

## **BIOSOCIAL EXPERIMENTS**

**Sociology 571**

**Spring 2013**

**Monday 9:50am-12:30pm**

**Davison Hall, Room 128**

**&**

**Rutgers Institute for Health, Health Care Policy and Aging Research, Room 204**

Professor Kristen W. Springer

Department of Sociology

Davison Hall, Room 040

E-mail: [kspringer@sociology.rutgers.edu](mailto:kspringer@sociology.rutgers.edu)

Office Hours: Wednesday 3:45-4:45pm or by appointment

Website: [sakai.rutgers.edu](http://sakai.rutgers.edu) (course designation: "Biosocial Experiments (Soc 571)")

**Course Motivation:** Physiological mechanisms associated with social and psychological processes are often ignored by sociologists or seen as the domain of other disciplines. However, analyzing these physiological correlates of social life can help us better understand key sociological questions such as the physical consequences of racism, beneficial effects of social support, gendered occupational patterns, and health inequalities.

One way to isolate and explore these relationships is through laboratory experiments where physiological and/or social factors can be directly manipulated in a controlled environment. This class is designed to provide the basic foundation for conducting laboratory experiments that can help illuminate sociological processes.

**Course Description:** This course will be a mix between a survey course and a seminar, in that we will briefly cover a range of topics that could be a class in their own right (i.e., survey course), but we will also engage in rich and nuanced discussion of the material (i.e., seminar). In this class, we will learn general social psychological experimental design and the sociological utility of measuring blood pressure, heart rate, and cortisol. Further, we will learn the mechanics of measuring and analyzing these physiological markers. We will also briefly discuss a wide range of other physiological processes that can be measured to understand sociologically relevant questions. As part of exploring other physiological processes, we will have the opportunity to visit Rutgers only FMRI lab (<http://rubic.rutgers.edu/>) and see an experiment in progress. The date for this is still being determined but will likely be on a Friday after 2pm.

Finally, students will have the opportunity to practice measuring and analyzing blood pressure, heart rate, and cortisol in my laboratory at the Rutgers Institute for Health, Health Care Policy, and Aging Research at 112 Paterson Street in New Brunswick. On the days that our class focus on the "how" of physiological measurement (2/25, 3/11, and 4/8) we will be meeting in Room 204 at the Health Institute. Parking is difficult, so please make sure you allow enough time to be in class when we start.

***Overview of Course Requirements and Grading:*** Course grades will be based on five requirements: participation, class facilitation, short presentation on a physiological measure not focused on in class, homework assignments, and a final research proposal.

**Incompletes will only be given for serious extenuating circumstances and with advance permission.**

**(1) Participation in weekly discussion (10 percent of grade).**

I expect everyone to be fully prepared and participatory. Perhaps more than in some other seminars, it is essential that you are fully prepared for each and every one of our classes because much of the material will be technical and the readings will build on each other. To enhance the quality of class discussion, each student must submit a short (1/2 page) memo, questions, and/or reflections on the readings by noon on the Sunday before class to the appropriate folder on our Sakai site. All students must have reviewed everyone's memos before coming to class on Monday.

**(2) Class facilitation (5 percent of grade)**

During the semester each student is required to facilitate discussion of at least one article. These articles will be marked by asterisks and will be assigned throughout the semester. On the day you facilitate, come prepared with several questions to facilitate conversation for about 20 minutes. Further, make sure you read all student memos/reflections in planning your discussion. Summarizing the reading in a way that presumes others in class have not read them is not facilitating the class discussion.

**(3) Short Presentation on a Physiological Measure not Focused on in Class (15 percent of grade)**

By necessity, this course focuses on a few physiological measures that can be used to understand sociological questions. However, to give everyone at least a brief introduction to other possibilities, we will also have class time that will consist of each student giving a short presentation and leading a short discussion on a different physiological measure. Students will need to assign one article/chapter on the measure that includes some discussion of how the measure can be used in a sociologically significant way. Students need to choose the article and send me a PDF by the Monday before their presentation. During class, each student should give a short presentation on what the measure is, why it is used, and how to use measure/analyze it. Further, s/he should facilitate a short discussion of the assigned article. Students will choose their alternative measures early in the semester with guidance from the instructor.

**(4) Homework (10 percent for each homework assignment = 20 percent of grade)**

There will be two homework assignments where you will need to conduct a small experiment on a partner from class and measure his/her physiological reaction. One assignment will be focused on heart rate/heart rate variability and the other assignment will be focused on blood pressure. Further information will be provided during class.

**(5) Research Proposal (50 percent of class grade)**

The culminating project for this class will be a 15-20 page research proposal on a biosocial experiment. Please begin thinking about this project very early in the semester and discuss your thoughts with me early and often.

Completion of the proposal/paper will proceed in five steps.

1. Discuss your project ideas with me at least once prior to Spring Break.
2. Submit a brief (3-5 pages) proposal **by the start of class on April 8th**. This brief proposal should focus on the literature review, research question, physiological measure(s) to be employed, experimental protocol for the physiological aspect of the study, budget for the supplies etc. needed to run the study, and the potential social scientific gain from this project. The focus of this stage of the proposal is to make sure you have a solid biosocial research question and a strong foundation for the biosocial approach you plan to employ.
3. Submit an expanded (6-9 pages) proposal **by the start of class on April 29**. This expanded proposal will build off the prior proposal with a focus on expanding the social psychological experimental design to accompany the physiological measurement. This expanded proposal should be sure to draw from and address the key measurement issues covered in the readings on 4/15 and 4/22.
4. Short (~10-15 minutes) presentations to the class on **May 6th**.
5. The final proposal will be due during finals week – exact date TBA.

**Schedule and Readings:** All readings, with the exception of the following books, will be on our Sakai website.

Aronson, Elliot, and J. Merrill Carlsmith. 1990. *Methods of research in social psychology*. 2nd ed. New York: McGraw-Hill.

Stern, Robert M., William J. Ray, and Karen S. Quigley. 2001. *Psychophysiological Recording*. New York: Oxford University Press.

**The reading will be updated throughout the class and are subject to change. Further, the schedule may change as needed. Students will be given ample warning of all changes.**

<b>Week 1 (1/28)</b>	<b>Introduction</b>
<b>Week 2 (2/4)</b>	<b>Utility of Physiological Measures and Experimental Methods in Sociological Research</b>
	<u>Role of Experiments in the Social Sciences</u> Webster, Murray, and Jane Sell. <i>Laboratory experiments in the social sciences</i> . Academic Press, 2007. (Chapters 1, 2, and 14)
	<u>Sociologically Relevant Biosocial Experiments</u>

	<p>*Mendelson, Tamar, Rebecca C. Thurston, and Laura D. Kubzansky. 2008. "Affective and cardiovascular effects of experimentally-induced social status." <i>Health Psychology</i> 27.4. 482.</p> <p>*Blascovich, Jim, Wendy Berry Mendes, Sarah B. Hunter, Brian Lickel, and Neneh Kowai-Bell. 2001. "Perceiver threat in social interactions with stigmatized others." <i>Journal of Personality and Social Psychology</i> 80(2). 253.</p> <p>*Cook, Emily C., Tara M. Chaplin, Rajita Sinha, Jacob K. Tebes, and Linda C. Mayes. 2012. "The Stress Response and Adolescents' Adjustment: The Impact of Child Maltreatment." <i>Journal of Youth and Adolescence</i> 1-11.</p> <p>*Springer, Kristen W. "Identifying Physiological Mechanisms Linking Masculinity Threats and Men's Health"</p>
<b>Week 3 (2/11)</b>	<b>Introduction to Psychophysiology</b>
	<p>Sapolsky, Robert. M. 2004. <i>Why Zebras Don't Get Ulcers: The Acclaimed Guide to Stress, Stress-Related Diseases, and Coping</i>. New York: W. H. Freeman and Company. (Chapters 1-3; 13).</p> <p>Stern, Robert M., William J. Ray, and Karen S. Quigley. 2001. <i>Psychophysiological Recording</i>. New York: Oxford University Press. (Chapters 1-6).</p> <p>*Tartaro, Jessica, Linda J. Luecken, and Heather E. Gunn. 2005. "Exploring Heart and Soul: Effects of Religiosity/Spirituality and Gender on Blood Pressure and Cortisol Stress Responses." <i>Journal of Health Psychology</i> 10(6). 753-766.</p>
<b>Week 4 (2/18)</b>	<b>Heart Rate – Physiology and Measurement</b>
	<p>Goyal, Tanya M., Daicha Shimbo, Elizabeth Mostofsky, and William Gerin. 2008. "Cardiovascular Stress Reactivity." in Linda J. Luecken and Linda C. Gallo, eds. <i>Handbook of Physiological Research Methods in Health Psychology</i>. Sage Publications, Incorporated. (Pages 133-158).</p> <p>Thayer, Julian F., Anita L. Hansen, and Bjorn Helge Johnson. 2008. "Noninvasive Assessment of Autonomic Influences on the Heart: Impedance Cardiography and Heart Rate Variability" in Linda J. Luecken and Linda C. Gallo, eds. <i>Handbook of Physiological Research Methods in Health Psychology</i>. Sage Publications, Incorporated. (Pages 183-209 [skip impedance cardiography section on pages 188-191]).</p> <p>Stern, Robert M., William J. Ray, and Karen S. Quigley. 2001.</p>

	<p><i>Psychophysiological Recording</i>. New York: Oxford University Press. (Pages 178-193).</p> <p>Kamarck, Thomas W., and William R. Lovallo. 2003. "Cardiovascular reactivity to psychological challenge: conceptual and measurement considerations." <i>Psychosomatic Medicine</i> 65(1): 9-21.</p>
<b>Week 5 (2/25)</b>	<b>Heart Rate – Lab Demonstration and Applications</b>
<b>Health Institute</b>	
	<p>*Ortiz, Jame and Adrian Raine. 2004. "Heart Rate Level and Antisocial Behavior in Children and Adolescents: A Meta-Analysis." <i>Journal of the American Academy of Child &amp; Adolescent Psychiatry</i>. 43(2). 154-162.</p> <p>Health, Environment, and Relational Ties (HEART) Lab Protocol</p> <p>HEART Lab Protocol for Measuring Heart Rate</p>
<b>Week 6 (3/4)</b>	<b>Blood Pressure – Physiology and Measurement</b>
	<p>Gerin, Williams, Tanya M. Goyal, Elizabeth Mostofsky, and Daichi Shimbo. 2008. "The Measurement of Blood Pressure in Cardiovascular Research." in Linda J. Luecken and Linda C. Gallo, eds. <i>Handbook of Physiological Research Methods in Health Psychology</i>. Sage Publications, Incorporated. (Pages 115-131).</p> <p>Stern, Robert M., William J. Ray, and Karen S. Quigley. 2001. <i>Psychophysiological Recording</i>. New York: Oxford University Press. (Pages 194-202).</p> <p>Christie, Israel, J. Richard Jennings, and Victoria B. Egizio. 2010. "Cardiovascular Measures in Stress Research: Methodological, Analytic, and Inferential Issues" in Richard Contrada, and Andrew Baum, eds. <i>The Handbook off Stress Science: Biology, Psychology, and Health</i>. Springer Publishing Company. (Pages 515-530).</p>
<b>Week 7 (3/11)</b>	<b>Blood Pressure – Lab Demonstration and Applications</b>
<b>Health Institute</b>	
	<p>**Heart Rate Homework Due</p> <p>*Betensky, Julia D., and Richard J. Contrada. 2010. "Depressive symptoms, trait aggression, and cardiovascular reactivity to a laboratory stressor." <i>Annals of Behavioral Medicine</i> 39(2), 184-191.</p>

	HEART Lab Protocol for Measuring Blood Pressure
<b>Week 8 (3/18)</b>	<b>Other Physiological Measures Presentations</b>
	TBA: Other Physiological Measures Readings Assigned by Students
<b>Week 9 (3/25)</b>	<b>SPRING BREAK</b>
<b>Week 10 (4/1)</b>	<b>Cortisol – Physiology and Measurement</b>
	<p style="text-align: center;">**Blood Pressure Homework Due</p> <p>Dickerson, Sally S. and Margaret E. Kemeny. 2004. “Acute stressors and cortisol responses: A theoretical integration and synthesis of laboratory research.” <i>Psychological Bulletin</i>. 130 (3), 355–391.</p> <p>Nicolson, Nancy A. 2008. “Measurement of cortisol. In <i>Handbook of Physiological Research Methods in Health Psychology</i>, edited by Linda J. Luecken and Linda C. Gallo. Los Angeles: Sage Publications.</p>
<b>Week 11 (4/8)</b>	<b>Cortisol – Lab Demonstration and Applications</b>
<b>Health Institute</b>	
	<p style="text-align: center;">**First Draft of Proposal Due</p> <p>Taylor, Catherine J. 2012. “A Sociological Overview of Cortisol as a Biomarker of Response to the Social Environment.” <i>Sociology Compass</i>. 434-444.</p> <p>*Taylor, Catherine J. (under review). “Physiological Stress Response to Loss of Social Influence and Threats to Masculinity.” <i>Social Science &amp; Medicine</i>.</p> <p>*Richman, Laura Smart, and Charles Jonassaint. "The effects of race-related stress on cortisol reactivity in the laboratory: implications of the Duke lacrosse scandal." <i>Annals of Behavioral Medicine</i> 35.1 (2008): 105-110.</p>
<b>Week 12 (4/15)</b>	<b>Social Psychology Experimental Design</b>
	Aronson, Elliot, and J. Merrill Carlsmith. 1990. <i>Methods of Research in Social Psychology</i> . 2nd ed. New York: McGraw-Hill. (Chapters 1-4)
<b>Week 13 (4/22)</b>	<b>Social Psychology Experimental Design</b>
	Aronson, Elliot, and J. Merrill Carlsmith. 1990. <i>Methods of Research in Social Psychology</i> . 2nd ed. New York: McGraw-Hill. (Chapters 6-10)

	Gerin, William. 2010. "Acute Stress Responses in the Psychophysiological Laboratory" in Richard Contrada, and Andrew Baum, eds. <i>The Handbook off Stress Science: Biology, Psychology, and Health</i> . Springer Publishing Company. Pp. 501-513.
<b>Week 14 (4/29)</b>	<b>Limitations of Physiological Measures and Experimental Methods in Sociological Research</b>
	**Second Draft of Proposal Due Readings TBA.
<b>Week 15 (5/6)</b>	<b>Class Presentations</b>