Psyc 688
Research Methods in Social Psychology
Spring 2021

I Basic Information

Instructor:	William G. Graziano
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Meeting Time:	Synchronized 10:30-1:20PM Monday
Meeting Place:	Nominally, Psychology 2102
Final Exam:	TBA

II Purpose

The Purdue University catalogue describes Psyc 688 this way:

> A seminar covering a special topic in personality or social psychology. Specific topic varies from seminar to seminar.

My interpretation of this description is more specific. This course was designed to provide a broad but rigorous, graduate-level overview of contemporary research methodology in social psychology and personality. This course will follow a discussion seminar format. It is for students who have a serious interest in understanding the rationale for the use of different methods. The focus will be on planning, implementing and analyzing social psychology research. It is presumed that you are familiar with traditional laboratory experimental procedures, as these will be the "ground" against which the "figure" of other methods will be contrasted. It is also presumed that you have completed at least the equivalent of one undergraduate course in statistical methods and also one graduate-level statistical methods course.

III Course Requirements

(1) There will be approximately 100 pages of textbook-type reading each week. Later weeks build on earlier weeks, so it is essential that you keep up with the reading. If possible, try to read the articles in the order that they appear in the syllabus.

(2) The major text is: Robins, R. W., Fraley, R. C., & Krueger, R. F. (2009). *Handbook of research methods in personality psychology.* New York: Guilford. ISBN:10:1606236121.

(3) A second text is also required: Shadish, W., Cook, T.D., & Campbell, D.T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Chicago: Houghton Mifflin. ISBN: 0-395-61556-9.

(4) The third required text: Silver, N. (2012). *The signal and the noise: Why so many predictions fail-but some don't.* New York: Penguin. ISBN: 978-1-59420-411-1. Each person in this seminar will select a chapter from Silver or from a list I will

provide, and present that reading to the seminar. The presentation should use Power Point, and not be a mere restatement of the reading. It will be graded, and provide 25% of your course grade. We will discuss this assignment in detail.

Q: Can methodology become obsolete? In the past I assigned Reis & Judd (2000), but it is dated. The social psychologist Lowell Gaertner offered the quote "There is no statute of limitation on a good idea." Reis & Judd was revised. The revision is already a classic in the area. The book's chapters are cited extensively in the social psychology literature (and beyond). It is:
Reis, H. T., & Judd, C. M. (Eds.). (2014). *Handbook of research methods in social and personality psychology* (2nd ed.). Cambridge University Press.

(5) This is a graduate seminar class, so students should come to our meetings prepared to discuss the reading material, especially the material other students are presenting. Most of the assigned articles have a complex idea or two. You must learn how to read such material if you plan to succeed in graduate or professional school, much less become a professional researcher.

(6) Class attendance is mandatory. Each of you contributes to your classmates' seminar experiences. If you expect to miss more than one class, then you should consider taking this class some other time.

(7) There will be a mid-term exam on March 8 and a second exam on April 26. Performance on each of these two exams will account for 25% of your course grade. This is the content-mastery aspect of the course. This provides at best the sound of one hand clapping (McGuire's phrase, to be explained later).

(8) The remaining 50% of your course grade will be divided equally between three other active-engagement elements: (a) a review of an empirical research submission, not to exceed 3 typed pages; (b) a methodology-focused research proposal; and (c)) performance in class.

(9) We will discuss details of all course requirements later during the course.

(10) Sometimes instructors can make statements that seem unclear, inappropriate, or out-and-out wrong. If you have comments that you want to make to me, but for some reason prefer not to raise the issue in class, there is a solution. I have an envelope pinned to the wall outside my office.

IV General Comments

Most instructors believe that the material they teach is important. My belief is that this material is exceptionally important, especially for persons who plan careers as social & personality researchers. The focus in this course is on classic issues of research that should apply to virtually any topic in social and personality psychology, or even any of the behavioral sciences. Once you have a

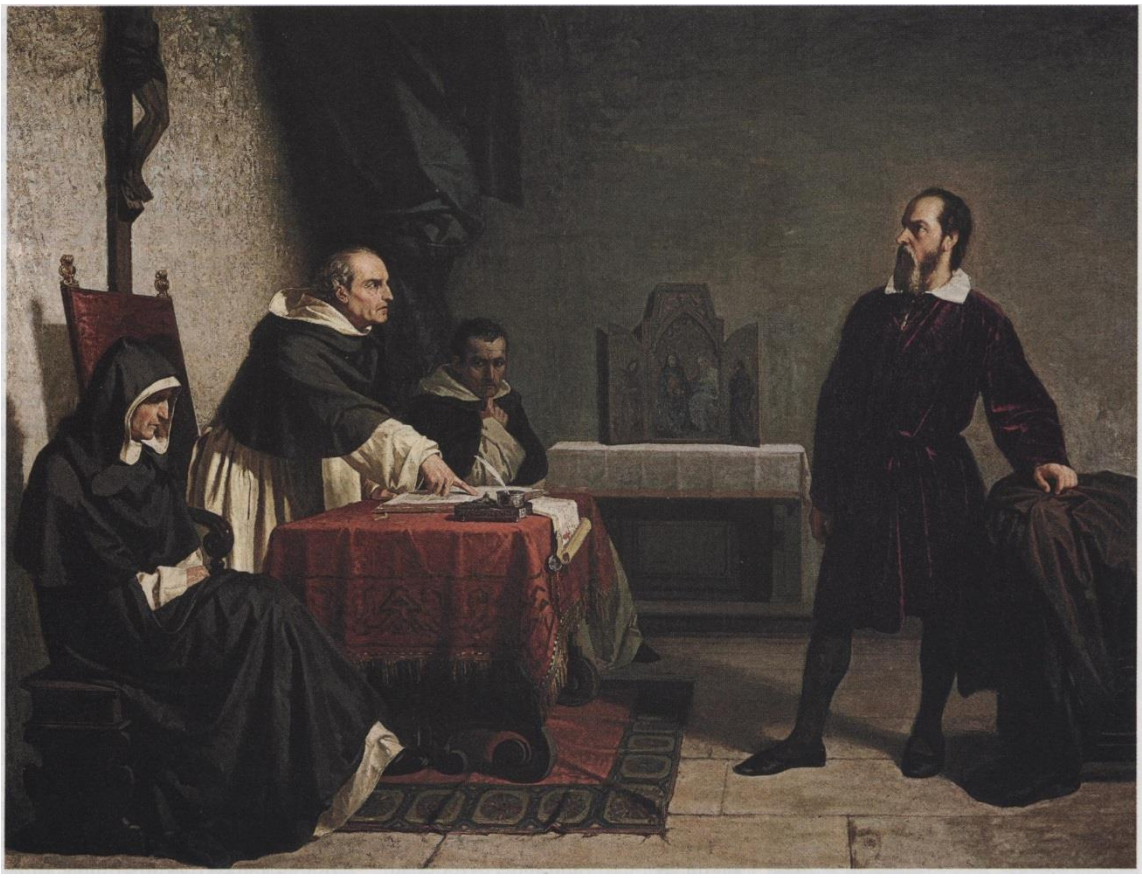
feel for the basic ideas, you can apply them directly to whatever topic interests you personally.

Tasks & Assignments

Create a Measure
Journal review
Exams (2)
Class Presentation
Research Proposal

Critical Content

Limits on Human Knowledge
Deduction vs. Induction
Three components (theory, evidence, methods)
Publication Norms & JARS
Causation
Causal Inference
Mill's Three Methods
Validity as causal inference
Rules for causal inference
"Plausible Alternative Explanations" (PAE's)
Construct Validity
Reliability (measures)
Classical Test Theory (True Score Theory)
Error vs. bias
Multitrait Multimethod Matrix (MTMM)
"Method variance"
Subordinate Forms of validity (e.g., convergent, discriminant)
Randomized ("True") Experiments vs. Correlations
Traditional Logic of Randomized Experiments
Counterfactual Modeling
Control Groups and Comparison Groups
ANOVA, ANCOVA, MANOVA
Factorial designs & interactions
Non-equivalent Control Groups Designs (Quasi-Experiments)
PAE's & Strategies of Design in Quasi-experiments
Statistical Power
Regression & ANOVA
Factor Analysis as Reliability Inference Tool
Replication as Reliability
Time Series Designs
Missing Data
Significance Test Controversy
Bayesian Inference
Comparing Methods for Strengths & Weaknesses



First Assignment: Create a Measure

Your task is to create a measure of a variable that interests you. The variable should be something novel in that it is not one that has already been published in a scientific journal. Please don't create another measure of self-esteem or locus of control unless you have something new to offer. Bring your new measure with you next week and be prepared to present and discuss it in class. Please make presentable, downloadable copies of your measure. Put your name on the top of the first sheet. Notice that I am purposefully not giving you a concrete model to use. I do not want to constrain your creativity.

That being said, let me offer a few questions for you to ask yourself. Here are a few issues to consider as you create your measure. We will revisit these issues, perhaps using your measure, as we move forward in the class.

1. Exactly how do you propose to measure this variable? Will you need any special equipment? Will special expertise be needed to collect the measure?
2. How many items/observations/data points will be needed to measure this variable? Exactly what are these items? Bring them with you, including the response format.
3. How will the items be treated? Summed into a single score? Segregated into components with separate sub-scores?
4. To what hypothetical construct/latent variable do scores for this variable correspond?
5. What limitations and boundary conditions apply to this measure? Can meaningful scores be collected from children, people with trouble hearing/seeing/feeling? People whose first language is something other than standard English? People with limited vocabulary?
6. How do you plan to show this is a new variable and not just another measure of a well-known variable?
7. What do you expect scores on this variable to predict?

You need to link this back to prior research

Where are your operational definitions?

Your claims and evidence need to be tightly linked

Unsupported claim

Your argument is unpersuasive

Irrelevant to your research question

This is unclear, go back and restructure

Rerun your statistical analyses

Submitted late

Continue with this line of reasoning

Extend this idea

Excellent point!

Roger S. Taylor (5/1/11)

Course Overview

Week	Date	Focus & Events of Note	Reading Assignments
1	January 25, 2021	Introduction; topics & Conceptual preliminaries.	SCC-preface & 1; ~~Bem (2003) Writing~~ Kerr (1998) HARKing Wicklund (1990)
2	February 1	MLK Day Monday 1/18/21.	No class on Mon 1-18. Journal submission.
2b	February 1(b)	Reliability: Square One?	John & Soto (2009). Morizot et al. (2009).
3	February 8	Internal & Statistical Conclusion Validity.	SCC-2; McClelland (2000) Paulhus & Vazire (2009).

Take a look: Biesanz, J. C., West, S. G., Millevoi, A. (2007). What do we learn about someone over time? The relationship between length of acquaintance, consensus, and self-other agreement in judgments of personality. *Journal of Personality & Social Psychology*, *92*, 119-135.

4	February15	Construct Validity Journal review due. Charles Darwin born (2/12/1809)	SCC-3; Simms & Watson (2009). R&J-18 (John & Benet-Martinez)
5	February 22	Quasi-Experiments I: Behavioral Observations.	SCC-4; R&J-15 (Reis & Gable); Furr & Funder (2009)

Take a look: Rutter, M. (2007). Proceeding from observed correlations to causal inference: The use of natural experiments. *Perspectives on Psychological Science. 2(4)*, 377-395.

6	March 1	Quasi-Experiments II: Adding Controls & Pretests	SCC-5; R&J-4 (West, Cham) McCrae & Weiss (2009).
7	March 8	Time Series, Growth, & Change Exam 1	SCC-6; R&J-21(Schoemann) Mroczek (2009). Hill (2009) "When to Stop"
8	March 15	Regression Discontinuity Spring Break (cancelled) St. Patrick's Day (3/17/2021) J. S. Bach born (3/21/1685)	SCC-7; Goldberg Tractatus Logico-Philosophicus (a little academic humor there) St. Joseph's Day (3/19/21)
9	March 22	Randomized Experiments	SCC-8; Revelle (2009); Ozer (2009). Silver: Introduction, 1, 2
10	March 29	Random Experiments II	SCC-9 & 10; R&J-23 (McClell) SILVER: 3, 4
11	April 5	Generalized Causal Inference	SCC-11; R&J-22 (Kenny & Kashy) SILVER: 5, 6
12	April 12	GCI-2: Methods for Single Cases Leonardo d' Vinci born (4/15/1452)	SCC-12; R&J-(Smith) Fleeson (2009) Elms (2009) SILVER: 7, 8
13	April 19	GCI-3: Multiple Studies	SCC-13; R&J-26 (Johnson & Eagly). Roberts et al. (2009). Special section: *Current Perspectives in Psychological Sciences, 2012, 7* (6), 528-688. SILVER: 9, 10
14	April 26	Last Class Meeting; Wrap Up	Campbell ("Fish-scale Model"), MPA, Exam 2 due
Ω	Amen Ω	**FINAL GRADES (Due): May 11, 2021.**	

Week 1 & 2 (January 25, February 1, 2021)
Introduction

We begin with some readings on basic definitions of cause, effect, and causal relationships. What are the major kinds of causes? What are some common assumptions about the relations between cause and effect? What is the difference between "synthetic" and "analytic" propositions? What are "confounds," and how are they related to the difference between manipulable and non-manipulable causes? How do randomized experiments fit into the picture? What is validity, and why is it relevant to the issues we just raised?

Rubin, Donald B. (2008). For objective causal inference, design trumps analysis. *Annals of Applied Statistics*. 2(3), 808--840. doi:10.1214/08-AOAS187. https://projecteuclid.org/euclid.aoas/1223908042

Week 2b (February 8, 2021)
Evolution of an "Orthodox Position" on Methodology

Observation is the single most elementary concept in empiricism. What is reliability, and how is it important to scientific observation? What are the main ways of assessing reliability in observational studies? How is reliability different from validity? What are the two major ways of assessing reliability? How is reliability related to the validity of measurement? What is "method variance?" What kind of errors and problems are most likely to occur as social scientists conduct research? What methodological safeguards have been suggested for overcoming these deficiencies?

Week 3 (February 8)
Validity: Basic Issues

Many of the problems noted by the critics of behavioral science methodology involve validity. What is validity, and its various forms? What is the relative priority typically assigned to different kinds of validity by behavioral scientists? How does the typical laboratory experiment fit into this validity scenario? What are "plausible rivals" and why do so many writers think that their identification is important?

* Gergen, K.H. (1984). An introduction to historical social psychology. In K.J. Gergen & M. Gergen (Eds.) *Historical social psychology*. Hillsdale, NJ: Erlbaum. pp. 3-36.

Buddy Holly plane crash (2/2/59)

Week 4 (February 15)
Validity: Advanced Issues

Some writers argue that the problems facing behavioral science research are not solved by improving internal validity and statistical techniques. Methodological refinements like

multiple operationism and multi-method matrices solve only a small part of the problem. What are these other problems, and what are the proposed ways of confronting them? How does qualitative research, grounded in theory, fit into the picture?

Darwin born 2/12/1809

Week 5 (February 22)
Quasi-Experiments I

Some common criticisms of laboratory experiments are that they lack realism, that they are artificial and contrived, and results from such experiments will not generalize to the "real world." In short, it is alleged lab experiments lack validity. Can we solve this problem by using naturalistic observation, or taking behavior as it comes to us without manipulations or control groups?

Week 6 (March 1)
Quasi-Experiments II
"A fact is a difference." -- E.G. Boring

This week we examine refinements in quasi-experimental methodology. How does the addition of control groups and pretests increase valid inference? How well do they diffuse plausible alternative explanations (PAE's)? How is moderation different from mediation? What are the main purposes of factor analyses (FA)? How is exploratory FA different from confirmatory FA?

Week 7 (March 8)
The Analysis of Sequences, Change & Growth

The ideas of time/sequence and change are closely tied to ideas of causation. How is change conceptualized in behavioral research? What are the main problems in assessing change? Here we will look at various ways of modeling change. In class, we look at the problems that appeared when cross-lag panel correlation (CLPC) procedures were introduced. Technically, CLPCs are a specialized kind of quasi-experiment, involving a limited time series format. It was one of the first techniques developed specifically to overcome causal inference problems associated with nonexperimental correlational data. In recent years, theorists showed that CLPC could be seen in terms of structural equation modeling. But let us not get ahead of ourselves. How does CLPC deal with the spuriousness problem? What are the major assumptions of this technique, and other sequence-based analyses?

*) McKinley, J.B., & McKinley, S.M. (1977). The questionable contribution of medical measures to the decline of mortality In the US In the twentieth century. *Milbank Memorial Fund Quarterly: Health & Society*, (reprint).

*) Crano, W., Kenny, D., & Campbell, D.T. (1972). Does intelligence cause achievement? A cross-lagged panel analysis. *Journal of Educational Psychology*, 63, 258-275.

*) Kenny, D. (1975). Cross-lagged panel correlation: A test for spuriousness. *Psychological Bulletin*, 82, 887-903.

*) Kahle, L.R., & Berman, J.J. (1979). Attitudes cause behavior: A cross-lagged panel analysts. *JPSP*, 37, 315-321.

*) Mazur-Hart, S.F. & Berman, J.J. (1977). Changing from fault to no-fault divorce: An interrupted time series analysis. *Journal of Applied Social Psychology*, 4, 300-312.

Week 8 (March 15)
Regression Discontinuity Designs

This week we continue themes we discussed last week, but consider them within the context of "everyday statistical analysis" and related interpretations. How do regression techniques help us make refined causal statements? Are regression equations better predictors than human "clinical judgment" (Goldberg)? What are the major ways of analyzing time-based designs? What are "nuisance variables," and how are they usually analyzed? What three major interpretative problems do they create for quasi-experiments and related techniques like the ex post fact design (Meehl)?

1) Goldberg, L. R. (1991). Human mind vs. regression equations: Five contrasts. In D. Cicchetti & W.M. Grove (Eds.). *Thinking clearly about psychology: Matters of public interest*. (173-184). Minneapolis: University of Minnesota Press.

*) Reichert, C. (1979). The statistical analysis of data from nonequivalent group designs. In Cook & Campbell as Chapter 4.
*) Meehl, P.E. (1970). Nuisance variables and the ex post facto design. In M. Radner & S. Winokur (Eds.) *Minnesota studies in the philosophy of science.* Minneapolis: University of Minnesota Press, Vol. 4, 373-402.

Spring Break: Cancelled

Week 9 (March 22)
Randomized Experiments

Now it is time to move forward. We need to build on what we have covered previously. Yes, readings are becoming more complex. We also need to exercise the creative aspect of research methodology. It is time to start work on the research proposals. This week we continue themes we discussed previously. Laboratory experiments provide great control over nuisance variables at the price of mundane realism. Field experiments provide more mundane realism, but can be very difficult to implement. The analysis of so-called "experiments of nature" faces special conceptual and logical problems, a la Paul Meehl. Maybe the experiment is a better option than we believed previously. We need to reexamine the randomized experiment for strengths as well as weaknesses. How can the logic of randomized experiments be applied to the analysis of existing dyads and relationships (Kashy & Kenny?). What is a "round robin design?"

1) Silver (2012).
    a) Introduction & Chapter 1: A Catastrophic Failure of Prediction
    b) Chapter 2: Are You Smarter than a TV Pundit?

Week 10 (March 29)
Randomized Experiments II

Some researchers argue that there are many problems with randomized experiments beyond validity. What are the factors that undermine the random assignment process? Beyond that, what are the ethical complexities of manipulating and assigning people to conditions? Behavioral scientists as a professional group are more sensitivity to ethical matters in their research than they were 15 years ago. Are there scientifically credible options? How does the theory-based structured interview fare for ethics and valid inference compared with a randomized experiment? In a pretzel-shaped world, we need pretzel-shaped analyses, don't we?

1) Silver (2012)
    a) Chapter 3: All I Care about are W's and L's
    b) Chapter 4: For Years You've Been Tell Us Rain is Green

*) Smith, S.S., & Richardson, D. (1983). Amelioration of deception and harm in psychological research: The important role of debriefing. *Journal of Personality and Social Psychology , 44*, 1075-1082.
*) Greenberg, J., & Folger, R. (1988). Controversial issues in social research methods. New York: Springer Verlag.
    a) Informed Consent (pp. 21-38)
    b) Debriefing (pp. 139-160)
*) West, S.G., et al. (1975). Ubiquitous Watergate: An attributional analysis. *Journal of Personality and Social Psychology , 32,* 55-65.

Week 11 (April 5)
Generalized Causal Inference I: A Grounded Theory

When the Shadish et al. book first appeared and was reviewed in professional publications, the critics claimed that if only Chapter 11 were published, the book would make a major contribution. Chapter 11 offered a grounded theory for causal inference. What is their theory? How does sampling fit into their scheme? What are the five principles of generalized inference? How are they applied? What are "outliers," and how are they related to the issue of valid inference?

1) Silver (2012)
    a) Chapter 5: Desperately Seeking Signal
    b) Chapter 6: How to Drown in Three Feet of Water

Week 12 (April 12)
Generalized Causal Inference II: Methods for Single Studies

One of the most fundamental aspects of science is uncovering a basic connection. How do we develop a prediction that is not necessarily true just by definition (i.e., synthetic proposition)? This week we shall examine some discovery procedures, and their application to generalized inference. What is "purposive sampling?" What are the major assumptions of these procedures? What are the major limitations? How is the Context of Discovery different from the Context of Justification?

1) Silver (2012)
    a) Chapter 7: Role Models

b) Chapter 8: Less & Less & Less Wrong

Week 13 (April 19)
Generalized Causal Inference III: Methods for Multiple Studies

Scientific truths (validity claims?) are found not in a single research project, but in general patterns across many studies. How do we generalize from multiple studies? How is a narrative review different from a quantitative review of studies? What is meta-analysis? What conclusions are more likely and less likely to emerge from meta-analyses?

1) Silver (2012)
   a) Chapter 9: Rage Against the Machines
   b) Chapter 10: The Poker Bubble
   c) Chapter 11: If You Can't Beat 'Em

Week 14 (April 26 to end)
Wrap Up

We have covered a lot of ground this term. We began with discussions of the purpose of research. In particular, critical attention was directed toward the randomized laboratory experiment as the major tool of behavioral science research and causal inference. What conclusions can we reach now that we have examined the criticisms and the alternatives carefully? Are we merely sadder but no wiser? Is one method necessarily better than another? How does converging methods promote valid inference? What are the links between theory and methodology? What is the link between methodology and statistical significance testing? How do disciplinary boundaries block scientific progress? What new approaches should we consider as we move further into the 21st century?

1) Silver
   a) Chapter 12: A Climate of Healthy Skepticism
   b) Chapter 13: What You Don't Know Can Hurt You
   c) Conclusions
2) Campbell, D.T. (1969). Ethnocentrism of disciplines and the fish scale model of omniscience. In M. Sherif & C. Sherif (Eds.) *Interdisciplinary relations in the social sciences*. Hawthorne, NY: Aldine, pp. 328-348.

*) Meehl, P.E. (1979). Theoretical risks and tabular asterisks: Sir Karl, Sir Ronald, and the slow progress of soft psychology. *Journal of Consulting & Clinical Psychology, 46*, 806-834.

*) Lykken, D.J. (1991). What's wrong with psychology anyway? In D. Cicchetti & W.M. Grove (Eds.). *Thinking clearly about psychology: Matters of public interest*. (3-39). Minneapolis: University of Minnesota Press.

**) Kruschke, J. K. (2011). Introduction to special section on Bayesian data analysis. *Perspectives in Psychological Sciences, 6(3),* 274-290.

88) Wetzels, et al. (2011). Statistical evidence in experimental psychology: An empirical comparison using 855 t tests. *Perspectives in Psychological Sciences, 6(3),* 291-298.

**) Kruschke, J. K. (2011). Bayesian assessment of null values via parameter estimation and model comparison. *Perspectives in Psychological Sciences, 6(3),* 299-312.

Silver (2012) Presentations

1.	SILVER- 1	Introduction & A Catastrophic Failure	---------- Wk-10
2.	SILVER-2	Are You Smarter	_____ Wk-10
3.	SILVER-3	All I Care About	_____ Wk-11
4.	SILVER-4	For Years You've Been	_____Wk-11
5.	SILVER-5	Desperately Seeking	_____Wk-12
6.	SILVER-6	How to Drown	_____ Wk-12
7.	SILVER-7	Role Models	_____ Wk-13
8.	SILVER-8	Less & Less	_____ Wk-13
9.	SILVER-9	Rage Against	_____ Wk-14
10.	SILVER-10	Poker Bubble	_____ Wk-14
11.	Silver -11	If You Can't Beat 'EM	_____ Wk-15
12.	SILVER-12	Climate of Skepticism	_____Wk-15
13.	SILVER-13	What You Don't Know	_____Wk-15
14.	SILVER	Conclusions	_____Wk-15
15.	Option	_____	_____Wk-15

Email Addresses