Researching and Writing the Thesis

Mark C. Griffin, Department of Anthropology, San Francisco State University, San Francisco, California 94132-4155. https://www.drbonessf.com

This guide is designed to give you a procedural outline for working on your thesis. Every thesis project will have special considerations that are not covered here. You should consult with your committee early and frequently to resolve how to handle these special considerations. No one document can cover all the bases. There are three other excellent works that you should also read:

How to Organize Your Thesis by John W. Chinneck, Carleton University

How to Write a Thesis by Umberto Eco

How to Write a Ph.D. Thesis by Joe Wolfe, University of New South Wales

What is the Thesis?

The culmination of the M.A. is the Master's Thesis. Chinneck (How to Organize Your Thesis, 1999) points out that "The distinguishing mark of graduate research is *an original contribution to knowledge*. The thesis is a formal document whose sole purpose is to prove that you have made an original contribution to knowledge. Failure to prove that you have made such a contribution generally leads to failure."

The M.A. thesis is the demonstration of your ability to conduct original research and present the written results. Your thesis is a research project that you have spent considerable time in preparatory research (*literature review*), project design (*formulation of a research question*), data collection (*field and or laboratory*), analysis (*statistical examination of the data*), and finally presentation and synthesis (*examination of the statistical results in the context of your research question and literature review*). Each of these individual parts will consume considerable time and effort.

How Long Will It Take?

Chinneck (1999) answers this with: "Longer than you think. Even after the research itself is all done -- models built, calculations complete -- it is wise to allow at least one complete term for writing the thesis. It's not the physical act of typing that takes so long, it's the fact that writing the thesis requires the complete organization of your arguments and results. It's during this formalization of your results into a well-organized thesis document capable of withstanding the scrutiny of expert examiners that you discover weaknesses. It's fixing those weaknesses that takes time."

In general, from initial research to final draft, you should allow from ***12 to 18 months***. This guideline comes from years of experience, so take it seriously. The following is a breakdown of the phases of analysis and the time you need to allot for each one:

(1) **Literature Review.** The literature review is in many ways the most difficult and time-consuming part of the thesis project. It is also the most important. The review of the literature provides the context for your thesis project. You will be building on previous researchers' work so it is important that you be thoroughly familiar with it. The review of the literature provides your research question, your methodology, and your context for analysis and interpretation. Therefore, you should spend considerable time on this part of your project. You should initially allot at least **three to six months** for this part of your research. However, you should also realize that the literature review will continue for the duration of the project.

(2) **Data Collection.** Depending on where you will be doing your data collection and whether you will be doing it full-time or part-time, the data collection phase of your project will take between **two and six months**. It is very important that you build in enough time to go back and redo some of your data collection. Most researchers find that their expertise changes over the course of data collection and you will need to go back and recheck the data that you initially collected.

(3) **Data Analysis.** Do not underestimate the time you allot here. Learning a statistics package takes time. Researching the appropriate statistics and learning how to use and apply them to your data takes time. Plan on at least **three months** for this phase of your analysis.

(4) **Preparation of the Thesis Drafts.** You will be writing in drafts. *You should count on writing at least three to four complete drafts before your thesis is complete.* As a general guideline, from

first draft to final draft you should count on at least **six months**. This means that if you plan to graduate in the spring semester you should have your first draft to your committee at least by October of that academic year (e.g., if you plan to graduate in Spring 2023, your thesis committee should have your first draft by October 2022).

The Topic

One of the most difficult tasks that MA students undertake is coming up with a viable topic for a thesis. It is very important that you understand what the common pitfalls in settling on a topic are and how to avoid them. By far and above the most common pitfall is trying to be relevant, rather than focusing on what is productive and achievable. Many MA students waste months or even years struggling to come up with a topic that they feel will make them relevant in the field. In many ways, this misses the entire point of the MA Thesis. The MA Thesis is your opportunity to find out how to do research, so your future research efforts will have a solid procedural foundation. In most cases, it is not your starting point for a life-long research topic. In other words, most students who continue their academic career after the completion of an MA research a different topic from that of their MA Thesis.

Your first (and last) stop to find a viable thesis topic is your thesis committee. Your discussions with your committee are likely to be much more productive if you concentrate on areas of study rather than on specific topics. For instance, if you are a bioarchaeologist, professionals in the field use a standard set of observations to record data about population samples (e.g., Buikstra and Ubelaker's Standards Volume). Studies that you read in the peer-reviewed literature evolve from researchers collecting standardized sets of data and then recognizing patterns.

The Research Question

What is a research question?

A research question forms the core focus of your research. It should be:

- **clear**: it provides enough specifics that one's audience can easily understand its purpose without needing additional explanation.
- **focused**: it is narrow enough that it can be answered thoroughly in the space the writing task allows.
- **concise**: it is expressed in the fewest possible words.
- **complex**: it is not answerable with a simple "yes" or "no," but rather requires synthesis and analysis of ideas and sources prior to composition of an answer.
- **testable**: because it is rooted in a large body of prior research, it can be tested using the accepted methodology of the field.

Why is a research question essential to the research process?

Research questions are the focal point that provides the path through the research and writing process. The specificity of a well-developed research question helps writers avoid the "all-about" paper and work toward exploring a specific, testable thesis.

Steps to developing a research question:

1. ***Choose an appropriate general topic.*** Your question must be based on an extensive review of a *general* area of literature. Many beginning researchers try to formulate a research question based solely on what they think they know about a field of study. In most cases, this is not a

particularly productive path. Instead, beginning researchers should focus on an established general area (e.g., infectious disease, paleodemography, dental morphology). For instance, in bioarchaeology there are standardized general areas of inquiry (e.g., teeth, growth, growth disruption, sex, age-at-death, etc.). It is important for you to understand why these are standardized areas of research. After decades of research and thousands of studies, researchers have found that these are where variation within and among human groups is consistently seen. In order to start formulating a research question, you need to become thoroughly familiar with these general areas first.

2. ***Do preliminary research on your general topic.*** Do some searches in current relevant journals on your topic to find out what the consistent themes are. Once you have familiarized yourself with the current research in a general area, you should begin recognizing the standardized areas of inquiry. What are the more specific areas that are consistently researched (e.g., dental caries, dental hypoplasia, Harris lines)? What issues are scholars and researchers discussing, when it comes to your topic? What are the consistent themes that consistently show up in the literature (e.g., diet, sex differences, health)?

3. ***Start asking questions.*** Taking into consideration all of the above, start asking yourself open-ended "how" and "why" questions about the general topic. For example, "Why are differences consistently noted between the sexes for some traits but not others?" or "How do known pathological processes produce lesions on the skeleton?"

4. ***Evaluate your question.*** After you've put a question or even a couple of questions down on paper, evaluate these questions to determine whether they would be effective research questions or whether they need more revising and refining.

    - *Is your research question clear?* With so much research available on any given topic, research questions must be as clear as possible in order to be effective in helping the writer direct his or her research.

    - *Is your research question focused?* Research questions must be specific enough to be well covered in the space available.

- *Is your research question complex?* Research questions should not be answerable with a simple "yes" or "no" or by easily-found facts. They should, instead, require both research and analysis on the part of the writer. They often begin with "How" or "Why."

5. ***Begin your research*.** After you've come up with a question, think about the possible paths your research could take. What sources should you consult as you seek answers to your question? What research process will ensure that you find a variety of perspectives and responses to your question?

Common Pitfalls in Formulating a Research Question

The Unanswerable Question. Most questions in bioarchaeology are based on well-understood biological processes that have been documented and studied in a medical (clinical) context. For instance, our foundational understanding of pathological processes in the oral cavity come from modern research in dentistry and oral surgery. This research establishes a diachronic record of a pathologic process connected to a synchronic presentation on the osseous tissues.
Asking a question like "How does repetitively using a hammerstone affect the pathology of hand bones?" contains too many questions that likely do not have a supporting literature to answer them. Is there a modern literature that connects a diachronic pathological process connected with an activity like using a hammerstone? How would one differentiate individuals in a skeletal sample that did habitually use hammerstones from those that did not? How would one be able to discount other manual activities that individuals do over a lifetime as the potential source of pathological alteration?

The Unresearchable Question. All questions in bioarchaeology require that you have a population sample with appropriate information. Posing a question that may have an adequate body of foundational literature is not going to be researchable if the population you are working with does not have the relevant information. For instance, constructing a project based on dental morphology is not going to work if the sample you have is missing most of the teeth or the teeth have sufficient wear that the morphology has been erased. Likewise, posing a question that requires that you carefully measure

pelvic morphology is not going to work if the population you have is so fragmentary that you have no complete pelvises.

The Unfocused Question. Frequently, beginning researchers skip some of the essential steps described above and formulate questions that are simply too large to answer. For instance, posing a question like "What does dental pathology tell us about the health of a population?" has a number of critical problems. First, there is no medical definition of "health". This makes it a term that colloquial writers use inductively. That is, a statement is made of what you expect to find and then the evidence is collected to support that statement. This is the opposite of the scientific method, which is based on deductive reasoning. Another issue with the question above is the assumption that all pathological processes in the oral cavity have the same etiology. They do not. Spending adequate time with the preliminary research into a topic area will help you find a proper focus for your research question.

The Overly Simplistic Question. The field of bioarchaeology is based on the synthesis of information from modern medical research, ethnographic literature, archaeological research methods, and skeletal research. Questions that ignore one or more of these do not adequately address a topic. Posing a question like "Does a population have dental cavities?" leaves out essential contextual research.

Getting Started with the Thesis

Once you have talked with your committee members and established a topic, the very first thing to do is start library research. One of your goals from the outset should be to track down and read every reference that you possibly can. Ideally you should start this task in your first year in the MA program. You will be working on this aspect of your thesis right up to the final draft, so get an early start. The way to start this process is to find several recent articles or books that pertain to your study. Read them thoroughly and take notes. Then turn to their literature cited. Cull through and find the references that are pertinent to your research. Get those references, read them, take notes, and mine their references. Continue this process until you have amassed all of the references that you can find. You should familiarize yourself with the journals that are available through the electronic resources at the library.

This will make the research phase of your project much easier. It is important that you start this process as soon as possible because interlibrary loan can take a long time in the case of hard-to-find books or articles.

In general, the literature you use for your thesis should be from the *primary literature*. Understanding what is meant by the primary literature is essential to beginning your research. The Primary Literature consists of *scholarly publications* (authored by experts, for experts) that has gone through the *peer review process*. Encyclopedias, textbooks, websites, and blogs are not appropriate sources for college-level writing in general. They should never be used as sources for a thesis. You should only be using original research for your thesis. In other words, you should not cite a source that is not the original research for the area that you are citing. For instance, review articles are great sources to find the original research for an area. However, you should rarely use them as citations. If you are discussing the etiology of a disease process, you need to find the primary clinical research that investigates the phenomenon. Never cite a source that you have not read for yourself. A corollary to this is that you should never use a "from" citation (e.g., Stuart-Macadam, 1987 from Walker 2009). Not only does this indicate lazy "scholarship" on your part, it runs the risk of you perpetuating a misinterpretation of the original work made by someone else. There is also a possibility that the work cited does not exist. You may not cite a work that you have not read yourself.

Not all scholarly journals use a peer-review process. Peer reviewed journals (also sometimes called refereed journals) include only articles that have gone through a process of feedback and iteration before publication. In short, this means that:

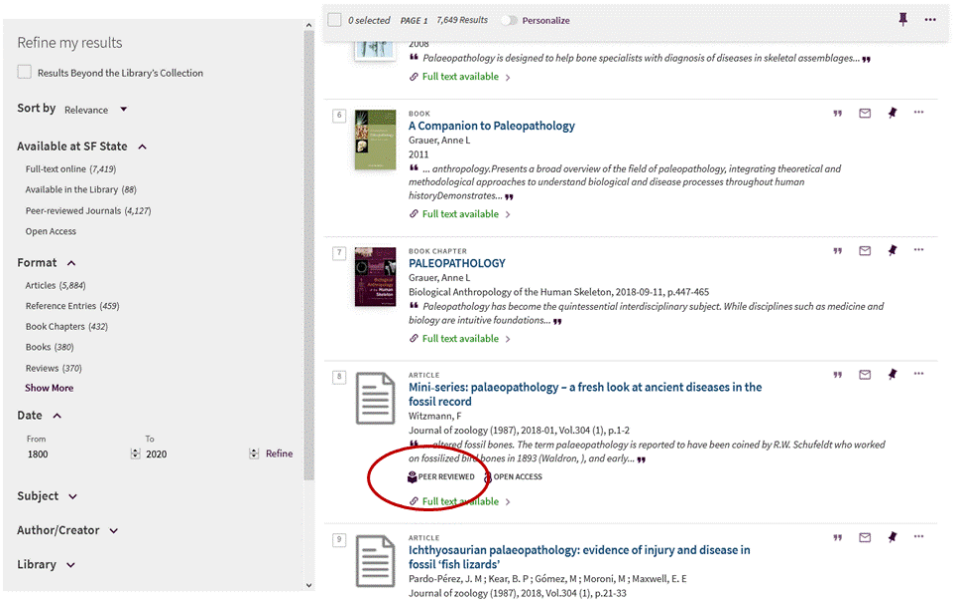
1. The article was written by an expert or scholar in the field or on the topic.
2. The article was reviewed by other experts or scholars in the field or on the topic who assess the article for accuracy and other indicators of scholarship before providing feedback to the author.
3. The author made any necessary edits or changes to the article based on the feedback provided before the article was published.

Not all scholarly work in the library catalog goes through the peer review process.

1) Textbooks and manuals are not primary literature and should not be used in a thesis.
2) Chapters published in edited books generally are not peer reviewed and these are not what your instructors mean when they tell you to use the Primary Literature.
3) Edited books by a single author are not peer reviewed and are not what your instructor means by the Primary Literature.
4) Master's Theses and PhD Dissertations are not peer reviewed. In certain situations, these can be used in certain parts of your thesis. For instance, when establishing site background and previous research for a site or region, MA Theses and PhD Dissertations can be appropriate if the content has not been published elsewhere.

Keep in mind that not all articles from peer reviewed journals are peer reviewed. Commentaries and editorials are not peer reviewed, even though they appear in peer reviewed journals.

How then do you know if an article is peer reviewed? In our library, it is indicated in your search results.



The Outline

After several weeks of researching and reading the literature you will be ready to construct an outline. This is the roadmap for your thesis. The outline will provide the chapter headings and subheadings for your thesis. Construct the outline with two general guidelines in mind. First, most theses will follow the general sections described below. Secondly, add headings and subheadings based on what you've discovered in your literature review. Once you have an outline, give it to your committee for comments and revisions.

You now have a tangible place to begin writing. For each of your headings and subheadings, write a paragraph or more. This should be very informal at this point. Write down what you plan to cover and why.

What is an Outline?

An outline is a formal system used to think about and organize your paper. For example, you can use it to see whether your ideas connect to each other, what order of ideas works best, or whether you have sufficient evidence to support each of your points. Outlines can be useful for any paper to help you see the overall picture.

There are two kinds of outlines: the topic outline and the sentence outline.

- The topic outline consists of short phrases. It is particularly useful when you are dealing with a number of different issues that could be arranged in a variety of ways in your paper.
- The sentence outline is done in full sentences. It is normally used when your paper focuses on complex details. The sentence outline is especially useful for this kind of paper because sentences themselves have many of the details in them. A sentence outline also allows you to include those details in the sentences instead of having to create an outline of many short phrases that goes on page after page.

Both topic and sentence outlines follow rigid formats, using Roman and Arabic numerals along with capital and small letters of the alphabet. This helps both you and anyone who reads your outline to follow your organization easily. This is the kind of outline most commonly used for classroom papers and speeches (see example below). There is no rule for which type of outline is best. Choose the one that you think works best for your paper.

Make the Outline

1. **Identify the topic**. The topic of your paper is important. Try to sum up the point of your paper in one sentence or phrase. This will help your paper stay focused on the main point.

2. **Identify the main categories.** What main points will you cover? The introduction usually introduces all of your main points, then the rest of paper can be spent developing those points.
3. **Create the first category.** What is the first point you want to cover? If the paper centers around a complicated term, a definition is often a good place to start. For a paper about a particular theory, giving the general background on the theory can be a good place to begin.
4. **Create subcategories.** After you have the main point, create points under it that provide support for the main point. The number of categories that you use depends on the amount of information that you are going to cover; there is no right or wrong number to use.

By convention, each category consists of a minimum of two entries. If your first category is Roman numeral I, your outline must also have a category labeled roman numeral II; if you have a capital letter A under category I, you must also have a capital letter B. Whether you then go on to have capital letters C, D, E, etc., is up to you, depending on the amount of material you are going to cover. You are required to have only two of each numbered or lettered category.

Keep Your Outline Flexible

Although the format of an outline is rigid, it shouldn't make you inflexible about how to write your paper. Often when you start writing, especially about a subject that you don't know well, the paper takes new directions. If your paper changes direction, or you add new sections, then feel free to change the outline-- just as you would make corrections on a crude map as you become more familiar with the terrain you are exploring. Major reorganizations are not uncommon; your outline will help you stay organized and focused.

When your paper diverges from your outline, it can also mean that you have lost your focus, and hence the structure of your paper. How do you know whether to change the paper to fit the outline or change the outline to fit the paper? A good way to check yourself is to use the paper to recreate the outline. This is extremely useful for checking the organization of the paper. If the resulting outline says what you want it to say in an order that is easy to follow, the organization of your paper has been successful. If you discover that it's difficult to create an outline from what you have written, then you

need to revise the paper. Your outline can help you with this, because the problems in the outline will show you where the paper has become disorganized.

Example Outline

I. Introduction

A. Current Problem: Educational attainment rates are decreasing in the United States while healthcare costs are increasing.
B. Population/Area of Focus: Unskilled or low-skilled adult workers
C. Key Terms: healthy, well-educated

Thesis Statement: *Because of their income deficit (cite sources) and general susceptibility to depression (*Citation 2017; Instructor 2020; Loblaw 2016; McSourceface 2015; Source 2018*), students who drop out of high school before graduation maintain a higher risk for physical and mental health problems later in life.*

II. Background

A. Historical Employment Overview: Unskilled laborers in the past were frequently unionized and adequately compensated for their work (Instructor 2020; McSourceface 2015; Source 2018).
B. Historical Healthcare Overview: Unskilled laborers in the past were often provided adequate healthcare and benefits (Citation 2017; Instructor 2020; Loblaw 2016).
C. Current Link between Education and Employment Type: Increasingly, uneducated workers work in unskilled or low-skilled jobs (Loblaw 2016; McSourceface 2015).
D. Gaps in the Research: Little information exists exploring the health implications of the current conditions in low-skilled jobs.

III. Major Point 1: Conditions of employment affect workers' physical health.

A. Minor Point 1: Unskilled work environments are correlated highly with worker injury (Instructor 2020; Source 2018).
B. Minor Point 2: Unskilled work environments rarely provide healthcare or adequate injury recovery time (McSourceface 2015).

IV. Major Point 2: Conditions of employment affect workers' mental health

A. Minor Point 1: Employment in a low-skilled position is highly correlated with dangerous levels of stress (Citation 2017).
B. Minor Point 2: Stress is highly correlated with mental health issues (Instructor 2020; Loblaw 2016).

V. Major Point 3: Physical health and mental health correlate directly with one another.

A. Minor Point 1: Mental health problems and physical health problems are highly correlated (Loblaw 2016).
B. Minor Point 2: Stress manifests itself in physical form (McSourceface 2015)

VI. Major Point 4: People with more financial worries have more stress and worse physical health.

A. Minor Point 1: Many high-school dropouts face financial problems (Loblaw 2016).
B. Minor Point 2: Financial problems are often correlated with unhealthy lifestyle choices such unhealthy food choices, overconsumption/abuse of alcohol, chain smoking, abusive relationships, etc. (Instructor 2020; Source 2018).

VII. Conclusion

A. Restatement of Thesis: Students who drop out of high school are at a higher risk for both mental and physical health problems throughout their lives.
B. Next Steps: Society needs educational advocates; educators need to be aware of this situation and strive for student retention in order to promote healthy lifestyles and warn students of the risks associated with dropping out of school.

Bibliography

Citation, Bob L. 2017. A study with a very big cohort. *Journal of Health and Physical Wellbeing* 156:23-57.

Instructor, U. R. 2020. Lecture notes for Anth 200, this class. San Francisco State University.

Loblaw, Bob. 2016. Financial and physical health in a really big cohort. *Journal of Kinesiology* 78:65-90.

McSourceface, Sourcey. 2015. A study of workplace stress. *Journal of Workplace Stress* 89:47-65.

Source, Anne B. 2018. A very important study. *Journal of Health* 56:32-59.

Timetable

Make a timetable (see example at end of this document) and plan when you will have each phase of your project finished. This will help you to budget your time. This structure will help you get things done on time. Otherwise, the temptation is to set a date when the final draft is due and turn in the draft at the last minute. Drafts prepared in this manner are generally horribly disorganized and hopelessly incomplete. Handing in this kind of draft will only irritate your committee and seriously prolong the editorial process. So don't do it. A much better strategy is to turn in drafts of the key parts of your thesis for feedback. The most important initial things that you should show your committee are (1) a discussion of your research question, (2) an outline of chapter headings and subheadings, and (3) a preliminary literature review.

Data Collection

If your thesis involves data collection (measurements, observations, or interviews), you need to build in extra time for this very labor-intensive activity. Data collection is tremendously time consuming. Make sure that you allow enough time. Invariably, measurements have to be redone, statistics

recalculated, and interviews followed up on. A general rule is to allow twice as much time as you think you need. One unanticipated challenge that researchers face is how to present their raw data effectively in the final manuscript. You should anticipate this challenge in the construction of your data collection forms so that the transition from the raw forms to the final presentation in an appendix will be as easy as possible.

Mechanics of Writing

Before you begin writing you should get the two essential writing manuals listed below. Get them and read them. Keep them where you write for reference.

Turabian, Kate L. 2007. *A manual for writers of research papers, theses, and dissertations, seventh edition*. Chicago: University of Chicago Press.

Strunk Jr., William and E.B. White. 1999. *The elements f style, fourth edition*. London: Longman Publishing.

The Art of Synthetic Writing

Probably the most common mistake that beginning writers make is trying to write from page one. Taking a look at the general sections described below, THE LAST thing that you should write is the abstract. This is the hardest part of the thesis and is largely dependent on the work being done. Save it till last. In general, the easiest things to write are the literature review, materials, and methods sections.

An essential skill that academic writers must constantly work on is synthetic writing. Synthetic writing avoids the beginning academic writing pitfall of presenting a sequence of article summaries. Synthetic writing considers a research area as a whole rather than treating the evolution of an area of research as a diachronic sequence of research studies. Consider the two passages below. The first is rather long and wordy and goes into long digressions focusing on one study and the next. The second passage takes the same information and distills it to its essence. The passage is not just shorter. The author has found the common threads of the first and focused on the big picture rather than the individual pieces. Notice

also that rather than providing long explanations of material that the reader should know, it focuses attention on the larger theoretical issues, leaving the reader to fill in information that they should come to the study already knowing.

Dental caries has been used in bioarchaeological studies as an indicator of overall dental health and dietary changes in past populations (Turner, 1979; Cohen and Armelagos, 1984; Molnar and Molnar, 1985; Larsen et al., 1991; Sciulli, 1997; Cohen and Crane-Kramer, 2007; Temple and Larsen, 2007; Šlaus et al., 2011). Milner (1984) in a survey of literature concerning frequency of carious lesions in prehistoric eastern native North Americans concluded that there is a substantial increase in the frequency of lesions after the adoption of agriculture. This is thought to be the consequence of the increased consumption of carbohydrates (maize in many parts of the New World) which when converted to sugar by saliva provides ideal conditions for the microflora which precipitate dental caries. Other research has shown that not all agricultural products are highly cariogenic (Tayles et al., 2000). Larsen (1980, 1982, 1983) has also documented a dramatic increase in frequency of carious lesions with the transition from a hunting and gathering economy to a subsistence based primarily on agriculture on the Georgia coast. Preagricultural populations in Larsen's (1980) study exhibited only 1.3% of the teeth affected by carious lesions while 11.6% of the agricultural teeth were affected by caries. In the agricultural group, males exhibited a lower incidence of carious lesions than did females. This may suggest differential consumption of maize. Larsen (1987) concludes that there is near unanimity from other regions of the world concerning the positive relationship between shift from a hunter-gatherer mode of subsistence to an agricultural one and a relative increase in the frequency of carious lesions. He attributes this increase to the increased consumption of starchy foodstuffs with the shift to agricultural production. This conclusion, however, may have to be modified in light of recent clinical research investigating the relationship between starch consumption and caries (Beighton et al, 1996; Lingström et al., 2000). This research has found that while the relationship between sucrose consumption and caries rates is rather direct, the relationship between starch consumption and caries rates is far less conclusive. One important conclusion from the clinical research of the relationship between starch consumption and caries rates is that the manner in which the starch is processed is far more important than the amount or type of starch consumed (Grenby, 1990; Harper et al., 1985). Starches that are gelatinzed and partially degraded during processing (e.g., boiling or extrusion cooking) are far more cariogenic than starches processed in other manners.

Distilled

Dental caries has been used in bioarchaeological studies as an indicator of overall dental health and dietary changes in past populations (Larsen et al., 1991; Sciulli, 1997; Temple and Larsen, 2007; Šlaus et al., 2011; Williams and Murphy, 2013). Much of the literature pertaining to the influence of dietary change on overall health has focused on the adoption of agriculture (Larsen et al., 1991; Lukacs, 1992; Temple and Larsen, 2007; Watson, 2008; Cucina et al., 2011; Halcrow et al., 2013). The conclusion of this body of research is that the increase in carbohydrate consumption with the transition to agriculture precipitates an increase in caries prevalence. Clinical research indicates that the relationship between complex carbohydrates and caries is more complicated than much of the bioarchaeological research suggests (Lingström et al., 1994; Beighton et al., 1996; Lingström et al., 2000; Hujoel, 2009; Moynihan, 2012).

In order to master the art of synthetic writing, one must start with learning how to write a critical summary of an article.

What is a Critical Summary?

A Critical Summary is a very specific writing style. It forms the basis of how scientific writing is done.

A critical summary is the result of actively conceptualizing, applying, and synthesizing information from authoritative (peer reviewed) sources.

Conciseness: Unlike paraphrase, a critical summary condenses information. Providing long explanations rarely provides more clarity in scientific writing. Scientific writing must be short, concise, and directly to the point.

Objectivity: A summary should only contain the original author's viewpoint, not your own. You are reporting, not editorializing. Even a seemingly innocuous statement like "Smith helpfully points out that…" is subjective. You are not just presenting Smith's point; you are also expressing your opinion that Smith's point is helpful.

Accuracy: A critical summary should provide a clear and precise picture of the material, shorter length notwithstanding. In order to do this, you as the summary writer must understand the material thoroughly, and you must convey your understanding so that the reader gets an accurate picture as well.

Perspective: A critical summary places the summarized work in its overall research context. For example, a summary of a work regarding bipedalism is not very useful if you do not provide a brief context for the consideration of bipedalism in anthropology (e.g., why is it important, how much work has been done, etc.).

An Example of a Critical Summary

In this article, Cameron (2003) replicates Eckhardt's (2000) work and uses a parsimony analyses of 72 craniofacial characters to infer that the single-species hypothesis supported by the Eckhardt's work can be rejected. That is, Cameron (2003) argues that fossil species when compared to extant species exhibit greater genetic variability beyond what is considered of closely related species. Eldredge and Gould (1972) proposed that the mode of evolution of species arrived from the allopatric speciation, which proposes species split into two distinct species based on geographic isolation, rather than phyletic gradualism. Phyletic gradualism proposes that species change slow and gradually over time rather than diverge (Eldredge and Gould 1972).

The results from the analyses, according to Cameron (2003) suggest that the distinguishing characters of the hominid clade include a progressive increase in the cranial capacity, distinguishing masticatory complexes, and reduction of facial prognathism, which the author states is indicative of the diet. Cameron (2003) also discusses the importance of including an evolutionary scenario in hypotheses, which the author states often omit the ecology or competition that species inhabit. Pre-australopithecines, according to Cameron, must have already possessed some traits of bipedialism, which allowed them to survive the desiccation in Africa 3 Ma. Cameron (2003) also argues that pre-australopithecines and *K. Platyops* shared the same woodland regions. It is also suggested that competition in the hominid clade continued to drive other species into extinction, such as *Homo* in northeast Africa of *Kenyanthropus* (Cameron 2003). Recently, Hunt (2016) has investigated the competition of apes and monkeys in consuming ripe fruit as their main diet, which the author concludes began 20 Ma.

Cameron (2003) concludes that species from the pre-australopithecines are part of the *Praenthropus* genus, and that *A. africanus* is the only species of *Australopithecus.* The article ends by Cameron (2003) proposing that the *Homo Habilis* is likely to be the "'basal representative" of the *Homo* clade (2003: 26).

Wood (2014) discusses the debate revolved around the discovery of *Homo habilis* and how paleoanthropologists began searching in Africa for the descendants of the human clade instead of Asia. According to Wood, before 1960s *H. Erectus* had only been found in Asia. Begun (2010) similarly argues that there is great evidence to suggest that the origin of hominids was in Europe and that the adaptive shifts present in our lineage were probably present before the dispersal into Africa, and suggests that the last common ancestor in the human clade split in Africa.

Cameron (2003) proposes that the results of the species part of the hominid clades not as discrete evolutionary process, but as part of the "endemic African fauna" (2003:1). Miller, Gunnel, and Martin (2005) provide a review of the four competing hypothesis of anthropoids origings, which are (1) the Paratethyan, (2) African, (3) Indo-Madgascar, and (4) the Asian hypothesis. According to Miller, Gunnel, and Martin (2005) molecular and morphological data suggests that there is strong molecular evidence for an Asian origin, but lacks the fossil record data to support it. The opposite is true for the African origin hypothesis, which has strong fossil record evidence, but not enough molecular support (Miller, Gunnell, and Martin 2005). The authors note that Laurasis and Gondwanan experienced an exchange of between faunal elements during the late Cretaceous (Miller, Gunnell, and

Martin 2005: 88).

Ward (2003) provides a history of the different areas of anthropology, which seek to answer the questions of hominid origins, one that necessitates the incorporation of multiple areas of inquiry, which has been argued by Peregrine and colleagues (2012). According to Ward (2003), these are the same questions we have about the origins of humans.

References Cited

Begun, David, R. 2012. Miocene hominids and the origins of the African apes and humans. *The Annual Review of Anthropology.* 39: 67-84.

Cameron, D. W. 2003. Early hominin speciation at the Plio/Pleistocene transition. *HOMO – Journal of Comparative Human Biology* 54:1-28.

Eldredge, Niles and Stephen Jay Gould. 1972. Punctuated equilibria: an alternative to phyletic gradualism. In *Models of Paleobiology.* Edited by Schopf, TJM Freeman, Cooper & Co pp 82-115. San Francisco, California.

Hunt, Kevin D. 2016. Why are there apes? Evidence for the co-evolution of ape and monkey ecomorphology. *Journal of Anatomy* 228: 630-685.

Miller, Ellen R., Gregg F. Gunnell, and Robert D. Martin. 2005. Deep time and the search for anthropoid origins. *Yearbook of Physical Anthropology* 48: 60-95.

Ward, Carol. 2003. The evolution of human origins. *American Anthropologists* 105: 77-88.

Wood, Bernard. 2014. Fifty years after *Homo habilis. Nature* 508: 31-33.

Notice in the example above, the summary author does not try to reiterate the article being summarized in every detail. They have distilled (see discussion on previous pages) the article to its essence and brought related literature into the discussion to highlight and clarify the overall context of the research in the larger field. It is important to note that the literature brought in to provide clarification (context) are not references from the original article. They are references that the summary author has found that helped clarify the article being summarized.

Parts of a Thesis

Abstract

This is the synopsis of your thesis. It should state your research question, your methods (how you went about examining your research question), a brief summary of your findings, and a brief conclusion. This is the LAST thing that you write. Wait until everything else is written before attempting the abstract.

Introduction

The introduction should *introduce* the thesis. This is not a summary of the thesis. It is not a brief version of each chapter. It is an introduction to the topic. Introduce the subject. In ***general*** terms, what does your study address? Why is it important? Where does is fit in the overall field? Be sure to include in the introduction a clear statement of your research question(s) and how you are going to address it/them. Throughout the introduction you should use citations from the research literature to support your study. These citations should include but are not limited to research presented in the Literature Review. The following are suggested topics that are usually covered in the introduction.

Statement of the Problem. You should succinctly state the problem that your thesis is going to address. You should also present relevant information about why this is an important problem.

Background and Need. You should present relevant literature that supports the need for your project. Research articles, books, educational and government statistics are just a few sources that should be used here. This section can include brief overviews of articles covered in the literature review that support the need for your project

Rationale. You should carefully present the model or theory that underlies the project. The rationale should define the larger problem being investigated, summarize what is

known about the problem, define the gap(s) in the knowledge, and state what needs to be done to address the gap(s).

Purpose of the Project. Based on the above background information, explain the purpose of the study. Explain what you hope the study will accomplish and why you chose to do this particular study. This should be supported with citations and specific information related to the study.

Research Questions/Hypotheses. Given the background above, you carefully state the research question that will be addressed in your thesis.

Methods. Briefly (as you will cover this in-depth in a later chapter) describe the methods that were used in your study (i.e., research methods, variables, instrumentation, participants, pilot, analysis of data).

Limitations. Begin this with a summary of the document thus far to provide a background for any limitations to this study. Be very specific, for example the population to which your findings will be limited.

Beginning writers are frequently mystified by what the introduction section of a paper should look like. If you carefully study the introduction section of published articles, you will notice one important consistency. The introductory section doesn't just "introduce" a topic. In an article dealing with anatomy, the introduction sets the anatomical, physiological, and theoretical context for the entire article. In other words, every proceeding section to the article will relate in some way back to the introduction. Consider the two introduction sections below. Each of them introduces an anatomical area of study for further discussion in the rest of the papers.

Humans are sexually dimorphic, meaning there is considerable anatomical and physiological variability between males and females that is phenotypically and genetically observed. The entire human skeleton begins as cartilaginous and fibrous membranes that undergo the process of ossification throughout adulthood. The genetic differences between sexes are mediated by hormones and undergo punctuated rates of growth from infancy to adulthood. The most significant (for sex estimations) osteological changes occur during puberty as a result of hormone secretion. In males, substantial spikes in testosterone cause the skeleton to increase in size and mass which results in larger more pronounced cranial features. Muscle attachment sites become well defined, and the overall shape and density of the male crania will increase substantially. Significant differences in cranial features can be measured and observed in terms of shape and size. Differential measurements can also be influenced by external factors such as cultural practices and environmental influences causing sexually dimorphic features to be less identifiable (Griffin 2018).

Both sexes are influenced by growth hormone which mediates development throughout the body. Hormonal fluctuations during puberty result in sexually dimorphic features that can be observed and quantitatively measured on the cranium including: eye orbits, cranial architecture, forehead shape, palate shape, parietal eminences, mental eminence, mandible dimensions, nuchal crest, muscle attachments, gonial angle, mastoid process size and angle, and the overall size of the cranium (Griffin 2018). The overall size and shape of a male cranium will be larger in endocranial volume (more than 200cc) and there is generally a rugged cranial architecture; both of these features are the result of increases in testosterone secretion that cause expedited cranial and muscle growth. Males will have smaller frontal and parietal eminences because the surrounding bones will grow rapidly to make them appear smaller by comparison (Krogman and İşcan 1986; Griffin 2018). Female crania, in contrast, will generally have full, rounded paedomorphic faces that are lighter in weight and are more delicate architecturally (White and Folkens 1991 pp:411). Female crania will possess larger frontal and parietal eminences because they do not undergo the same spike in testosterone, therefore much of the cranial shape is the result of growth hormone, resulting in steady development rather than punctuated (Griffin 2018).

Bibliography

Griffin, Mark. 2018. Human Osteology Practicum, Anth 530 Lecture, San Francisco State University. Fall.

Krogman, Wilton Marion and Mehmet YaŞar İşcan. 1986. *The Human Skeleton in Forensic Medicine.* Springfield, Illinois: Charles C. Thomas.

White, Tim D. and Pieter A. Folkens. 1991. *Human Osteology.* San Diego: Academic Press.

Throughout the stages of development, the cranium goes through a series of predictable changes that can be related to age. These features can be observed subjectively as well as measured and ranked objectively to estimate

age at death. Developmental periods are divided into two major categories: subadult and adult. Subadults are continuing to undergo substantial developmental changes that alter their skeletal features (Redfield 1970). In contrast, adult skeletal systems are no longer in active growth. Changes in adult skeletal features are related to the aging processes rather than major developmental changes. These differentiating features allow predictable patterns to be observed among crania to make age at death estimates with relative accuracy (Griffin 2018).

Age at death estimates can be divided into specific osteological categories that are determined by developmental processes. The first being the period of infancy which spans from zero to two years of age. The period of infancy is marked by explosive and rapid brain development that is marked anatomically and physiologically in cranial growth (Griffin 2018). The second period being childhood which ranges from three years of age to twelve. The developmental period of childhood represents rapid growth in the appendicular skeleton. The third period of development ranges from thirteen to seventeen and is labeled adolescence. Adolescence is marked by puberty, spiking hormones such as testosterone, which results in major growth processes that cause significant changes to the skeleton. The fourth period of development is adulthood which ranges from eighteen to twenty-five. This developmental period is marked by significant facial growth, subsequently increasing the size of the face as a result of the third molar developing. The fifth period of development is categorized as mid adult and ranges from twenty-six to forty. The mid adult period does not result in many changes; which can make it a difficult age to determine. The sixth and final period of development is described as senile adult and ranges from forty-one years of age on. During this period of time, there is significant bone density loss as a result of the body reabsorbing calcium stored in the bones (Griffin 2018).

The first two stages of development represent an age group that possesses incompletely ossified bones, which is difficult to use for age estimates. Redfield (1970) developed a system of establishing age at death estimates in subadults using the occipital bone. The occipital bone has specific segments that are separate at the time of birth. There are predictable age associated developments that occur on the occipital bone that can be used to make age at death estimations.

Bibliography

Griffin, Mark. 2018. Human Osteology Practicum, Anth 530 Lecture, San Francisco State University. Fall.

Redfield, Alden. 1970. A new aid to aging immature skeletons. Development of the occipital bone. *American Journal of Physical Anthropology* 33:207-220.

Notice in both examples above, the writer does not try to reiterate every detail of methodology or every aspect of anatomy but rather finds the common threads that unites an area of inquiry.

Literature Review

The literature review should discuss ***all*** of the research that has been done on the subject. How you group the discussion will depend on your project, but be sure to come up with a logical organization before you begin writing. This is the discussion and analysis of the library research you've been doing for the past 12 months. How many studies should be included will depend on the topic. The inclusion of as many as 75 to 100 references in this section is not unusual.

The literature review should begin with a reiteration of the purpose of your study. This should be followed by a preview of what is to come in the literature review. This lays out the overall organization of specific topics you will cover.

The purpose of the literature review is to concisely demonstrate your level of understanding of the research related to your project. You should not discuss all of the literature in-depth. Rather you should group your literature according to some general topics and only discuss specific studies if they are "landmark" studies for your area of research (there should be 6-10 of these). Each of these specific discussions should include specific information about the group involved in the research project, data, and results reported. Often a review of literature will include several of these in-depth reviews with "mini-reviews" of studies that came to the same or similar conclusions. The literature review should end with a discussion of how the literature relates to your study.

Materials and Methods

This section should provide an in-depth discussion of your materials (e.g., if this is an archaeological thesis, you should discuss the history, etc. of the populations that you are

dealing with). The methods portion of this section should carefully and methodically discuss the methods that you are going to use, the precedent for these, and the reasons why you are using them. A general guideline is that you should discuss your methods in sufficient detail that another researcher could take your data and duplicate your results. One of the expectations of performing original research is that someone in the future will do further research on this topic. Such a researcher should be able to use your methodology without having to consult any other source. If you are using statistical analyses, ***explain*** the statistical methods. What do they mean? How are they used? Why are they more applicable here than other similar methods? For some theses, the materials and methods should be discussed in separate sections.

Results

This is a narrative presentation of your findings. This is where you present your statistics, tables, figures, etc. that show what the specific findings of your study are. Present them in detail. Remember that someone should be able to duplicate your study based solely on this document. This requires considerable description.

It is very important not to try and combine this chapter with the next one. You need to carefully present your results first with no further interpretation. Once you have presented the data you are ready to move on to the next section.

Discussion

There is an important distinction between the Literature Review chapter and your Discussion chapter. In general, the Literature Review chapter should concentrate on the background of your research area and methodological procedures that previous researchers have used to examine this research area. The Discussion chapter may discuss some of the same literature found in the Literature Review. However, the focus of the Discussion chapter should be on the interpretations made by prior researchers rather than the basis of previous research or the methodology used to examine the research area.

The discussion chapter should begin with a concise restatement of your study's purpose along with any needed background information. You should restate your research question(s). Now that you have presented the results in the previous section, discuss them in this section. Place your results in the context of previous research. What have previous researchers found and is this similar or different from what you have found? What, specifically, do the results mean? How can they be interpreted? Can they be interpreted in multiple ways? What do the findings tell you about your research question? Do not claim more for your results than the data really shows. Avoid speculation.

Conclusions

This should summarize your results and discussion. You should include a list of the most important findings of your study in descending order of importance. You should also provide a statement about the possibility of future study. What needs to be done and what does this study contribute?

Literature Cited

This is all of the literature that you have ***cited*** in the text, tables, and figures. This is not a bibliography. Do not include works that have not been cited in the body. Keep careful track of this as you write. When you use a source, add it to this section. Before you begin compiling this section, find out what style you are expected to use. In general, anthropologists should use the style of The American Psychological Association (APA). Make a hard copy of the style and tape it above your computer. Carefully adhere to it or you will (deservedly) raise the ire of your committee (this is a pet peeve of most academics).

Appendices

If you have material that is too long to include in a table (raw data, field notes, etc.) or not appropriate to a particular section it should be included as an appendix. Theses should always present the original raw data from which the thesis was written. This frequently takes far longer than one might anticipate because of the challenges of formatting the section. Be sure to build in appropriate time for this and try to anticipate this challenge when you construct your data collection forms. You should under no circumstances publish someone else's data without their express written consent and proper acknowledgement.

Tables and Figures

Tables and figures should appear ***in the text*** after they are first mentioned. Appending them at the end of the thesis is a very awkward arrangement and makes the thesis difficult to read. Material presented in tables and figures should not be duplicated in the text. Likewise, material presented in tables and figures must be discussed in the text. In other words, information presented in tables and figures is not "stand alone". It instead provides the details of information that will be discussed and contextualized in the text. There are examples of the general format that should be used for tables and figures at the end of this document.

Raw Data

Your raw data should always appear as part of the thesis. This should appear as an appendix at the end of your thesis. Another researcher should be able to duplicate your work with no other documents at their disposal.

The Editorial Process

You need to develop a "thick skin" **now**. Your first draft ***will*** be returned to you covered in red. Your committee has a vested interest in producing a graduate with professional level research and writing skills. These are a reflection not just on you but also on your committee and department. You should count on ***at least*** five or six drafts (many of them swimming in red) before the final draft.

Every writer begins the process quite convinced that they are an accomplished writer with little need for improvement. Scientific writing is an art form that must be constantly refined (regardless of your level). Take your committee's criticisms and ***learn*** from them. Don't set up an epic battle between you and your committee. You are supposed to be learning while completing the thesis. Take each editorial comment and fix the problem. Joe Wolfe (How to Write a Ph.D. Thesis) offers the following observations in regard to the editorial process:

"As you write your thesis, your scientific writing is almost certain to improve. Even for native speakers of English who write very well in other styles, one notices an enormous improvement in the first drafts from the first to the last chapter written. The process of writing the thesis is like a course in scientific writing, and in that sense each chapter is like an assignment in which you are taught, but not assessed. Remember, only the final draft is assessed: the more comments your adviser adds to first or second draft, the better."

Healthy Paranoia

Joe Wolfe (How to Write a Ph.D. Thesis) makes the following suggestions regarding maintaining files (computer and paper) while writing your thesis. This is good advice. Follow it and save yourself trouble later.

> "It is encouraging and helpful to start a filing system. Open a word-processor file for each chapter *and one for the references.* You can put notes in these, as well as text. While doing something for Chapter n, you will think "Oh I must refer back to/discuss this in Chapter m" and so you put a note to do so in the Chapter m file. Or you may think of something interesting or relevant for

that chapter. When you come to work on that chapter, the more such notes you have accumulated, the easier it will be to write.

Make a back-up of these files and do so every day at least (depending on the reliability of your computer and the age of your disk drive). Never keep the back-up disk close to the computer in case the hypothetical thief who fancies your computer is smart enough to think s/he could use some disks as well. You should also have a rotating master back-up: use two disks, back-up one of them every week, and keep them physically separate from your main computer. That way you always have back- ups that are 1 and 2 weeks old, and if a file becomes corrupted you will have an older version of it available. If you want to be really careful, you could transfer your back-ups to a machine at some geographically remote location (using FTP or an email attachment), without of course telling the system administrator that I suggested this. (For Macintosh files use Binhex to convert the files to ASCII form and FTP in ASCII mode. For Dos/Windows files, transfer using binary mode). A simple way of making a remote back-up is to send it as an email attachment to a (consenting) email correspondent. You could send it to yourself if your server saves your mail (in some email packages like Eudora this is an optional setting). In either case, be careful to dispose of superseded versions so that you don't waste disk space.

You should also have a physical filing system: a collection of folders with chapter numbers on them. This will make you feel good about getting started and also help clean up your desk. Your files will contain not just the plots of results and pages of calculations, but all sorts of old notes, references, calibration curves, suppliers' addresses, specifications, speculations, letters from colleagues etc which will suddenly strike you as relevant to one chapter or other. Stick them in that folder. Then put all the folders in a box or a filing cabinet. As you write bits and pieces of text, stick the hard copy, the figures etc in these folders as well. Touch them and feel their thickness from time to time - ah, the thesis is taking shape.

If any of your data exist only on paper, copy them and keep the copy in a different location. Consider making a copy of your lab book. This has another purpose beyond security: usually the lab book stays in the lab, but you may want a copy for your own future use. Further, scientific ethics require you to keep lab books and original data for at least ten years, and a copy is more likely to be found if two copies exist.

While you are getting organised, you should deal with any university paperwork. Examiners have to be nominated and they have to agree to serve, various forms are required by your department

and by the university administration. Make sure that the rate limiting step is your production of the thesis, and not some minor bureaucratic problem."

MA Thesis Style

An MA thesis is made up of a title page, an abstract, a table of contents (including separate tables for list of tables and list of figures), an introduction, several chapters, a conclusion, references, and, optionally, appendices. Apart from enumeration, each chapter must have a title. The specific structure and contents of each chapter must consistently follow the same style. Most of the guidelines below are the SFSU requirements for thesis format. Follow the style below exactly.

Margins. All margins should be 1 inch.

Font. The main text and literature cited should be 12 point Times New Roman. Block quotes, appendices, and all secondary material should be 10 point Times New Roman.

Page Numbering. ***Preliminary pages*** (all pages before the text begins). Use lower case Roman numerals for preliminary pages. Begin the page count with the title page, but do not display numerals on the title, copyright, certification of approval and abstract pages. Display the Roman numerals on the acknowledgement, table of contents and list pages. Roman numerals should be centered, 1 inch from the bottom of the page, and 1 inch from any text.

Main Text. Use Arabic numerals starting with page one of the text. Position the page numbers in the upper right hand corner, 1 inch from the top and 1 inch from the right. The text must be an additional 1 inch away from the page number.

Paragraph. All paragraphs begin with a five-space indent (do not use tabs). All text paragraphs should be double-spaced. All sentences should be separated by two spaces after the period. Do not justify paragraphs.

Headings. Headings throughout the document should follow the format below.

Main Heading

Chapters always start on a new page. Chapter titles (including headings for tables of contents, literature cited, and appendices) must be centered, bold, sentence capitalization, 14 point, and followed by two empty lines.

Second Level Headings

Second Level Headings must be left-justified, 12 point, bold, with primary words capitalized (i.e., nouns, pronouns, adjectives, verbs, adverbs, and subordinate conjunctions) Second Level Headings (sections of chapters) are positioned directly above the main text and separated from the following text by one empty line and the text above by two empty lines. ***A Second Level Heading cannot directly follow a Main Heading***. In other words, at least one paragraph of text should follow the Main Heading before the first Second Level Heading.

Third Level Headings. Third Level Headings precede the first paragraph of the section, are in 12 point, bold, italicized, with primary words capitalized, and followed by a period.

Short quotes. Short quotes (fewer than 60 words) should be located within the text and enclosed by double quotation marks. Single quotation marks are for quotes within quotes. The source of the quote must be written in parentheses immediately after the closing quotation marks, but still before the main punctuation that closes off the sentence or clause. [Example] “We discard the so called ‘modularity view’ attributed to Chomsky” (Lakoff 1987: 208). When two authors are the source, both must be mentioned, as in: (Lakoff and Johnson 1980: 122), and when more than two authors are

responsible, the abbreviation “et al.” must follow the first name: (Varela et al. 1983: 156-157). The phrase “et al.” is only used in parentheses. If referring to the authors in the phrase use “and coworkers” or “and others”. If the author(s) wrote more than one book in the same year, alphabetically-ordered small letters will distinguish, for example: (Lakoff 1976a: 121) (Lakoff 1976b: 82).

Long quotes. Longer quotes must be placed in a text block in 10 point font, with ½ inch indentation on both sides and the paragraph single-spaced. The quote should be set off from the text above and the text below by an extra line (i.e., two empty lines above and two empty lines below). Citation should follow the guidelines above.

Citation. All reference information is provided in a separate part at the end of the MA thesis in a section entitled Literature Cited. Any specific information must be attributed to a source. The format described above under quotations should be followed. The general format in parentheses is the author, followed by the publication date and precise page number(s) if a passage is directly quoted. Only direct quotations include the page number(s). If the author’s name is mentioned in the passage, it should be omitted from the parenthetical portion. In the case of long passages of paraphrased material, the citation is provided after the last sentence.

Numbers. Always spell out numbers when they stand as the first word in a sentence or if the number is less than 10 (numbers 10 and greater should use Arabic numerals); do not follow numbers spelled out with abbreviations. Numbers indicating time, weight, and measurements are to be in Arabic numerals when followed by abbreviations (e.g., 2 mm; 1 sec; 3 ml).

Table and Figure Format

Follow the style below for your tables and figures. Tables and figures must be set-off from the text above and below by two blank lines. Tables are preceded by a title which is left justified and consists of the table number followed by a period, two spaces, a title which describes the contents of the table, followed by a period. Tables and figures

should be numbered consecutively throughout the thesis. The title is followed by two blank lines, the table headers, a header line, the contents of the table, and a footer line. Columns of numbers within a table are right justified within the column. When a table spans the entire width of the page it is left justified as below. When a table does not span the entire width of the page it is centered as the second example below. Tables are never split across pages. Titles for figures are placed below the figure and are placed in line with the left-most portion of the figure (figures are always centered). The title consists of the same parts described above for table titles.

Table XX. Title.

Head 1	Head 2	Head 3	Head 4	Head 5	Head 6	Head 7
00.00	00.00	00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00	00.00	00.00

Table XX. Title.

Head 1	Head 2	Head 3	Head 4	Head 5
00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00

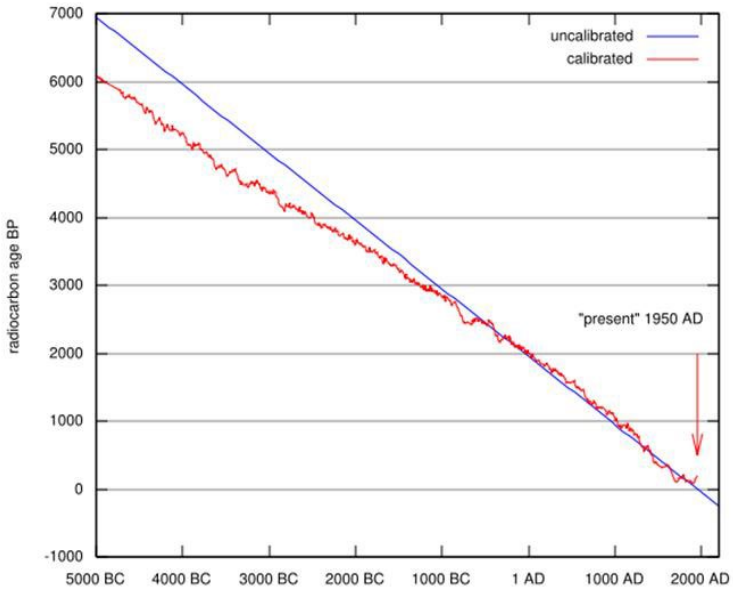


Figure XX. Title.

Example MA Thesis Timeline

January - May 1987	Research into the theoretical basis for dental variation and review of literature
September - December 1987	Familiarization with the Arizona State University Dental Anthropology System
January - March 1988	Design computer forms for data recording (using SCRIPT and SPSSx)
April - September 1988	Pilot study of 120 individuals for selection of appropriate traits for the thesis
October 1988 - January 1989	Collection of data (~300 individuals)
January - May 1989	Analysis of data and write-up

OK, that seems like a pretty reasonable timeline…. so what went wrong? Well, everything went well up to a point. One thing that I did *right* was to start the literature review early. As it turned out, I worked on the literature review right up till the last draft. This, I found out later, is typical. You should therefore plan on it. Another smart thing that I did was build in time to learn about a type of morphological data that I really hadn't spent much time on before (the ASU dental traits). This took **a lot** longer than I really thought it would. In most cases you are going to be learning a new technique, methodology, etc. for your thesis research. You need to factor this in to your time allocation. The last smart things that I did were to take some time to prepare a systematic form to record data and perform a "pilot study" to really learn how to collect the ASU trait information and "hone" my data collection techniques. I was quite pessimistic with my time (notice I gave myself 9 months to do this), but as it turned out, I needed all of that time. I found out about half-way through the pilot study that I was actually collecting the data incorrectly. I had to go back and redo everything that I had done up to that point. I encountered a similar problem during the actual data collection. So instead of finishing data collection in January, I actually finished in early March.

So what else went wrong? The first serious problem was that I didn't build in any time for statistical analysis. I thought that I was pretty well versed in statistics (after all, I aced both my undergraduate statistics courses… how hard could it be?). After I had collected all of my data, I realized that I had no idea how to work through the statistics. So I threw myself on the mercy of the statistics department. Nine times out of ten, I left the statistics department more confused and frustrated than when I went in. After nearly four months of wrangling with the statistics, I finally got it pretty well ironed out. My major breakthrough came after I wrote to a fellow graduate student at another university that I had met at the physical anthropology meetings. Without his extensive help, I would have been sunk. So instead of finishing this phase in April, I finally got it done in mid-August. Notice I was already three months behind.

The second serious error that I made was not allowing enough time for writing. Writing up the materials section and the results section took a lot of time… a lot longer than I ever could have imagined. When I finally finished the first draft of my thesis, it was already mid-September. I had begun doctoral school before finishing the M.A. against the advice of my committee and was beginning to understand why I had been advised not to do this. And then came the real shock. The first draft came back from my committee drowning in a sea of red. Reanalysis, rewriting, and reworking ensued. One of the stipulations of my admittance to the doctoral program was that I be finished with the M.A. by the beginning of my second semester. So the heat was on. After weeks of eighteen hour days, I did get the second, and third drafts in. And I did get my final draft in with about two days to spare.

The moral of the story….? Plan ahead. You can never build in too much time to complete the thesis. Be very conservative. Build in extra time. Count on having to recollect data, redo interviews, etc. Allow yourself at least six months more than what your most conservative guess is.

Sites with Helpful Information on Writing a Thesis

How to Organize Your Thesis by John W. Chinneck, Carleton University

How to Write a Ph.D. Thesis by Joe Wolfe, University of New South Wales

"Writing and presenting your thesis or dissertation" by Joseph Levine at Michigan State University

How Theses Get Written: Some Cool Tips Online by Steve Easterbrook, University of Toronto.

Some Theses Online

Our Ancestors Talk Among Us: Indigenous Knowledge in International Repatriation by Thomas A. Biron, Michigan State University

Life and Health in Nineteenth Century Port Hope, Ontario: Isotopic and Dental Evidence of Diet by Karen Blackbourn, Trent University

Maintaining Ethnicity: A Case Study in the Maintenance of Ethnicity Among Chilean Immigrant Students by Stephanie A. Corlett, Carleton University

Linear and Cortical Bone Dimensions as Indicators of Health Status in Subadults from the Milwaukee County Poor Farm Cemetery by Jessica Lynn Florence, University of Colorado, Denver

HUJPU-ST: Spatial and Temporal Patterns of Anthropogenic Fire in Yosemite Valley by Linn Gassaway, San Francisco State University

A Contribution to the Debate Over the Origin and Development of Treponemal Disease: A Case Study from Southern Illinois by Twana Jill Golden, Southern Illinois University

Dental Variation of Native Populations from Northern Spanish Florida by Mark C. Griffin, Northern Illinois University

Mythic Implications of Faunal Assemblages from Three Ohlone Sites by Barbara Lee Jones, San Francisco State University

Anthropology and Creationism: A Cultural Analysis by Sherry A. Norton, California State University, Fullerton

Using Diffuse Idiopathic Skeletal Hyperostosis to Determine Age at Death by Jennifer E. Riddle, University of Nevada, Las Vegas

Dirty Pigs: Decomposition of Clothed and Nude Non-human Animal Models in Three Microclimates and Forensic Soil Taphonomy with an Emphasis in Microbial Community Profiling in an Arid Environment by Allison Marie Sharplin, New York University.

A Test of Non-Metric Ancestry Determination in Forensic Anthropology: Should the Current Categorization of Individuals of European Descent be Reconsidered? by Valerie Nicole Yavornitzky, Michigan State University