

Spring 2018

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ECO 6315
Seminar in Contemporary Economic Issues

Writing a Term Paper Successfully

These notes are intended to provide you with some guidance in deciding on a topic for your term paper as well as structuring and formatting that document.

1. Choosing a Topic

No term paper can ever be successful without an interesting question—a topic if you like. During the first few weeks of the seminar, you should be actively thinking about a potential topic. The topic you consider should not only have business relevance, but should also involve some behavioral economics. The following is neither:

Why don't firms maximize profits?

Even though it probably involves some behavioral economics, this question is far too broad. Investigating this topic would involve investigating many, many other ones. On the other hand, the following is narrow and uninteresting:

How much does an Apple MacBook Pro cost?

Any relationship to behavioral economics is tangential, if it exists at all. A topic I once wrote about is

How different models of bidding behavior affect predicted outcomes at sealed, pay-your-bid auctions within the common-value paradigm.

Some time during the first five or six weeks of the seminar, I shall describe this topic in some detail.

In all cases, you must submit to me a proposed topic at the beginning of the seminar on Saturday, 24 February 2018, or before. In this document, you should outline why the topic is of business relevance, and describe what phenomena from behavioral economics you hope to investigate. You should also include a brief description concerning how you intend to investigate the topic. Limit yourself to one $8\frac{1}{2} \times 11$ inch double-spaced type-written page. I shall read this document and write suggestions on it. Should your topic be unsatisfactory, then you will subsequently meet with me to discuss possible changes or an alternative topic. From your interests, we should be able to define an appropriate problem that can be answered.

Central to success in this exercise is that you not procrastinate: few people have either the creativity or the luck to think up a good topic overnight. You should take this exercise seriously; the investments you make while undertaking this proposal will pay dividends later. In any case, you cannot receive credit for this seminar without having submitted an acceptable proposed topic.

2. Creating an Outline

To complete your term paper in an orderly manner, you should have an outline, which is a map of how you will proceed with the research. A useful outline has at least three parts: first is a list of background readings;¹ second is a model of the phenomenon you are interested in investigating; third is a list of data sources, if those are relevant. Because getting relevant data in behavioral economics can be difficult, you may instead describe an experiment that would allow you to collect the appropriate data.

2.1. Developing a Reading List

Having chosen a topic, the next step is to find out what other researchers have done with this sort of problem, or with another similar problem. This will involve searching the literature related to the topic. There are at least three potential places to begin this search; I shall discuss each briefly.

You might think that the Internet would be a natural place to search, but you would be mistaken. Even though the Internet has many virtues, one problem with the Internet is that there is an amazing amount of material of dubious quality. The American Economic Association has compiled a database called EconLit in which most published and many unpublished economics papers are documented and can be searched by keyword(s). This is perhaps the most promising source available in the profession.

Another potential source of information is the *Journal of Economic Literature* which used to be called the *Journal of Economic Abstracts*. This journal, often referred to as “JEL”, publishes surveys on topics of interest to all economists as well as lists of paper titles by subject area. The surveys are typically accompanied by extensive bibliographies; these references can save you hours of searching.

Yet a third source is the *Web of Science* (WoS). This online database contains lists of papers in which citations made to the work of another author are tabulated and documented. In order to use the WoS successfully, however, you must have a seminal article. By searching the WoS, you can find papers that criticize, evaluate, or contribute to the paper you are reading.

If, after some searching, you have been unable to find these sources in the library, then ask one of the librarians for assistance. If, after considering all of these sources, you have been unsuccessful in developing a helpful list of references, then you should ask me for assistance. I am here to help you, but you should not use me as a substitute for your work. One purpose of this project is to make you familiar with the resources available.

Caution: do not spend all of your time compiling the perfect list of readings. Select a few (good) ones and go from there.

As you compile a list of readings maintain a database of bibliographic information. Because you will be required to use the reference management software `BIBTEX` when formatting the references for your term paper, your best option is to create a `References.bib` file as described in Chapter 10 of the book *A Gentle Introduction to Effective Computing in Quantitative Research: What Every Research Assistant Should Know*, by myself and Konstantin Golyaev. Cambridge, MA: MIT Press, 2016.

This information will be essential when you submit your proposal. Because this is an essential part of a proposal, let me show you how I expect references in the bibliography

¹ In order for you to know whether these readings will be of use, you will actually have to read them before submitting the outline.

to appear; you should realize that there are many different styles. For the purpose of this proposal, however, you should adopt the following guidelines:

<http://www.chicagomanualofstyle.org/home.html>

The above has more information than you will require right now, so let me illustrate briefly how several types of documents should appear in the list of readings. The file `chicago.bst` is a BibTeX style file that can help you achieve this.

The first document I want to consider is a book. The appropriate bibliographic citation is

Lastname, Firstname (Year). *Title*. Place of Publication: Publisher's Name.

For example,

Koopmans, Tjalling. (1957). *Three Essays on the State of Economic Science*. New York: McGraw-Hill.

If there is more than one author, then the citation should be

Arrow, Kenneth and Frank Hahn (1971). *General Competitive Analysis*. San Francisco: Holden-Day.

If there is more than one edition of the book, then you should list the edition used. For example,

Wonnacott, Thomas and Ronald Wonnacott (1984). *Introductory Statistics for Business and Economics*. Third edition. Toronto: John Wiley & Sons.

The next kind of document is a journal article. The convention concerning one or several authors is adopted here too but, unlike a book, additional information is required. Not only must you list the title of the article and the name of the journal, but you must also list the volume of the journal, the year, and the relevant page numbers. For example,

Lastname, Firstname (Year). "Title." *Journal* Volume beginning page–ending page.

Thus,

Hendry, David and Jean-François Richard (1983). "The Econometric Analysis of Economic Time Series." *International Statistical Review* 51, 111–163.

The third type of document is an article in a book edited by another. Again, the convention concerning the order of names is maintained, but now, in addition to the title of the article, you must also list the title of the book in which the article appears and the editor of the book as well as the publication information given for books. For example,

Lastname, Firstname (Year). "Title." In Book Editors (Eds.). *Book Title*, Volume, beginning page–ending page. Place of Publication: Publisher's Name.

Therefore,

Engle, Robert F. (1984). "Wald, Likelihood Ratio, and Lagrange Multiplier Tests in Econometrics." In Zvi Griliches and Michael Intriligator (Eds.) *Handbook of Econometrics*, Volume II, pp. 775–826. New York: North-Holland.

Yet another type of document is a working paper or manuscript prepared by a researcher at a university or research institute. In this case, the citation is

Lastname, Firstname (Year). "Title." Working Paper #, Institution.

Hence,

Gunderson, Morley, John Kervin, and Frank Reid (1985). "Effect of Labour Relations Legislation on Strike Incidence," typescript, Department of Economics, University of Toronto.

The last type of document you will likely need to reference is a government publication. In this case, you should use the following format:

Government Agency (Year). *Title*, catalogue number.

For example,

Statistics Canada (1983). *Production, Shipments, and Stocks on Hand of Sawmills in British Columbia*, catalogue number 35-003.

2.2. Developing a Model

Modeling any phenomenon is difficult: it requires experience. Most of you have had none of this, but this term paper can change that. To gain experience, one strategy adopted by many is simply to borrow models that another has created. Of course, there is a risk to such an approach: the model you choose need not be applicable. If you choose to borrow a model, then be sure it applies. Also, if you do use some one else's model or imitate their study, then do be sure to acknowledge their contribution.

2.3. Finding Data Sources

Finding data sources that are well suited to the needs of your proposal can be difficult. In fact, data available to answer the question you have posed may not exist. For this reason, you may instead describe an experiment that would allow you to collect the appropriate data.

3. Submitting Your Proposal

Your proposal should have the following structure: In the first section, provide a brief description of your topic as well as a summary of what other authors have written on the subject. In the next section, present the theoretical model you have chosen and justify your choice. You should also point out the implications of the model for business as well as behavioral economics. From your theoretical framework, then develop an empirical specification within which you can give the model's parameters an economic or a behavioural interpretation. In the third section, describe the sources from which you intend to draw the data necessary in estimating the parameters of the empirical model, or describe the experiment you would conduct. In the case of data, this will involve a complete description of each variable you intend to use from each source as well as a listing of the formulae you intend to use in transforming these variables into measures which are germane to your study. The final section of the outline should include the list of readings.

Your outline should be typed, double spaced on $8\frac{1}{2} \times 11$ inch paper in eleven point font with one-inch margins all around. The list of references should be single spaced with one blank line between references. All references should be in alphabetical order. The outline should not exceed six pages in length.

3.1. Writing

The writing in your proposal is as important as any modeling you undertake. In fact, if you do not write clearly and succinctly, then your research will have been for naught. I encourage you to spend considerable effort in writing up your research thoughtfully. I shall deduct marks for mis-spelt words and poor grammar as well as awkward phrases or sentences and poorly structured arguments. You should consult a dictionary when the spelling of a word is in doubt, a thesaurus when a synonym is required, and a book on style, such as

Strunk, Wm. Jr. and E. B. White (1972). *The Elements of Style*. Second edition. New York: MacMillan.

3.2. Providing Adequate Recognition to Others

If you use results that other researchers have derived or ideas they have expressed in their work, then you must acknowledge the contributions of these authors. Such acknowledgements should occur in the text of your paper. In referencing a book, an article, or an article in a book adopt the following style:

Using the reasoning behind the proof presented by Spanos (1987, pp. 329–330), we can show that

$$(\hat{\theta} - \theta_0)^\top [\mathbf{V}(\hat{\theta})]^{-1} (\hat{\theta} - \theta_0) \sim \chi^2(Q)$$

when the null hypothesis $\theta = \theta_0$ is true.

In this case, the bibliographic citation for this book is

Spanos, Aris (1987). *Statistical Foundations of Econometric Modelling*. Cambridge: Cambridge University Press.

Here “pp.” means “pages,” while in the following citation to a journal article “p.” means “page”:

Using the formula derived by Heckman (1979, p. 157), the estimated variance is 0.35.

Now the bibliographic reference is

Heckman, James J. (1979). “Sample Selection Bias as a Specification Error.” *Econometrica* 47, 153–161.

In referencing an article in an edited volume, adopt the following convention:

Thus,

All the techniques of demand analysis so far discussed share a common approach of attempting to fit demand functions to the observed data and then enquiring as to the compatibility of these fitted functions with utility theory.

as Deaton (1986c, p. 1796) has pointed out.

Here the bibliographic reference is

Deaton, Angus (1986c). “Demand Analysis.” In Zvi Griliches and Michael Intriligator (Eds.) *Handbook of Econometrics*, Volume III, pp. 1767–1839. New York: North-Holland.

The “c” after 1986 denotes that there are several articles by Deaton for the year 1986 in the bibliography, this being the third. In referencing information taken from a government publication, adopt the following convention:

These statistics were compiled by Statistics Canada (1983, p. 10).

In this case the bibliographic reference is

Statistics Canada (1983). *Logging: Annual Census of Forestry*, catalogue number 25–201.

A final reference is to a web page, which was demonstrated above in section 2.1 in reference to *The Chicago Manual of Style*.

Failure to make these acknowledgements is plagiarism, the gravest of academic crimes. At this university the penalty for either substantial or complete plagiarism is suspension.² Moreover, this crime will likely be noted on your record and can, therefore, prevent you from being admitted to another academic program. Many employers equate plagiarism with theft—the theft of ideas—and will not hire persons found guilty of this offense.

3.3. Documenting Your Data Set or Describing Your Proposed Experiment

In all quantitative endeavors it is important that others not only be able to replicate the work completed, but that they should also be able to build on it. In business analytics, this means that these others must be able to reconstruct the data you used and then employ them as they see fit. For this to be possible you must document the construction of your data set clearly and completely. This will involve providing a description of where you got the data as well as complete definition and description of all variables used including the formulae used in manipulating the raw data to obtain the variables you ultimately plan to employ. In the absence of data, you must describe your proposed experiment protocol in detail.

You must submit your outline to me personally at the beginning of the seminar on Saturday, 24 March 2018, or before.

4. Final Document

You must use the L^AT_EX macros written in the T_EX language to typeset your term paper. As noted above, you must also use BIB_TE_X to manage the bibliographic references. Any figures you use must be created in Python, and then exported to either EPS or PDF formats, and then imported into your L^AT_EX document. Simple, detailed examples of how to do this are provided in Chapter 10 of the book by myself and Golyaev.

You must submit your term paper to me personally at the beginning of the seminar on Saturday, 28 April 2018, or before.

² Substantial plagiarism is when no recognition is given to an author for phrases, sentences, or ideas, while complete plagiarism is when an entire document is copied and presented as original work.