATING** **CONTROL**

***** If you have difficulties understanding the relationship of your variables, try to insert them below:

_____ causes a change in _____ and it isn't possible that
Independent Variable **Dependent Variable**

_____ could cause a change in _____.
Dependent Variable **Independent Variable**

Optional: The Independent Variable only causes a change in the Dependent Variable in cases

when _____ occurs.
Mediating Variable

Optional: Although _____ could be related to this process, I am not
Control Variable

currently interested in this variable and will keep it the same throughout the project.

FOR EXAMPLE: **Gender** causes a change in **Type of Grave Goods**, and it isn't possible that **Type of Grave Goods** could cause a change in **Gender**. **Gender** only causes a change in **Type of Grave Goods** for particular **Age Groups (Adult)**. **Status** could be related to this process, so I will only look at high status individuals.
(where Gender is Independent, Grave Goods is Dependent, Age Group is Mediating, and Status is Control)

NEED MORE PRACTICE? Try identifying the variables in research reported in a journal article or in the case study you have selected for your presentation assignment.

Research Approach

Now that you have identified your variables, how will you study them and understand their relationship to the research question. Research Methods should accumulate the evidence that you will need to make your final interpretations and make convincing arguments when you present your findings.

QUANTITATIVE RESEARCH: based on rigid, systematic empirical evaluation of measurable and observable variables using mathematical, statistical and computational methods. Uses experiments, surveys, etc. to accumulate data that can be measured and tallied.

QUALITATIVE RESEARCH: based on flexible exploration of the *why* and *how* of phenomenon, not just the what, where, when, who elements, to develop understanding of particular situations or contexts. Uses focus groups, interviews, and archival documents to accumulate detailed data that can be analysed using textual, thematic and topical analysis to recognize context and meaning.

MIXED METHODS: integrates quantitative and qualitative data, methods, and theories.

In defining your research strategies, consider:

Types of variables you are interested in, and the data that reflects them (for instance, it is easy to quantify gender or age groups to analyse their relationship to types of grave goods for systematic measurable observations, but understanding the cultural values that underlie those decisions and practices may be qualitative)

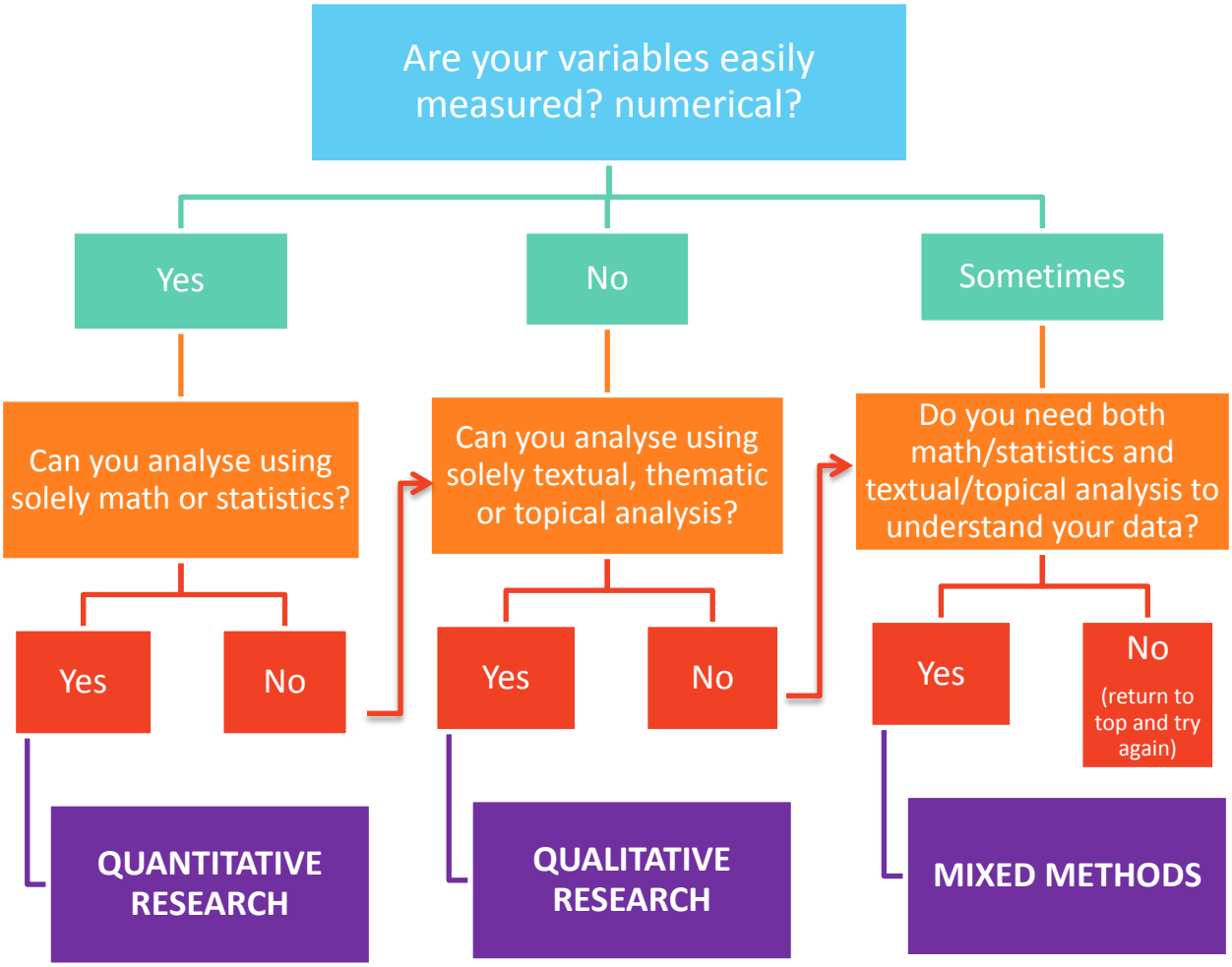
Target Audience
(different audiences are persuaded by different types of information and approaches to research; the scientific circles of academia tend to value quantitative data, while the humanities traditionally value qualitative research)

Labour & Time restrictions
(applying basic mathematical equations to numerical data can be less intensive than reading and understanding lengthy interviews or archival documents, however, your sample size might also need to be much higher increasing the time/labour involved in creating the database to begin with)

Skill level
(quantitative analysis may require advanced math/statistical skill, while qualitative research may require advanced skills in interviewing living people and interpreting their responses; always be realistic about your skill level – although it is always good to push yourself to learn new skills, but make sure that the learning curve is factored into your allotted time for the project)

Use the flow chart on the following page to help decide on appropriate research approach.

Exercise #3: Research Approach



Variable #1:

- ☐ Independent
- ☐ Control
- ☐ Dependent

What evidence do you have of this variable?

- ☐ Quantitative
- ☐ Qualitative
- ☐ Mixed

Variable #2:

- ☐ Independent
- ☐ Control
- ☐ Dependent

What evidence do you have of this variable?

- ☐ Quantitative
- ☐ Qualitative
- ☐ Mixed

Variable #3:

- ☐ Independent
- ☐ Control
- ☐ Dependent

What evidence do you have of this variable?

- ☐ Quantitative
- ☐ Qualitative
- ☐ Mixed

Do this for as many variables as you need. Overall, is your research Quantitative, Qualitative or Mixed?

1C. WRITING A RESEARCH PROPOSAL

Research proposals are used for a range of applications, from applying to graduate school or funding bodies, to seeking ethics or stakeholder approval. Their common goal is to convince others of the merits of your research. In some cases, a secondary goal is to invite dialogue and advice to fine-tune your approach and plans prior to investing months or even years into a project.

A proposal should include all the necessary details for others to assess and evaluate the strengths (and weaknesses) of a potential research project:

- ✓ Research project's purpose and primary questions
- ✓ The context of your research – where it fits in existing disciplinary literature and interests
- ✓ Methods of research, especially elements that make your research different and evidence that you can achieve the proposed research in the time allotted
- ✓ The significance of the research, including expected contributions

In some cases, it might also warrant including:

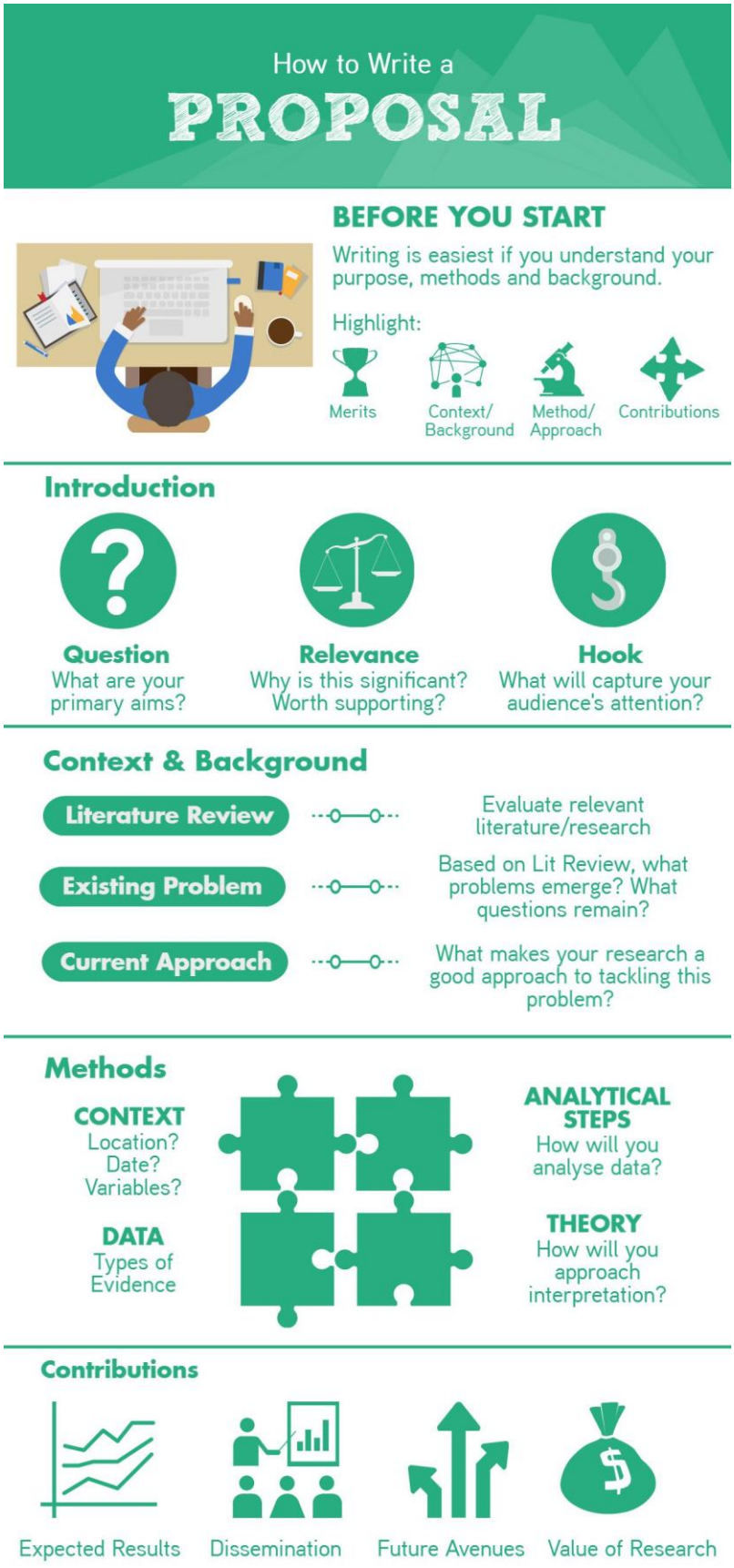
- ✓ Details demonstrating why **you** are the person to do this research (in application process)
- ✓ A summary of a larger research program (where proposed research is part of a larger project) – make sure it is clear what elements of the research are your responsibility
- ✓ A budget (in application for funds)

Always consider the audience for your proposal. Unless it is being submitted to scholars engaged in similar research, a proposal should be written for knowledgeable but non-specialist audiences. Avoid jargon and provide definitions for any specialised terminology that you need to include. Investigate the review process before writing to craft it for the target audience.

Obey submission requirements. If specific guidelines are given, be sure to follow them. Due to the number of proposals received during a typical competition or application process, proposals may be disqualified if they do not follow the guidelines. These are not unjustified hoops to jump through, but usually have been designed to ensure fairness, quality of review, and standardisation.

Stand Out, Hook Readers. Your proposal may be just one in a sea of proposed research projects. It is important to follow guidelines, professional best practice, and expectations, but also to ensure that your proposal will attract attention and stick in the minds of reviewers. Think about what makes your research different and clearly articulate it at the beginning and end of your proposal. Voice, writing style and literary tools can also be used to hook your readers.

Consider Readability. Reviewers may spend as little as 60 seconds looking at your proposal in the initial stages of review. Investing time in structuring your proposal and formatting it for ultimate readability will assist reviewers to find pertinent information quickly. Even in cases with restricted word limits, it might be worthwhile investing in subtitles to act as a roadmap for your proposal. Ensure that the first and last paragraphs are succinct and powerful summaries of your project's purpose and significance.



Concise writing. Writing short is one of the biggest challenges. Planning your structure before you start writing will keep you focussed on key elements. When in doubt, ask after each sentence, 'is this critical to selling my research idea?' No? Cut/reword it.

Working Titles. You may need to include a title for your project. It should communicate the primary purpose of your research, while also indicating any important information about context and approach. The best titles are concise, direct, and should not over promise. If you are stuck, brainstorm the keywords that describe your research and then play with their organisation until a clear title emerges.

The value of proposals. Even if you are required to write a proposal for a grant, an academic program, or for a supervisor, community or stakeholder, this is also an opportunity to ensure that you have fully planned your research and understand every element of it before you start.

Flexibility. Be prepared to deviate from your proposal, as well crafted as it may be. Research almost always has unforeseen problems, results or situations and you may have to redesign, cut or redevelop elements of your plan. Remember, your proposal is not written in stone.

RESEARCH PROPOSAL ASSIGNMENT

Write a proposal for your research project that is aimed at a knowledgeable, but non-specialist, reviewer. For the context of this assignment, assume that this proposal is not for an application (i.e. do not include personal qualifications or budget details). Your primary goal is to convince the reviewer of the merits of your research project.

This proposal should outline the purpose of your research project this semester, the case study and evidence that you will be using, your methods of research, and the potential contributions (practical or conceptual).

Guidelines:

Maximum Length: 2 pages, plus bibliography

Formatting: Times New Roman 12pt font, double-spaced, 1 inch margins

Style Guide: American Anthropology Association

Include: Your name, student number, and project's working title on first page; a full bibliography

Optional: Subtitles

Helpful Hints:

- ✓ Use **Exercise #4** (following page) to help brainstorm and structure your proposal
- ✓ Refer back to **Exercises #1-3** to help you
- ✓ Stand out! There will be many other proposals, using similar datasets, what makes your research original?
- ✓ Proof read and focus on concise, readable text!
- ✓ Follow the guidelines – this is good practice for future contexts in which you might submit proposals

You must submit a proposal for your research project before you can submit any of the other assignments. It is worth 10% of your final grade.

Exercise #4: Structuring a Proposal

INTRODUCTION (review Exercise #1)

RESEARCH PROBLEM OR ISSUE *(hook or reason that lead to the need for this research)*

RESEARCH PURPOSE *(summary of central phenomenon being explored, intended contributions)*

RESEARCH QUESTIONS *(primary questions to be answered during this project)*

BACKGROUND (review Exercise #1)

LITERATURE *(concise review of literature to situate your research project in the field of study with citations)*

Why is your research relevant? *(connect the project to lit review – is it answering an existing question, building off of previous research, or standing in conflict to previous findings)*

APPROACH (review Exercises #2-3)

BACKGROUND OF DATA/EVIDENCE *(give a summary of relevant elements of the open data being used).*
For Instance:

TEMPORAL RANGE:

GEOGRAPHIC LOCATION:

PREVIOUS RESEARCHERS/DATE OF RESEARCH/APPROACH/SOURCE:

Other:

METHODOLOGY *(primary methods to be applied to study, and justification)*

CONTRIBUTIONS & IMPACT (review Exercise #1)

WHAT ARE THE EXPECTED RESULTS OF THIS RESEARCH *(primary outcomes and how methods will answer research questions)*

WHO WILL BENEFIT AND WHY? *(explain why the contributions are relevant, and if possible, how you intend to disseminate results to this audience)*

CONCLUSION

RESEARCH PURPOSE *(summary of central phenomenon being explored, intended contributions)*

FUTURE AVENUES/ORIGINAL CONTRIBUTION *(final opportunity to highlight the merits and original contribution of this research, and what it will lead to overall)*

BIBLIOGRAPHY

KEEP TRACK OF YOUR SOURCES *(remember to cite the source of the data, but also any literature that inspired, influenced or stimulated your research and is relevant to situating your ideas and approach)*

2. RESEARCH MANAGEMENT

You've got a research question and a plan of action. You have defined your variables, and an approach to studying their relationship. You have a case study or case studies. You have planned every step for your project – what could be so hard about implementing that plan?

There Are Many Decisions to Come. Although you have already made key choices in designing your program of research, there will be many more.

Be sure to keep returning to and revising your proposal to reflect the progression of your project.

Technology & Applications. Managing large datasets can be unwieldy and challenging. Software to assist in analysis and presentation of data can help, but you have to understand how to use it and what the implications are for your research.

Weigh your options before deciding on any use of technology. Will a simple spreadsheet software be enough (ie. Excel), or do you need more advanced statistical options (ie. SPSS)?

Schedule & Motivation. This is often the most difficult part of the project to stick to schedules. This is partially because it is difficult to predict how much time it will take to build a database and analyse it. It is also important to maintain your motivation and focus.

Set yourself a work flow chart, and complete small tasks one at a time. Establish regular opportunities to work with you data. Have a research group or buddy hold you accountable.

Keep Note! It is useful to keep a notebook or recording device nearby so you can document your observations and methods as you go. Later on, you might forget something you saw when working with the data, or might have difficulty finding a relevant example amongst hundreds.

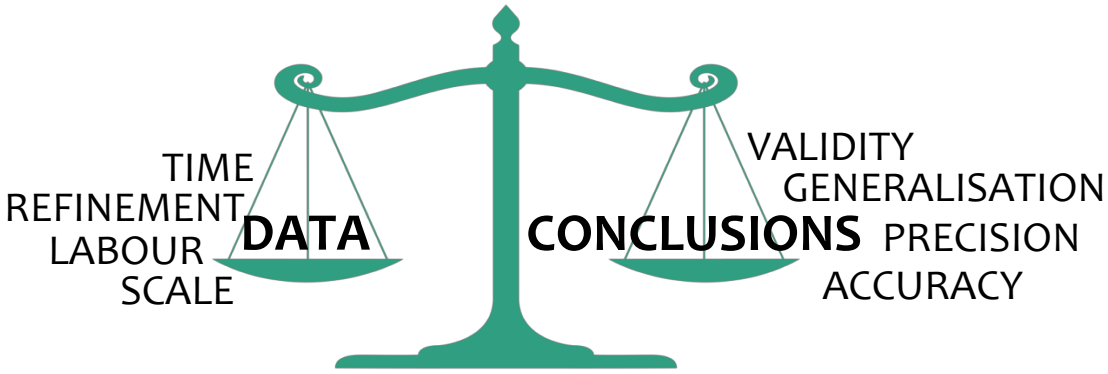
The following section will take you step-by-step through the process of selecting samples and evidence, building and managing databases, and analyzing and presenting your data. It will also lay out the next two assignments. Tasks:

1. Read the overview materials provided.
2. Define a sampling strategy before building your project's database (Exercise 5).

2A. SELECTING APPROPRIATE SAMPLES AND EVIDENCE

When it comes to data, sometimes less really is more. However, every time we conduct research, we have to be careful to keep in mind **how much of the world our data represents** and, as a result, **how far you can draw generalisations from it**.

For instance, analyzing all the individuals in one cemetery is not enough to draw conclusions about burial practice or population health in Canada, but it may be enough to examine those phenomena for a particular location and time period. Adding more cemeteries will allow generalisations at broader levels (regional or temporal), but it will also be more work and will introduce more variables that might challenge the validity of the research. It is always a balancing act.



Always communicate any sampling when presenting your data or research findings. Summarise techniques/bases used for sampling, and the number/proportion of any broader population or assemblage, sometimes seen written as **n=**(sample **#**)/(original **#**) [n=84/150].

Why Sample?

It is impossible to study all individuals, populations and case studies; sampling is always part of research. Sometimes it is inherent (certain cases cannot be studied, for ethical, practical or theoretical reasons), others are the creation of the researcher. Reasons for sampling vary depending on the context of the research.

For All Studies: The more data to collect and analyse may mean that you have to bring on more researchers, but this can introduce greater variability due to differences in perceptions, biases, etc. A smaller sample that can be studied by a single researcher may be more valid, therefore, than a larger sample that has to be studied by many.

For Studies of Contemporary Populations: The time that is required to collect data from a large population may introduce a history threat – that is, the data collected at the beginning of the study may represent a different context than data collected at the end, and therefore may no longer be valid or representative (for instance, data regarding population demographics collected before and after an unforeseen disaster will reflect substantially different circumstances).

For Studies of Historical Populations: A number of processes have already led to inherent sampling (differential deposition, taphonomy, recovery, curation). Further sampling can help remove sampling biases by providing the time to represent a wider range of contexts (may help to highlight where biases are occurring), or to ensure that samples are more comparative (for instance, when comparing a site where 1cm mesh was used to a site where 0.5cm mesh was used, sampling only artifacts that are larger than 1cm can help to ensure that data represent site variation rather than recovery).

Control Variables: If your research project includes control variables (i.e. a variable that you wish to maintain equal across all of your analytical units), this may also be used as a basis for sampling. In this case, select only units that fit the control variable you have defined.

When electing to sample, select techniques based on the data and approach to units of analysis:

PROBABILITY SAMPLING	***vs.***	**NON-PROBABILITY SAMPLING**
Collecting individual attribute data i.e. Age, gender, status, ethnicity		Cultural data based on shared processes, values, experiences, meanings i.e. cultural norms, values, experiences
Scientifically-drawn, unbiased sample (every unit of analysis has equal chance of being chosen)		Select particular units of analysis based on expertise or relevance (not every unit of analysis has equal chance)
Techniques: Simple random, systematic random, stratified, disproportionate and cluster sampling		*Techniques:* Quota, Judgement, Convenience or Haphazard sampling

Probability Sampling works to produce a randomized selection of units of analysis, though in certain cases, the researcher may employ techniques to ensure random sample is still representative of different groups or phenomena (for instance, increasing the inclusion of minority groups to ensure the sample represents the diversity of a community). See following page.

Non-Probability Sampling techniques are focused on systematizing researchers' judgements of relevance and quality of data. They may work to a certain quota (researcher interviews participants until they have interviewed 50 men and 50 women, for instance), judgement (researcher interviews participants they consider to be experts on the subject until they feel they have acquired enough data to answer questions), or convenience or haphazard sampling (researcher interviews participants at random, as the opportunity presents itself; they do not go out of their way to interview particular individuals).

Consider your variables, units of analysis, and purpose of research. What forms of sampling are inherent in your case study? What techniques will you employ to further sample the case study, and why? What are the benefits for your research, and what may be the weaknesses?

5 PROBABILITY SAMPLING TECHNIQUES

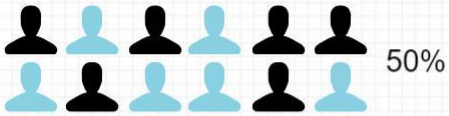
How & When to Apply Probability Sampling Methods

#1

Simple Random Sampling

Use software/online app to generate random numbers between 1 and Total Population.

Use these numbers to select case studies.

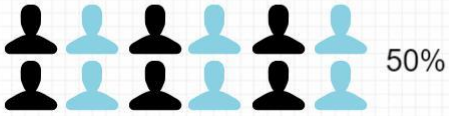


#2

Systematic Random Sampling

For large, unnumbered sampling frames, take every Nth person/item.

Interval depends on the total size of population and desired proportion.

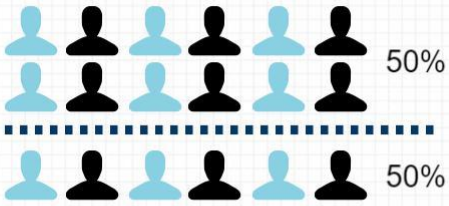


#3

Proportionate Stratified Sampling

To ensure representation of sub-populations, divide total population into subgroups before sampling.

Use techniques #1 or #2 to select proportional number from each subgroup.

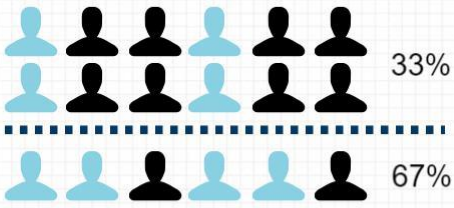


#4

Disproportionate Stratified Sampling

When a key subgroup is likely to be underrepresented, create subgroups.

Use techniques #1 or #2 to select same number from each subgroup.

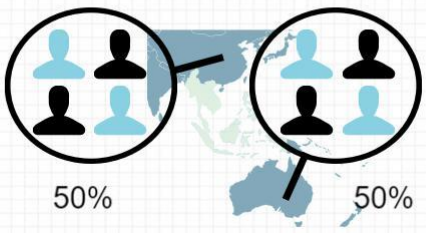


#5

Cluster Sampling

Humans naturally cluster (geographic areas, social institutions, etc.). Use these clusters to define homogeneous sample.

Sampling different clusters provide a heterogeneous stratified sample.



2B. BUILDING AND MANAGING DATABASES

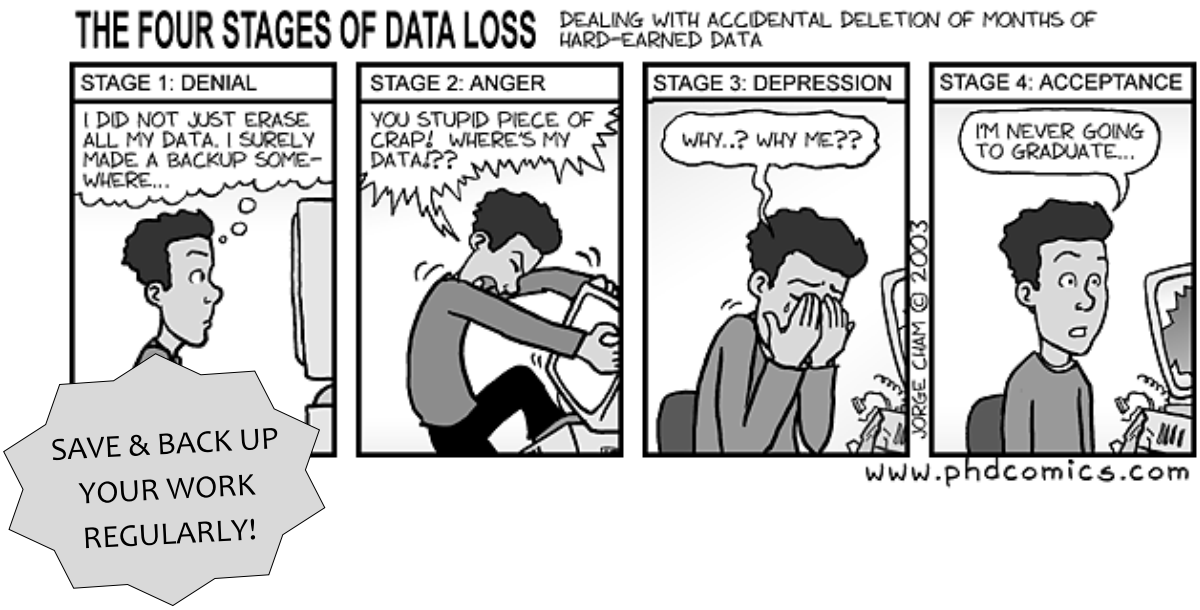
Your database is the core of your analytical framework: the organization, structure and content of that database will define the ways in which you can explore your data and the results that you can produce. Careful planning is, again, paramount to being effective and efficient in building and managing your data, and pursuing valid analysis.

Before you start:

1. Read: Bernard (2011) Univariate Analysis pages 458-462 (Coding & Codebooks for Quantitative Data)
2. Define: your primary analytical unit (i.e. an individual, a burial, a house), your variables (independent, dependent, and control).
3. Ensure that the structure and software that defines your database is set up in a way that will allow for detailed analysis of the relationship between those variables, within and between analytical units.

Top Tips:

1. Be careful when entering data – take your time. Mistakes, typos, and gaps in data will impact the validity of your research, and will cause issues with analysis.
2. When you are done building your initial database, save a complete, clean copy that you will not use for analysis. Save a separate file to play with analytically; part of analysis in computer software often involves changes to spreadsheets, organization, etc., which may irrevocably change your database. Make sure you have version control.
3. Save your work regularly – there is nothing worse than losing a whole database or all of your analysis. Use online clouds and external hard drives to save back-up versions throughout the process.



Exercise #5 Sampling & Database Setup

PARAMETERS:

What is your **primary unit of analysis**? *(i.e. what separates one entry in your database from another, described by your variables; for instance, an individual, a burial, an artifact, etc.)*

What **variables** will you use to examine your units of analysis? *(i.e. what elements of variation are you interested in; for instance, age, gender, style, etc.)*

SAMPLE:

How many cases do you have of your primary unit of analysis? _____
(i.e. what is your total population or assemblage) (total)

What proportion will you analyse? _____
(i.e. how many will you need to analyse to be representative) (%)

How many cases is that? _____
(n)

What is an appropriate **sampling strategy**? *(i.e. how will you select the sample cases you will analyse)*

ASSIGNMENT: RESEARCH DATABASE

This assignment includes two components:

1) Your Database (email submission)
2) A Critical Self-Reflection (submit a physical copy in class)

DATABASE (5%)

Using selected spreadsheet software (i.e. Excel, SPSS, etc.) create a database of all of the subjects and variables that you will need to effectively answer your research questions. This database may include qualitative and quantitative data. It may include as many subjects and variables as you require (minimum 500 cells, in most cases should not exceed 1000).

If you have coded your entries, you should also submit a clear key to your codes (this can be submitted electronically or attached to self-reflection).

CRITICAL SELF-REFLECTION (10%)

Alongside your database, submit an overview of your methods and decisions in creating the database (i.e. sampling strategy, choice of variables, organisation, coding).

This piece should also present a critical self-reflection on your methods and choices. Consider the implications of your choices.

> What are the strengths of your database? Why is this the best approach to collecting and analysing data for your research?
> How do your choices reflect disciplinary approach, literature review and context of current research project?
> Are there any problems? Should you have done something differently?
> How will your database impact the results of your research?

FORMAT: Maximum 3 pages (not including any References Cited), Times New Roman Font, Double-spaced. Use the American Anthropology Association Style Guide.

2C. ANALYSING DATA

There are many tools for analysis, dependent on the types of variables you are interested, their relationship, and your goals:

Descriptive Analysis: understanding your existing data using graphic displays (see part 2D. Presenting Data for methods)

Inferential Analysis: going beyond your data, to make broader inferences

Univariate Analysis: by considering one variable at a time, detailed analysis allows for deeper understanding of each variable independent of each other

Bivariate Analysis: examining pairs of variables to study their connection and understand the nature of their relationship (i.e. independent and dependent variables)

Multivariate Analysis: considering the impact that more than one variable might have on another

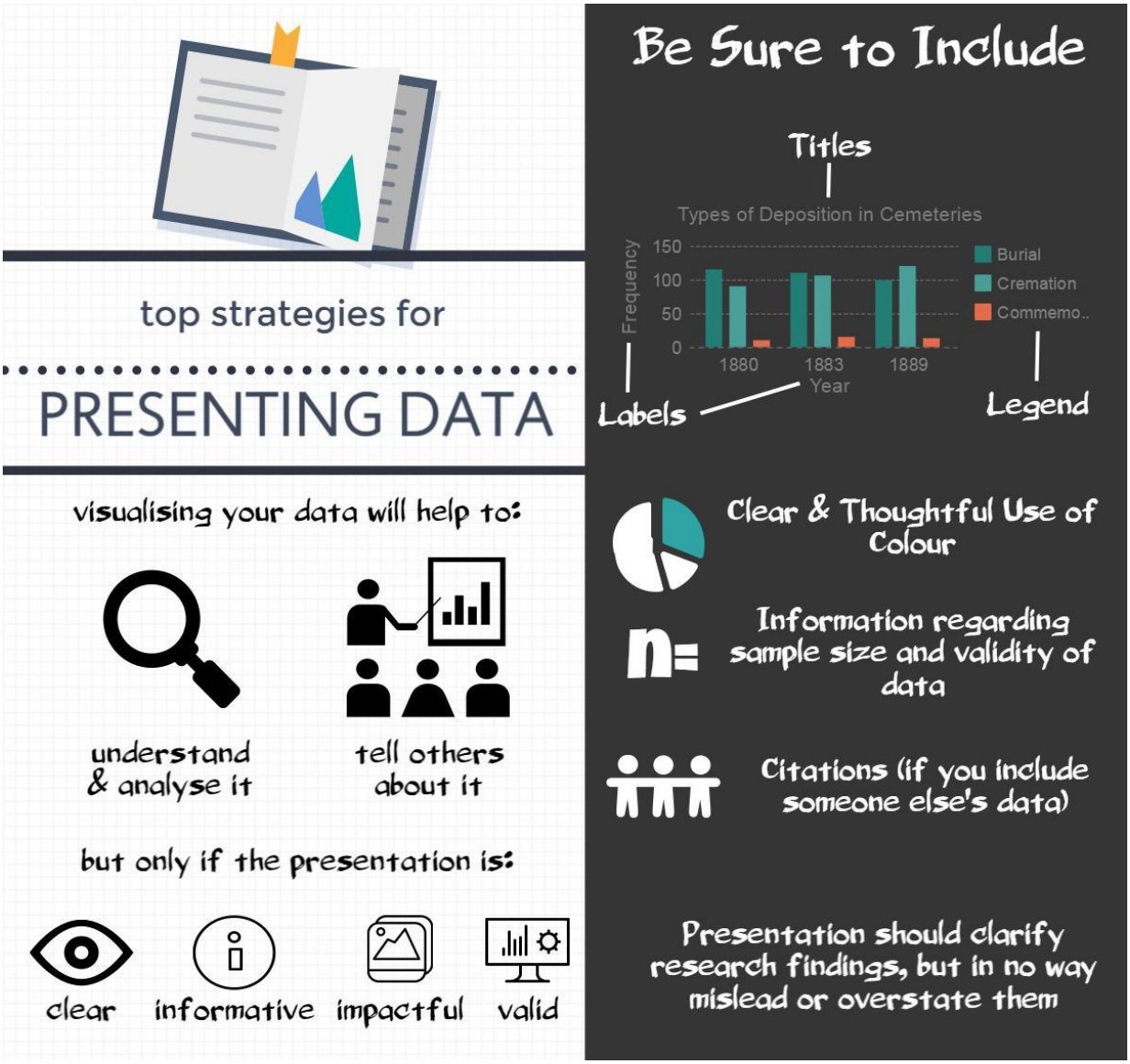
Tasks:

1. Read excerpts from Bernard (2011) Univariate Analysis; Bivariate Analysis; and Multivariate Analysis
2. Explore your data – which variables do you need to understand to answer your research question? How are they related? What tests, descriptive methods, and analytical techniques are relevant to your research?
3. You may need to jump to section 2d. *Presenting Data* to help with analysis (particularly descriptive analysis).
4. You will also need to consider: How will you know when you have answered your research question? How do you know your results are valid?

2D. PRESENTING DATA

Presenting data well is a key skill in research. When done properly, it can help you to see things that you might not have (descriptive analysis) and clarify your understanding of the data. It will also be critical to making a case for your claims when presenting your interpretations to target audiences. This is the evidence that will back up your views, and if anything appears fishy or confusing, it may discourage others from understanding or believing your argument.

Approaches to presenting data depend on the type of data, analysis and target audience. Overall, the goal is to make your data speak clearly, simply, and directly. It is also important that choices in presentation in no way manipulate or exaggerate findings. Careful selection of the format and style of presentation will help you to get the most out of your data.



Data Visualisation

Start by identifying one to three variables that you want to explore or communicate. More than three variables, and your visualization might get too complicated or cluttered. The type of visualization depends on the relationship between the variables:

Comparison – to explore similarities and differences between variables, or between different elements of a variable, use column, bar or line charts to run data parallel to each other
i.e. comparing trends in health or fashion in different places or between different social groups

Relationship – to identify or highlight the connection between variables, use scatter or bubble charts
i.e. to demonstrate that a variable (age) impacts distribution of another variable (type of grave good)

Distribution – to demonstrate the dispersal of variables (temporal, geographic distribution, etc.), use histograms and scatter charts
i.e. total frequency of a variable (pottery type) varies over time or in different places

Composition – to evaluate frequencies of components or how components change over time, use pie or stacked charts to show the structure or composition of a variable or series of variables
i.e. proportion of cremation/inhumation or particular diseases fluctuate over time

There are endless possibilities, explore the web for more software and apps. It also helps to keep a file of data visualisations that you like in your favourite journals and articles, as well as examples that you find confusing or unconvincing.

There's an App for that

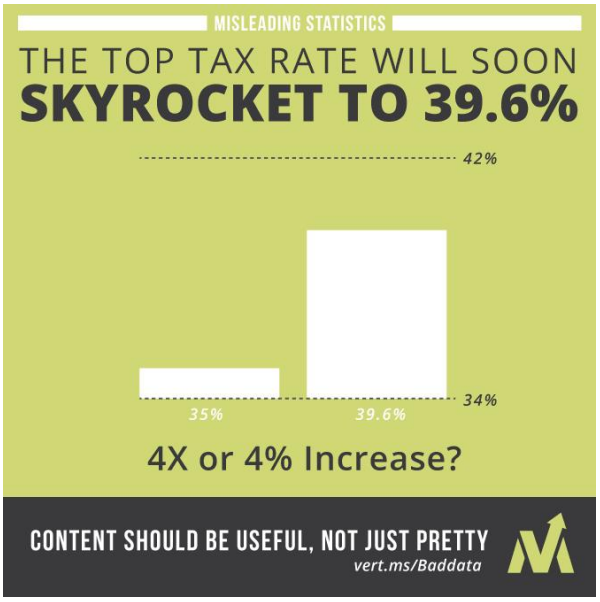
Most spreadsheet and statistical software have built-in options for data visualization and presentation. However, there are many free options online that can provide more variety, functionality and style. Try out:

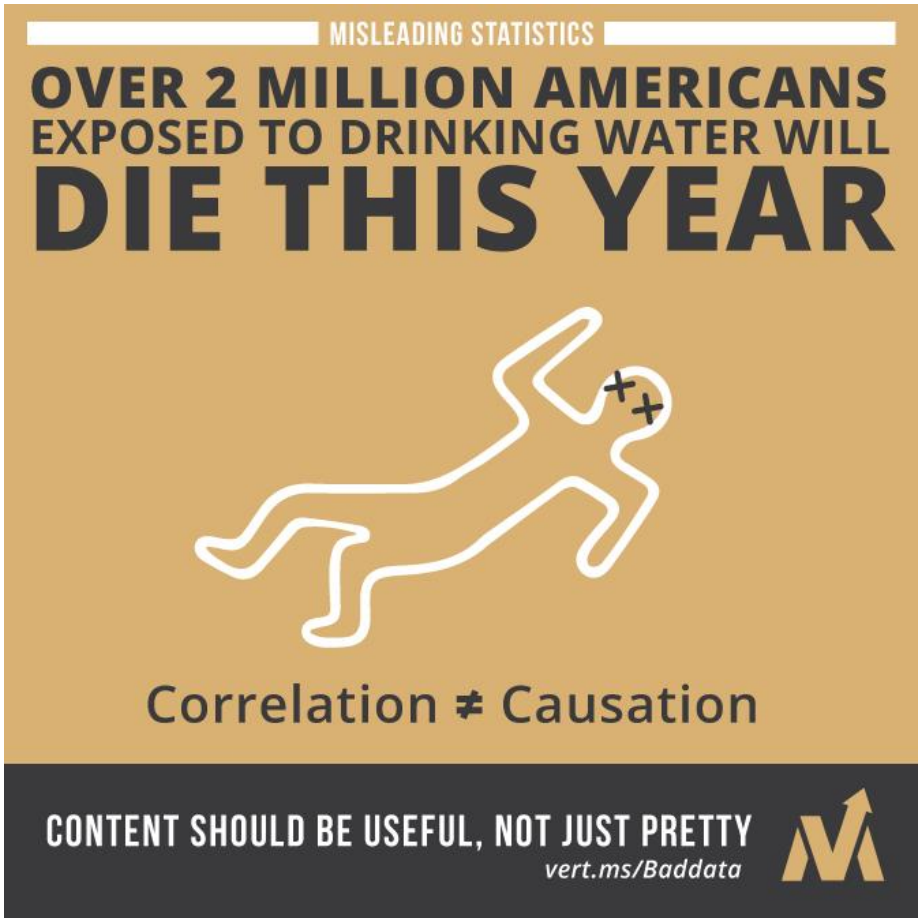
Piktograph: easy visualisation tool for presenting statistics, and basic charts; emphasis on visually stunning data, rather than validity/precision of visualisation https://piktochart.com/

Gephi: more advanced data visualization tool, particularly for topics, text and themes https://gephi.org/

Tableau: drag and drop data into the system to create clear and impactful charts, graphs, maps and more https://public.tableau.com/s/

Some reminders about data and data presentation from our friends at Bad Data:





Think carefully about what your data actually says and how to present it so that it is **meaningful,** not just pretty!

ASSIGNMENT: ANALYSIS AND PRESENTATION

In this assignment, you will bring together your analytical procedures and data presentation into a single narrative. There are two components to submit:

1) Summary of Results (including figures and tables presenting data)
2) Critical Self-Reflection

Both should be submitted in class. If you do not wish to print in colour, but have figures that include colour, please submit BOTH an electronic copy and a hard copy.

Summary of Results (5%)

Present an overview of the results of your analysis. What are your primary findings? How do they answer your initial research question? This should provide all the information necessary to evaluate the strength of the findings (for instance, sample size, temporal and geographic scale).

You must include at least 3 different forms of data presentation (tables, chart types, etc.), which should all include the appropriate labels, legends, and titles. They should be legible and easily understood by an outside party. You should include as many tables/figures as you need to explain and back up your claims.

FORMAT: Minimum 3 pages (no maximum). Times New Roman 12pt Font, Double-spaced. All Tables and Figures should include numbering systems, in-text calls, and captions/titles.

Critical Self-Reflection (10%)

Summarise your approach to analysis, including the decisions you made regarding which variables and relationships to analyse and methods (univariate, bivariate, multivariate, etc.).

This piece should also present a critical self-reflection of your methods and choices:

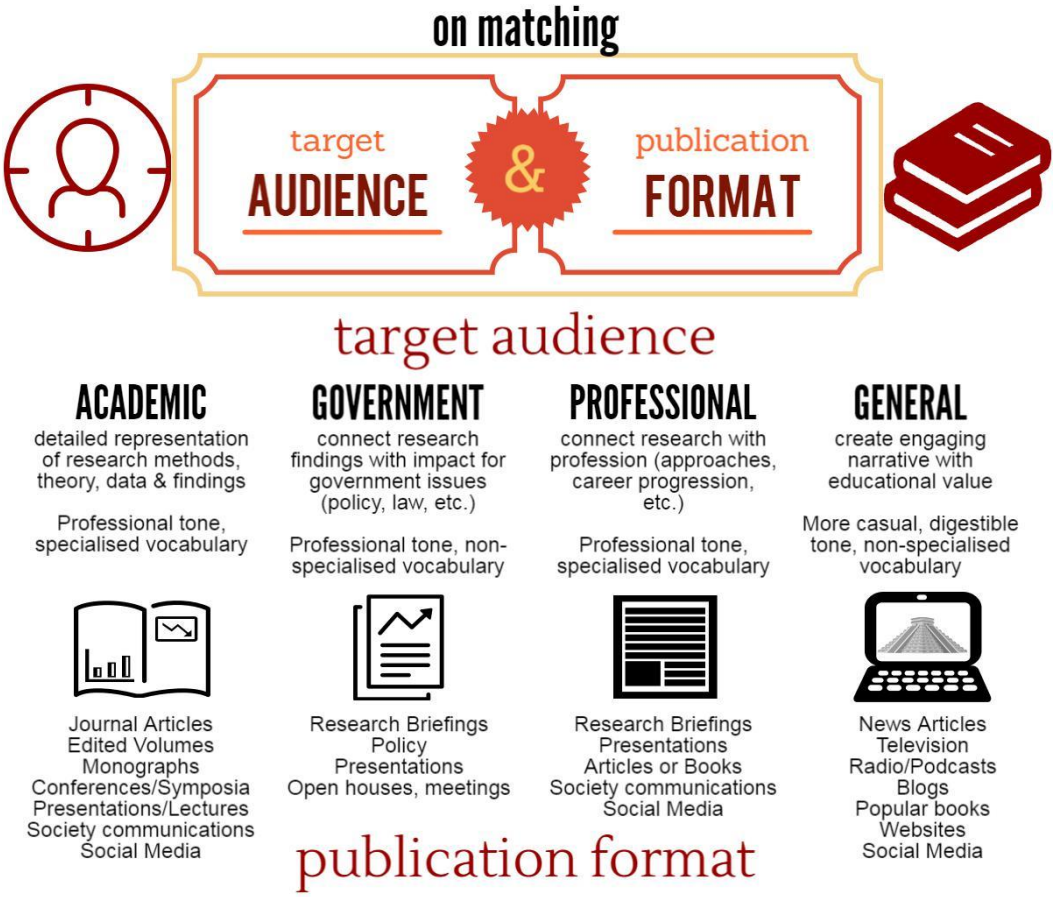
> What are the strengths of your analytical techniques and results? Why is this the best approach to analysing and presenting your data?
> Are there any problems? Should you have done something differently? How will you deal with these issues before submitting the final project?
> How did choices earlier in the project (research design, database) impact your results?

FORMAT: Maximum 3 pages (not including References Cited), Times New Roman 12pt Font, Double-spaced. Use the American Anthropology Association Style Guide.

3. DISSEMINATION

Particularly in academia, there is a lot of value and prestige placed on publication. However, the traditional publication process has come under increasing scrutiny, from the individuals who profit from it to the implications for career progression, inclusivity and access to information.

When it comes to disseminating research findings, there are a lot a more options available than just journal articles and monographs, and the options continue to grow with the development of new technologies. The steps of choosing an appropriate venue, format and audience for your findings, and how to put together your work for these options is therefore complex. The following section will help you to think through these decisions by reading and exploring existing work.



Exercise #6 Summarise your Research Findings

The best place to start when deciding how to disseminate your research findings and to whom is to remind yourself of what you did, why, and what you found. This summary can serve as a focal point as you start to craft narratives, arguments and interpretations for public presentation (revisit earlier exercises and your proposal if necessary).

What was the main purpose of your research? Why is it significant?

What were the most important things you learned from the research? What are your primary arguments/interpretations? Did any of the results surprise you?

Who would these findings resonate with most? Why?

Are there any further considerations that may impact appropriate dissemination formats/audiences?

- ☐ **Ethics** (any issues in sharing information): _____
- ☐ **Visualisation** (dependent on a lot of images or figures?)
- ☐ **Access** (does funding or stake holders require Open Access results?)
- ☐ **Impact** (does funding, institution or stake holder require a particular impact factor?)
- ☐ **Complexity** (complex narratives may require longer format publications, etc.)
- ☐ **Other:** _____

3A. DISSEMINATING RESULTS FOR ACADEMIC AUDIENCES

Disseminating results for academic audiences (and many professional/government audiences) is premised on presenting sound arguments with detailed methodologies, data and evidence, and clear discussion of theoretical and practical implications. This section will focus on approaches to writing in academia, the range of formats available, and techniques and tools of the trade.

Tasks:

1. Read Connah (2010) Pleasing Everyone and Pyne (2009) Chapter 21: Theory & Practice
2. Keep a file of inspiration (academic publications that you like, and some that you don't)
3. Revisit some of your favourite publications from this course and others. What is successful? What is unsuccessful? What role does specialised language, data and theory play in different kinds of academic publishing?
4. Develop a plan for disseminating your research results in an academic journal

3B. DISSEMINATING RESULTS FOR GENERAL AUDIENCES

Disseminating results for general audiences is very challenging; by nature, these groups are varied, have diverse interests and skill levels, and can be extremely fickle! It is important to engage through clear and digestible narratives and messages, but without 'dumbing down' the information, misleading people, or presenting anything that is not factual. This section will focus on approaches to writing for general audiences, the range of formats available, and techniques and tools of the trade.

Steps:

1. Read Pyne (2009) Chapter 3: Rules of Engagement
2. Explore the resources associated with at least two of the formats listed below for disseminating results to general audiences. Think through their strengths and weaknesses, and the role of specialised language, data and theory (keep notes on page 38).
3. Keep a file of inspiration (websites, blogs, news, social media that you like, and some that you don't)
4. Develop a plan for disseminating your research results to a general audience

MUSEUMS:

Take a look into Museum Hacks, a consultation company that looks at museums and how to improve engagement, participation and access. Look at some of their case studies and examples of programming. See especially: https://museumhack.com/museum-case-studies/

What are their top tips for museums seeking to engage audiences?

If you can, visit local museums, recall past museum trips or visit museum websites/social media. What stands out about your experience? How is anthropology displayed and communicated? What is the impact on the audience?

Some suggestions: Royal BC Museum, UBC Museum of Anthropology, Museum of History (Gatineau), and outside of Canada: Smithsonian Museum, British Museum

SOCIAL MEDIA & BLOGS:

Find at least three research, museum or heritage blogs or social media accounts that are of interest to you. Review their approach and compare them.

What do they do to engage audiences? What are their strategies for presenting archaeological information concisely and in engaging ways? What impact does concise writing have on the ways that they communicate information?

Some Examples to get you started:

https://bonesdontlie.wordpress.com/ (blog by PhD student Katy Meyers on bioarchaeology)

http://www.forbes.com/sites/kristinakillgrove/#6d1241a47037 (Kristina Killgrove's successful Powered by Osteons blog was picked up by Forbes)

https://twitter.com/MustFarm the Twitter coverage of Must Farm excavations

https://twitter.com/DrDonnaYates the Twitter feed of Dr. Donna Yates, on the antiquities trade

DOCUMENTARIES, TV & RADIO

Take some time to watch TV! This might be unorthodox, but how can you understand archaeology in Hollywood if you haven't seen it. Some top titles to check out (many episodes available on YouTube, etc.)

Time Team (UK & American versions – many seasons to sink your teeth into)

Digging for Britain (television series following real digs)

The Curse of the Axe (1-time documentary on Ontario archaeology)

National Geographic Documentaries (too many to list)

Fictional: Bonekickers, Bones, Indiana Jones, Relic Hunter, etc.

Podcasts: try the Archaeology Podcast Network (http://www.archaeologypodcastnetwork.com/)

BOOKS & PRINT

Check out some anthropology books for adults, for kids; fiction and non-fiction, text- or graphic-novels.

Consider how anthropology is presented to different age groups or in different formats.

NEWS & MEDIA

Do a quick search of on your favourite news provider's website for archaeology, biological anthropology or bioarchaeology (or search for news on these topics in your favourite search engine). Pop into the magazine section of a local shop and look for magazines or articles reporting anthropology. Review recent articles and evaluate how discoveries and research are being presented.

For some particularly interesting case studies, consider the reporting of the *Homo naledi* find or the teenage in Québec's reported finding of a Maya city.

Also try some sources that are written by anthropologists for more general audiences. For instance, Sapiens Magazine (http://www.sapiens.org/) or Allegra Lab (http://allegralaboratory.net/)

Notes on Examples of Disseminating Results to General Audiences

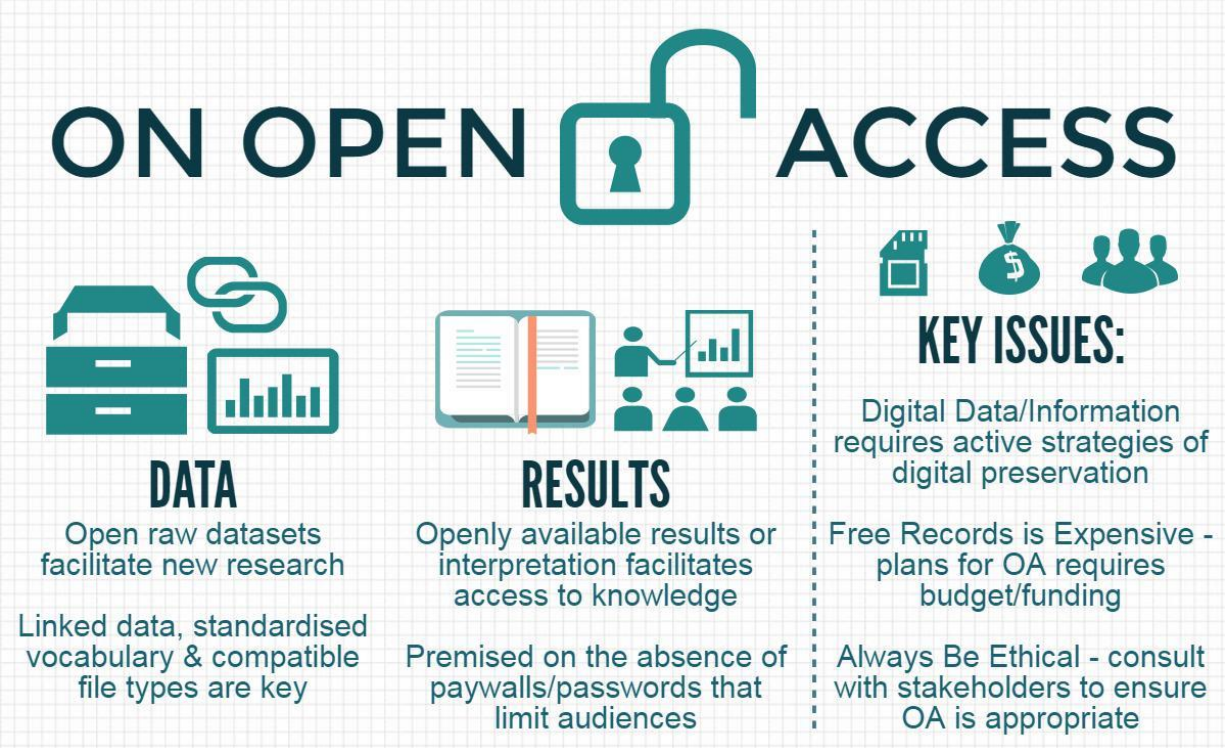
FORMAT	PROJECT/TITLE	STRATEGIES FOR COMMUNICATION	THINGS THAT I WOULD USE IN FUTURE	THINGS THAT I MIGHT DO DIFFERENTLY

3C. DISSEMINATING RESULTS USING DIGITAL TECHNOLOGIES

Disseminating results using digital technologies is becoming increasingly common, however, it introduces a new range of issues, ethical concerns, and weaknesses that need to be addressed. This section will focus on introducing you to the primary applications and platforms for sharing archaeological and biological anthropology data, concepts like open access and open data, and basic skills for disseminating your own results.

Steps:

1. Read Suber (2012) Chapter 1: What is Open Access? (available for free online, see course website or https://mitpress.mit.edu/books/open-access)
   Conway (2010) Preservation in the Age of Google: Digitization, Digital Preservation, and Dilemmas (see course website)
   Consider: our projects this term have been facilitated by digital technology, open access and data preservation – how much do you know about the approach of ADS/Open Context? How have their models impacted your results? How will it impact your dissemination strategies?
2. Explore web-based digital projects (see next page).
3. Keep a file of inspiration (web-based projects you love, some that you don't)
4. How would you go about disseminating your research results on the web? What skills would you need? What would be the costs or any other limitations?



Open Access Data

Check out the following projects/endeavours online that provide open access to data:

> **Open Context** (http://opencontext.org/) [including their Digital Index of North American Archaeology as a case study]
>
> **Archaeology Data Service** (http://archaeologydataservice.ac.uk/)
>
> **Fossilworks: Paleobiology Database** (http://fossilworks.org/)
>
> **MorphoSource** (http://morphosource.org/)

What are their motivations and approaches to open access? How do their programs work? What is the process like for contributors (i.e. cost, timeline)? What are the benefits and limitations to these endeavours?

Open Access Publishing

You can explore any projects that are of interest to you. Try to find at least three examples of open access websites, journals or publications:

How is research being shared digitally in biological anthropology? Archaeology? Bioarchaeology?

Explore web-based platforms for disseminating anthropological research. Consider: what are their goals? How do they achieve them? Why is digital media useful for disseminating anthropological research? What are the limitations?

Do you get a sense of how this digital information will be preserved? Are there any ethical constraints?

Complete table on the following page with your notes on open data and publishing resources that you explore. What lessons will you take forward?

Notes on Digital Platforms

PROJECT	APPROACH/ FORMAT	STRATEGIES FOR ACCESS & PRESERVATION	THINGS THAT I WOULD USE IN FUTURE	THINGS THAT I MIGHT DO DIFFERENTLY

FINAL ASSIGNMENT: BRINGING IT ALL TOGETHER

This is the opportunity to present your polished research portfolio. You will build on previous assignments and feedback, but also present new work from the last module (Dissemination) and critically reflect on the process. Your portfolio should include:

1) Research Proposal, Database and Summary of Results
   (submit revised versions to reflect changes and/or feedback received)
2) Dissemination: Two New Pieces
3) Final Critical Self-Reflection

REVISED PROPOSAL, DATABASE & SUMMARY OF RESULTS (10%)

Regardless of whether or not your research changed during this process, resubmit your proposal, database and summary of results (NOT self-reflections). Update any information and address feedback (from spelling/grammar to methodological/theoretical issues).

DISSEMINATION (20%)

Write two pieces to disseminate your research findings for TWO DIFFERENT audiences. One audience must be academic (i.e. a journal article). The other audience may be general public (children, adults, combination, particular community, etc.), government, or professional. Please indicate the target audience and the venue that you envisioned for each piece.

There are no minimum or maximum page requirements for these. However, the length and content should reflect the format and audience. For instance, consider the maximum word limit for the journal that your academic piece is written for, or the attention span of a child.

FINAL CRITICAL SELF-REFLECTION (10%)

Your final self-reflection should consider the entire research process. It should summarise previous reflections, but spend more time reflecting on the choices in dissemination and its connection to the research project overall.

What choices did you make in the way that you communicated your findings, and for whom? Why? What are the limitations?

How did the research progress overall? What are you most proud of? What would you do differently next time? What were the biggest challenges and how did you overcome them?

Max. 3 pages, not including References Cited. Times New Roman 12pt Font, double spaced.

University of Victoria ANTH 319

Final Project Feedback Form

Name(s):	**Mark:**
Topic:	**%**

	Circle
Revised Proposal, Database, Findings **1. Completeness** Presents polished version of all required elements, reflecting feedback and changes	1 2 3 4 5 6 7 8 9 10
2. Knowledge & Understanding Did it demonstrate breadth of knowledge and wide reading? Connection to the themes and discussion of the course?	1 2 3 4 5 6 7 8 9 10
Dissemination **3. Knowledge & Understanding** Did it demonstrate an understanding of the complexity of the data and interpretations of the case study? Of dissemination process?	1 2 3 4 5 6 7 8 9 10
4. Critical skills and originality Did it include critical analysis of data and interpretation? Did it demonstrate originality of thought and creativity?	1 2 3 4 5 6 7 8 9 10
5. Structure & Format Was it well structured with a good introduction, discussion and conclusion? Was it an appropriate voice/format for audience? Properly cited?	1 2 3 4 5 6 7 8 9 10
6. Visuals Were appropriate maps, drawings and photographs used?	1 2 3 4 5 6 7 8 9 10
Critical Self-Evaluation **7. Knowledge & Understanding** Did it demonstrate an understanding of the complexity of data & research process relevant to the course?	1 2 3 4 5 6 7 8 9 10
8. Critical skills and originality Did it include critical analysis of own work? Where relevant did it demonstrate originality of thought and creativity?	1 2 3 4 5 6 7 8 9 10
Additional comment & suggestions for improvement	

READINGS AND ADDITIONAL RESOURCES

On Research Design & Methods

Bernard, H. R. (2011). *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. AltaMira Press.

Booth, W.C., Colomb, G.G., and J.M. Williams (2008). *The Craft of Research*. Chicago: University of Chicago Press.

Creswell, J.W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Los Angeles: Sage.

Gibbon, G. (2014) *Critically Reading the Theory and Methods of Archaeology*. AltaMira Press.

Katzenberg, M.A. and S.R. Saunders (2008). *Biological Anthropology of the Human Skeleton*. Wiley-Liss.

On Research Ethics

Fluehr-Lobban, C. (2013) *Ethics and Anthropology: Ideas and Practice*. AltaMira.

Whiteford, L.M. and Trotter, R.T. (2008) *Ethics for Anthropological Research and Practice.* Waveland Press Inc.

Zimmerman, J., Vitelli, K.D., and J.H. Hollowell-Zimmer (2003). *Ethical Issues in Archaeology*. AltaMira.

On Writing

Clark, R.P. (2013). *How to Write Short*. New York: Little, Brown and Company.

Connah, G. (2010). *Writing about Archaeology*. Cambridge: Cambridge University Press.

Pyne, S.J. (2009). *Voice & Vision: A Guide to Writing History and Other Serious Nonfiction*. Cambridge: Harvard University Press.

Miller, J.E. and O. Schmid (2011). *How to get published in Anthropology: A Guide for Students and Young Professionals*. AltaMira.