PPA 207 – QUANTITATIVE METHODS

MASTER’S PROGRAM IN PUBLIC POLICY AND ADMINISTRATION
MASTER’S PROGRAM IN URBAN LAND DEVELOPMENT
CALIFORNIA STATE UNIVERSITY, SACRAMENTO
SPRING 2014

Professor: Rob Wassmer, Ph.D.

E-Mail: rwassme@csus.edu

Home Page: http://www.csus.edu/indiv/w/wassmerr

Class Location, Time, and Day: Acad Res Ctr 3009, 6:00 - 8:50 pm, Mondays

Office: Room 3037, Tahoe Hall

Office Phone: (916) 278 – 6304

Office Hours: Monday and Thursday, 4:00 - 5:30 p.m. and by appointment if necessary.

Texts:

Please purchase all texts and complete the assigned reading for our first meeting. I expect you to do all of the assigned reading before each meeting. Also, bring the appropriate text(s) to class on the dates covered and your laptop with STATA loaded on it.


(4 - Required) “STATA/IC 13 Grad Plan Statistical Package” available for purchase at http://www.stata.com/coursegp.html, specify “RW207” for the GRADPLAN ID, Prices are 69.00/6 months and 189.00/perpetual; use the download version so you can get it in time for first class (if planning on doing a thesis using data and/or a pursuing a career that uses data, I recommend the perpetual version);

Prerequisites:

If you have not taken a previous course in statistics, or it has been awhile since doing so, please closely review:


I will review this material in the first night of class, but it will be quick.

This class also requires the use of Excel spreadsheets. If you are weak in this area, please review this tutorial web link before our first meeting:

[http://www.baycongroup.com/el0.htm](http://www.baycongroup.com/el0.htm).

Data Sources:

<table>
<thead>
<tr>
<th>Type</th>
<th>Date Set Name</th>
<th>Subject</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>California Academic Performance Index (API) Data</td>
<td>The cornerstone of California's Public Schools Accountability Act of 1999; measures the academic performance and growth of schools on a variety of academic measures.</td>
<td><a href="http://www.cde.ca.gov/ta/ac/ap">http://www.cde.ca.gov/ta/ac/ap</a></td>
</tr>
<tr>
<td>Health</td>
<td>California Health Interview Survey (CHIS)</td>
<td>Info on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury.</td>
<td><a href="http://healthpolicy.ucla.edu/chis/about/Pages/about.aspx">http://healthpolicy.ucla.edu/chis/about/Pages/about.aspx</a></td>
</tr>
<tr>
<td>State and Local Gov</td>
<td>Rand State Statistics</td>
<td>Social Science data from the nation's leading think tank. More than 200 databases covering all 50 states plus 162 additional detailed databases on CA, TX, NY Data at national, state, and local level.</td>
<td><a href="http://randstats.org/index.php?view=all">http://randstats.org/index.php?view=all</a></td>
</tr>
<tr>
<td>Census</td>
<td>Demographic</td>
<td>Data Ferret</td>
<td><a href="http://dataferrett.census.gov">http://dataferrett.census.gov</a></td>
</tr>
<tr>
<td>Housing Sales</td>
<td>Multiple Listing Service (MLS) Data for Sacramento, El</td>
<td>Data on characteristics and selling price of all homes that sold in Sacramento Metro Area for 2013.</td>
<td>I will provide</td>
</tr>
<tr>
<td>Various</td>
<td>Inter-University Consortium for Political and Social Science Research (ICPSR)</td>
<td>Not a data set, but a data bank of multiple sources that are all accessible for no charge if entered through a Sac State Web Portal.</td>
<td><a href="http://www.icpsr.umich.edu/icpsrweb/ICPSR/index.jsp">http://www.icpsr.umich.edu/icpsrweb/ICPSR/index.jsp</a></td>
</tr>
</tbody>
</table>

The final assignment for this class is a regression-based research paper. Such a paper requires a data set with at least 500 or more observations on a dependent variable, and the various explanatory variables that you expect to cause variation in the dependent variable. The table above contains a description of data sets we will examine in class.

By the seventh week of class (March 10), at the very latest, you will need to have discussed with me the data set that you wish to use for your course paper. Besides the first five data sets listed above (which we will review in class), a great source of potential data is the ICPSR (which I will also demonstrate how to access in class). You may also use your own private data, but be sure to get my full approval on this because it can be difficult to access, incomplete, and even inappropriate for the type of study you are to complete here.

**WebCT:**

You must have an account that allows access to the World Wide Web and SacCT. On SacCT I will post a PowerPoint of material covered in each meeting and a description of any supplemental homework that is due at the following meeting. These will be available, at the latest, the Sunday before the class meets. All your grades will be accessible through WebCT. Information on SacCT is at [https://online.csus.edu](https://online.csus.edu).

**Learning Objectives:**

At the end of PPA 207, my expectation is competency in these five learning goals for a student attending all classes, and completing all assignments, is

| (1) Learn to apply the analytic tool of regression analysis to offer insights into a particular policy or administration concern. |
| (2) Learn how the knowledge and skills necessary to produce and interpret a credible regression analysis. |
| (3) Learn how to access relevant data and literature to complete a credible regression analysis. |
| (4) Effectively review empirically based literature to assist in the creation of a regression analysis. |
| (5) Practice writing a regression-based research study in a manner that is theoretically sound and understandable to a non-statistical audience. |
The purpose of this course is to expose the master’s level MPPA or MSULD to some of the empirical methods used in the analysis and formulation of government policies. These include types and sources of data, descriptive statistics, regression analysis and interpretation, how to review the relevant empirical literature before beginning a study of this type, and some of the basic issues/problems that can arise in regression analysis. My goal is not to turn you into an expert on statistics and regression analysis, but I do wish to provide you with a working knowledge of the most basic applied techniques in these areas. Even if you never expect to apply these techniques directly in your anticipated career path, it is very likely you will be required to interpret and comment on reports that contain policy analyses based on these techniques.

Method:

Pedagogy includes in-class lectures, discussions, and STATA-based exercises. In addition, each week students will be required to complete written answers to HW exercises. **Look for the following week’s HW assignment at the end of the PowerPoint presentation.** No HW is due the first night we meet.

Each class meeting will begin with a discussion of HW in student groups, coming together as a class to share answers, and then collection of the previous week’s HW assignment. Type all HW answers (except graphs) and no changing of answers in class. Only the student who completed the assignment can turn it in (my method of attendance). After 90 minutes of class time, we will take a 15-minute break.

Some in-class time will be devoted to covering the use of the Excel and STATA computer packages using the installation you must purchase and put on your laptop computer. **Please purchase and install STATA (and Excel if you do not have it) before our first meeting and bring your laptop to class the first night (and every night).** There are limited outlets, so please keep it charged or bring a power strip to share outlet. [There is the option of using the STATA program installed in SSIS Computer Labs, but they have limited hours and you would need to share a laptop with someone in class.]

Academic Honesty

When you do any writing for this class, or any class at Sacramento State (or for that matter writing for any purpose) it is important that you are aware of what plagiarism is. Practicing it in a Sac State class is grounds for dismissal from the university. Details are available at the University Policy Manual found at [http://www.csus.edu/facs/about%20us/plagiarism.html](http://www.csus.edu/facs/about%20us/plagiarism.html). The following is directly from this manual:

**Plagiarism:** Plagiarism is a form of cheating. At CSUS plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution. Regardless of the means of appropriation, incorporation of another's work into one's own requires adequate identification and acknowledgement. Plagiarism is doubly unethical because it deprives the author of rightful credit and gives credit to someone who has
not earned it. Acknowledgement is not necessary when the material used is common knowledge. Plagiarism at CSUS includes but is not limited to:

1. The act of incorporating into one's own work the ideas, words, sentences, paragraphs, or parts thereof, or the specific substance of another's work without giving appropriate credit thereby representing the product as entirely one's own. Examples include not only word-for-word copying, but also the "mosaic" (i.e., interspersing a few of one's own words while, in essence, copying another's work), the paraphrase (i.e., rewriting another's work while still using the other's fundamental idea or theory); fabrication (i.e., inventing or counterfeiting sources), ghost-writing (i.e., submitting another's work as one's own) and failure to include quotation marks on material that is otherwise acknowledged; and

2. Representing as one's own another's artistic or scholarly works such as musical compositions, computer programs, photographs, paintings, drawing, sculptures, or similar works.

Paper:

In order to receive anything but a failing grade in this course, each student is required to complete a regression-based paper on the topic of his/her choosing (subject to my approval). I offer details below on what needs to be included in the paper.

Twitter

I will continue to use Twitter as a social learning tool for this class. I have an account there with the name “@rwassme”. Everyone in class is also to get a Twitter account and subscribe to my Tweets and the Tweets of all in class. (Go to https://twitter.com to do this.)

The Tweeting expected of you is very specific. You are to find a minimum of two, and a maximum of three, internet postings (say from a newspaper, magazine, blog, podcast, You Tube Video, etc) that use the results of a regression-based study to make a point relating to public policy. In the 140 character maximum of Twitter, post a link to this and a brief description of what the regression finding shows and your opinion on their validity.

Once these postings begin appearing from other students, each of you is to choose a minimum of two of these, and a maximum of three, and very deliberately look at the identified internet posting. After doing this, and perhaps reading the original regression study in detail if needed, you are to post a response to the previous Tweet on the study that offers your commentary in 140 characters.

Early on in the class, I will offer my two or three examples of this so you can better follow what I am looking for. Ten percent of your grade reflects (in my judgment) both the quantity and quality of your Tweets.

Grades:
You are required to participate in class discussions and should complete all the homework assigned on the night it is due in person. Failure to do this will result in a zero on that HW averaged in with the grades received on other HW. I will assign a grade to each of your written answers to HW and derive an overall average grade on homework from that. Label all HW answers with your name, date turned in, question asked, and type the answer – with the exception of requested graphs or diagrams that can be hand drawn.

I will calculate your final grade based upon the following proportions:

<table>
<thead>
<tr>
<th></th>
<th>Proportion</th>
</tr>
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<tbody>
<tr>
<td>Twitter Posts</td>
<td>10%</td>
</tr>
<tr>
<td>Classroom and Office Hour Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Literature Review Assignment</td>
<td>15%</td>
</tr>
<tr>
<td>Final Regression Paper Assignment</td>
<td>30%</td>
</tr>
<tr>
<td>Average of Weekly HW Grades</td>
<td>35%</td>
</tr>
</tbody>
</table>

Scoring for Homework:

<table>
<thead>
<tr>
<th>Percent Correct</th>
<th>Letter Grade</th>
<th>Number Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-97</td>
<td>A+</td>
<td>4.3</td>
</tr>
<tr>
<td>96-93</td>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>92-89</td>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>88-85</td>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>84-81</td>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>80-77</td>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>76-73</td>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>72-69</td>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>68-65</td>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>64-61</td>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>&lt;61</td>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Schedule:

I strongly suggest that you attend all Monday meetings. If you do not attend, you will not be able to turn in your homework due at that meeting (no exceptions!). By March 10 (preferably earlier), each of you will also need to visit my office or call me for a private 15-minute discussion of the plan for your paper and the progress you have made on it.

There will be no midterm exam. Instead, I ask that you turn in by April 7 the six-page literature review that is part of your paper. Some details on this are below, more will be forthcoming in class. I will also use the homework exercises that are due at the start of each class meeting (except the first) to judge your progress throughout the semester. The HW due the following week will be included at the end of each week’s posted Power Point notes. The final is a paper that is due no later than May 19.
The readings out of Gujarati, Galvin, Miller, and Wheelan are below. I reserve the right to add additional readings/videos accessed by the internet.

Note that I will not talk about the Galvin (LIT) book; instead, you will break into groups to discuss. The last names below indicate the student responsible for being the “go to” for who I will direct discussion questions to during classroom presentation if others not participating. Thus, make sure you are well versed in this reading. Names will be assigned for other classes in the PowerPoint notes.

Meeting 1 – Monday, January 27

Syllabus Review

Wheelan (ADAN Introduction, Chapter 1: What’s the Point, BLATTEL Chapter 2: Descriptive Statistics)


Tour of STATA CALBONERO (http://www.youtube.com/watch?v=L8iIj_8lhRc)

Data Sets Available in STATA
CARHART (http://www.youtube.com/watch?v=_qb-qEkd-c)

Meeting 2 – Monday, February 3

Working with Housing Sales Data

Wheelan (Five Questions that Statistics Can Help Answer, Conclusion; Deceptive Description, Chapter 3; The Central Limit Theorem, Chapter 8)

Import EXCEL Spreadsheet into STATA (http://www.youtube.com/watch?v=N5ZFgzN2_7c)

Descriptive Statistics in STATA (http://www.youtube.com/watch?v=kKFbnEWwa2s)

Meeting 3 – Monday, February 10

Working with California Health Information Survey

Wheelan (Correlation, Chapter 4)

Ionica Smeets on TED: The danger of mixing up causality and correlation (http://www.youtube.com/watch?v=8B271L3NtAw)

Pearson Correlation Coefficient in STATA (http://www.youtube.com/watch?v=o7ko844ff-g)
Meeting 4 – Monday, February 17

Working with California API Data

Wheelan (Basic Probability, Chapter 5; Monty Hall Problem, Chapter 5.5; Problems with Probability, Chapter 6)

Peter Donnelly on TED: How stats fool juries
(http://www.youtube.com/watch?v=kLmzxmRcUTo)

Galvan (Chapters 1 – 3)
Miller (Five More Technical Principles, Chapter 4)

Meeting 5 – Monday, February 24

Using the Inter-University Consortium for Political and Social Science Research (to gather polling data)

Wheelan (The Importance of Data, Chapter 7; Inference, Chapter 9; Polling, Chapter 10)

Donnie Fowler and Zach Friend on TED: Big Data is coming to Your Town (http://www.youtube.com/watch?v=VVQdehQzIOU)

Jason Robert Jaffé on TED: Pros and cons of public opinion polls (http://www.youtube.com/watch?v=ubR8rEgSZSU)

Galvan (Chapters 4 – 7)

Meeting 6 – Monday, March 3

Working with Rand State Statistics Data

Wheelan (Regression Analysis, Chapter 11)

An Introduction to Linear Regression Analysis (http://www.youtube.com/watch?v=zPG4Nj1kCjc)

Galvan (Chapters 8 – 10)

Meeting 7 – Monday, March 10

Gujarati (The Linear Regression Model, Chapter 1)
How to Calculate Linear Regression using Least Squares Method
(http://www.youtube.com/watch?v=JvS2triCgOY)

How to Calculate R Squared Using Regression Analysis
(http://www.youtube.com/watch?annotation_id=annotation_337244&feature=iv&src_vid=JvS2triCgOY&v=w2FKXOa0HGA)

Simple Linear Regression in STATA (http://www.youtube.com/watch?v=HafqFSB9x70)

Galvan (Chapters 11 – 12)

Meeting 8 – Monday, March 17

Gujarati (Functional Form of Regression Models, Chapter 2; Qualitative Explanatory Variables, Chapter 3)

Functional Forms in Regression (http://www.youtube.com/watch?v=d9e4-6v3ubI)

Miller (Creating Effective Tables, Chapter 5)

Galvan (Chapters 13 – 14)

Meeting 9 – Monday, April 7

Wheelan (Common Regression Mistakes, Chapter 12)

Gujarati (Multicollinearity, Chapter 4)

Multicolinearity in Regression, Parts 1 and 2 (http://www.youtube.com/watch?v=Ybzc3AB1E-E and http://www.youtube.com/watch?v=Z_03ZPvM1fM)

Miller (Creating Effective Charts, Chapter 6)

Meeting 10 – Monday, April 14

Gujarati (Heteroskedasticity, Chapter 5)

Heteroskedasticity in Regression, Parts 1 and 2 (http://www.youtube.com/watch?v=R4qayu65bFs and http://www.youtube.com/watch?v=wnTA7x8Ko4)

Miller (Quantitative Comparisons for Multivariate Models, Chapter 9; The ‘Goldilocks Problem” in Multivariate Regression)

Meeting 11 – Monday, April 21
Gujarati (Logit and Probit Models, Chapter 8)

Logistic Regression (http://www.youtube.com/watch?v=HHK5iahToDI )

Logistic Regression in STATA, Binary and Continuous Predictor (http://www.youtube.com/watch?v=rSU1L3-xRk0 and http://www.youtube.com/watch?v=vmZ uaFlmzQ )

Gujarati [Briefly] (Chapters 9 – 12)

Miller (Writing Introductions, Conclusions, and Abstracts, Chapter 12)

Meeting 12 – Monday, April 28

Gujarati (Panel Data Regression Models, Chapter 17)

Panel Data Regression (http://www.youtube.com/watch?v=pQvhi60yN74 )

Miller (Writing About Data and Methods, Chapter 13)

Meeting 13 – Monday, May 5

Gujarati (Stochastic Regressors, Chapter 19)

John Antonakis on Endogeneity: An Inconvenient Truth (http://www.youtube.com/watch?v=dLuTjoYmfXs )

Miller (Writing about Multivariate Models, Chapter 15)

Meeting 14 – Monday, May 12

Economic Cost of AB32 Press Conference (http://www.youtube.com/watch?v=IWrmfaiinOM )

Consulting Paper, “Cost of State Regulations on California Small Business Study”

Miller (Speaking About Multivariate Analysis, Chapter 19; Writing for Applied Audiences, Chapter 20)

Remainder of Class Devoted to Review Necessary to Complete Your Paper

Final Due – Monday, May 19 at 6 pm
Your assignment is to write a five-page, typed literature review that is double-spaced, 11 font and one-inch margins all around. It is due in electronic form to me by no later than 6 p.m. on Monday, April 7. Each day late will result in a one-grade deduction. Please submit as a WORD attachment to a SacCT e-mail to me. I describe below the requirements for the paper. I also list the points earned by satisfying each of the requirements. I will use this grading rubric for the assignment. All references to Galvin below refer to the fourth edition.

<table>
<thead>
<tr>
<th>Required Element</th>
<th>Points Available</th>
<th>Points Earned</th>
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<tbody>
<tr>
<td>(1) Use a <strong>minimum of seven regression based articles</strong> drawn from academic and</td>
<td></td>
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<tr>
<td>preferably refereed journals. You may use more articles that are not regression</td>
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<tr>
<td>based.</td>
<td>10</td>
<td></td>
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<tr>
<td>(2) Include a <strong>reference list</strong> at the end of the literature review (that does</td>
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<tr>
<td>not count toward your page limit of six) that is in <strong>APA style</strong>. References</td>
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<tr>
<td>made throughout the review should also follow APA style.</td>
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<td></td>
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<tr>
<td>(3) Read all of your articles in the manner described in Chapter 4 in Galvin for</td>
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<tr>
<td>“General Guidelines for Analyzing Literature” and organize your literature review</td>
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<tr>
<td>around <strong>three different themes designated as separate sections in your review</strong>.</td>
<td>10</td>
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<tr>
<td>(4) Review Chapter 5 in Galvin on “Analyzing Quantitative Research Literature.”</td>
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<tr>
<td>Note particularly Guidelines 4 (cause and effect issues covered), 9 (differences</td>
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<td>in variable measurement), 10 (sampling issues), 12 (magnitude and statistical</td>
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<tr>
<td>significance of regression coefficients), and 13 (flaws in studies observed) and</td>
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<td>incorporate these suggestions into your analysis and write up.</td>
<td>10</td>
<td></td>
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<tr>
<td>(5) Review Chapter 7 in Galvin “Building Tables to Summarize Literature.” You are</td>
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<tr>
<td>to <strong>include a well-crafted table of the type described here</strong> in your review. If</td>
<td></td>
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<tr>
<td>you put it in an appendix, it need not count against your six-page limit.</td>
<td>20</td>
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<tr>
<td>(6) As discussed in Chapter 8 of Galvin “Synthesizing Literature Prior to Writing a</td>
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<tr>
<td>Review,” your literature review’s “voice” is suitable for academic writing and</td>
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<tr>
<td>differences among studies are noted (Guideline 5), obvious gaps discussed (</td>
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<tr>
<td>Guideline 1), relevant theories discussed and how studies advance them (</td>
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<tr>
<td>Guidelines 7 and 8), summaries are offered after each section and at end (</td>
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<td></td>
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<tr>
<td>Guideline 9), conclusions/implications, and suggestions for future research [your</td>
<td></td>
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<tr>
<td>own PPA 207 paper] are included (Guidelines 10 and 11).</td>
<td>20</td>
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<tr>
<td>(7) You have a coherent essay according to Chapter 10 in Galvin. This means an</td>
<td></td>
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<tr>
<td>overview at start (Guidelines 1 and 2), annotations avoided (Guideline 4),</td>
<td>10</td>
<td></td>
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<tr>
<td>subheadings used (Guideline 5), conclusion at end (Guideline 8), and argument</td>
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<tr>
<td>flows well (Guideline 9).</td>
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<tr>
<td>(8) Style and mechanics follow Galvin’s suggestions in Chapter 11. In particular</td>
<td></td>
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<tr>
<td>**Guideline 3 (no overuse of direct quotations), Guideline 4 (correct APA use of</td>
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<tr>
<td>citations), Guideline 6 (spell out acronyms), Guideline 9 (avoid slang), Guideline</td>
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<tr>
<td>11 (check your draft using Microsoft Grammar Editor, avoid passive voice),</td>
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<tr>
<td>Guideline 12 (concise and descriptive title), and Guideline 14 (absolutely no</td>
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<tr>
<td>plagiarism).</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>100</td>
<td></td>
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</tbody>
</table>
PPA 207 CHECKLIST FOR FINAL PAPER

Professor Rob Wassmer, Public Policy and Administration, Sacramento State
Spring 2014
(PRELIMINARY)

Your grade on the final paper comes from how well you satisfy the items on this list. You must turn in a paper and an electronic copy (by SacCT) by 6 pm on May 19, 2014. Each day after this date, it is late and will result in a one lower grade deduction.

A one after a criterion means that you satisfied it 100%. A decimal means that you satisfied it at that level. A zero indicates not done. These indicators determine your overall grade.

OVERALL

- There is a cover page with title, your name, and date handed in. ___
- There are seven major sections in your paper, all marked by roman numerals and section titles. ___
- The first paragraph of each section is an introductory paragraph that briefly describes what is in it. ___
- Sub-sections used within your seven sections and they contain headings. ___
- There are no spelling errors. ___
- There are no grammatical errors. ___
- Transitions between paragraphs are smooth. ___
- One inch margins, 11 Times Roman font, and double-spaced. ___
- Paper includes a list of references at end of paper in APA style. ___
- Style issues follow the APA style given in Hacker's A Pocket Style Manual. APA style is also described at http://owl.english.purdue.edu/handouts/research/r_apa.html. ___
- Paper written in manner that an educated layperson who works in public policy can follow. ___

I. EXECUTIVE SUMMARY (1 – 2 pages)

- Follows the suggestions offered in “Executive Summaries Complete the Report,” – http://www.csun.edu/~vcecn006/summary.html ___

II. INTRODUCTION (2 - 3 pages)

- The first paragraph clearly contains your research question. What are you trying to discover through regression analysis? What is the dependent variable? What is (are) the key explanatory variable(s)? ___
- The remainder of your introduction motivates the reader to continue by placing your question in the context of current events, and public policy and studies. ___
- Cite at least two newspaper or magazine articles that point out the populist importance of determining the impact of your key explanatory variable(s) on the dependent variable.
III. LITERATURE REVIEW (5 - 6 pages)

- It must contain a description of at least at least seven regression-based research articles in the area of your policy topic. You can find this research by searching the Sacramento State’s Library’s Web Page of literature bases – http://library.csus.edu/databases. I would suggest using ECONLIT and EBSCOhost as two literature sources that will have regression studies in them. Search using keywords that include "regression" and your topic. ___
- Divide your literature review into at least three labeled themes (or subsections). ___
- Attach a copy of your midterm with my comments included ____
- Address all of the comments I offered on your midterm in a new draft of the lit review that you contain in the paper. (If you wish to ignore something, write a note next to the comment as to why.) ___

IV. MODEL (2 - 3 pages)

- Offer a motivation for your choice of a dependent variable. How does it relate to your research question? ___
- Include a description of the factors expected to cause variation in your dependent variable. The factors should first be listed as broad causes (say causes A, B, C, etc.) and the specific variables which represent broad causes {A = f(x₁, x₂, x₃), B = f(x₄, x₅), C = f(x₆, x₇, x₈), etc.) ___
- What variables do you use to specifically proxy for each of the broad causes? Justify your choices. ___
- Write the regression model to be estimated as: Y = f(x₁, x₂, x₃, .......); substituting your specifics for Y, x₁, etc. ___
- Do not use acronyms to describe x₁, x₂, etc., instead write out a short 3 to 5 word description. ___
- What is the expected direction of effect for each of the specific causes (positive, negative, uncertain)? Justify with a verbal cause and effect description. ___

V. DATA (2 - 3 pages)

- Create a Table 1 that provides description and source for each variable used. (No direct STATA results allowed for any tables. Create tables in your own form and be consistent throughout. Place title on all tables.) ___
- Create a Table 2 that provides variable name, mean, standard deviation, maximum, and minimum. ___
- Create a horizontal Table 3 that provides simple correlation coefficients between all independent variables. If large, place this in an appendix. ___
- Describe in paragraph form what is in Tables 1 – 3.
VI. REGRESSION ANALYSIS (3 - 4 pages)

- List your regression results in table form. (No direct STATA results allowed.)
- First, give your starting OLS results with no corrections. This should begin with the lin-lin, then quadratic, log-lin, and then lin-semilog (if possible) forms.
- Pick the “best” functional form based upon the number of statistically significant regression coefficients and use it in remaining corrections.
- Discuss how you checked for multicolinearity. Was it an issue, and if it was, how you corrected for it? Be sure to include VIF values.
- Did you try including location or other dummies where appropriate? Is it appropriate to try any interaction terms? Discuss your findings.
- Check for heteroskedasticity in your regression by presenting and describing the Breusch-Pagan and Szroeder’s Tests. If heteroskedasticity is present in your regression analysis, provide the appropriately corrected results.
- If your dependent variable is dichotomous (0 or 1), report both OLS (lin-lin and quadratic which represent linear probability models) and Logistic regression results. Describe what both mean and which of the two is more appropriate.
- Is endogeneity an issue for any of your casual variables? If not justify why you believe so. If it is, tell why and describe how you would correct using 2SLS. Report these results. (Extra Credit)

VII. CONCLUSION (2-3 pages)

- Considering your final regression result (with all the appropriate corrections), turn statistically significant regression coefficients into 90% confidence intervals and equivalent elasticities and report them in a table that lists the explanatory variables in an order from largest positive influence to largest negative influence. (Alternatively, chose the appropriate measure if using logistic.)
- For your significant coefficients, how do they compare to the expected signs you described in model section? If findings are different, give a reason why it may be the case.
- For your significant coefficients, describe the relevance of variable based upon the magnitude of its elasticity.
- Interpret the R-Squared.
- Evaluate your research question. What does your regression results indicate as an answer to it?
- What is the specific policy lessons learned from your results? Revisit the policy questions you raised in your introduction.
- Suggest improvements that you would undertake if you had the time. Describe if there is potential here for a Master’s thesis.