

ANTHONY P. PAWLAK

CENTER OF ALCOHOL & SUBSTANCE USE STUDIES
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EDUCATION

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| May 2010 | Rutgers University | New Brunswick, NJ |
| | Ph.D. in Education , Concentration in Applied Statistics and Psychometrics
Dissertation: <i>A Classical Test Theory and Item Response Theory Analysis of the DSM-IV Symptom Criteria for a Major Depressive Episode Using Data from the National Comorbidity Survey – Replication.</i> | |
| October 2004 | Rutgers University | New Brunswick, NJ |
| | M.S. in Psychology , Biopsychology and Behavioral Neuroscience Program
Master's Thesis: <i>Dose Dependent Effects of Cocaine on the Firing of Rat Striatal Neurons Related to Head Movement in an Operant Head Movement Task Depend on Predrug Firing Rate.</i> | |
| May 1996 | Franklin & Marshall College | Lancaster, PA |
| | B.A., Cum Laude, in Psychology | |

WORK EXPERIENCE

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| May 2018 to present | Rutgers University, Center of Alcohol Studies | Piscataway, NJ |
| | Statistician & Research Analyst , <i>Laboratory of Marsha E. Bates, Ph.D.</i> <ul style="list-style-type: none"> • Analyzed behavioral and neuroscience data from human studies using generalized linear mixed models, multivariate statistics, and structural equation modeling. • Created graphical representations of large scale multivariate and hierarchical data sets for exploratory data analysis (EDA), and professional presentations using R and SAS. • Counseled on the preparation of the methods, results and discussion sections of peer reviewed papers and conference presentations with respect to statistical analyses. | |
| Fall 2005 to present | Consultant | Somerset, NJ |
| | Statistics Consulting <ul style="list-style-type: none"> • Advised on the data analysis, application of psychometric theory, and research method design for various behavioral, education, social science, neuroscience, & biomedical research projects. • Planned and implemented analyses consisting of structural equation modeling, mediation analysis, classical test theory, item response theory (IRT), generalized linear mixed modeling (GLMM), hierarchical linear modeling, growth curve modeling, longitudinal modeling, and/or time-series analysis for clients. • Advised on the statistics, experimental research design, and methodology for NIH grants in psychology and neuroscience using human and animal subjects. • Counseled on the preparation of the methods and results sections of peer reviewed papers. | |
| Spring 2007 to March 2018 | Rutgers University, Dept. of Psychology | Piscataway, NJ |
| | Statistician , <i>Laboratory of Mark O. West, Ph.D.</i> <ul style="list-style-type: none"> • Modeled complex behavioral and neural data using generalized linear mixed models, cluster analysis, principal component analysis, and structural equation modeling. • Advised on various experimental research study designs using animal models of addictive behavior that led to numerous peer reviewed publications. • Implemented data management and analytic strategies with SAS, R, and SPSS. • Developed extensive graphical presentations of hierarchical data sets generated from intricate experimental study designs for exploratory data analysis and peer reviewed journal articles using R and SAS. | |

- September 2001 to June 2002 Educational Testing Service Princeton, NJ
Graduate Intern, *Analysis of SAT Data*
- Statistically and psychometrically modeled SAT item data with structural equation modeling, factor analysis, classical test theory, and item response theory using SAS PROC CALIS, SAS PROC FACTOR, and SPSS.
 - Graphically analyzed item response and total score psychometric data from classical and modern measurement perspectives using SAS/GRAPH and SPSS.

 RESEARCH EXPERIENCE

- Fall 2005 to Spring 2008 Rutgers University, Office of Institutional Research and Planning New Brunswick, NJ
Research Assistant, *Management and Analysis of Institutional Data*
- Conducted studies on the institutional characteristics of Rutgers University and other comparable academic institutions.
 - Analyzed and managed institutional data using SAS, SPSS, and Crystal Reports.
- Fall 2002 to Summer 2005 Rutgers University, Center of Alcohol Studies Piscataway, NJ
Research Assistant, *Study of Neuropsychological Factors in Alcoholism Treatment*
- Analyzed data from clinical trials of alcoholism treatment using multi-group structural equation models.
 - Investigated the effects of neuropsychological impairment on successful alcoholism treatment outcome (using mediation and moderation models) and on psychopathology assessment (using differential item functioning).
 - Implemented complex statistical models using Mplus, SAS, and SPSS.
- Summer 1997 to Summer 2004 Rutgers University, Dept. of Psychology Piscataway, NJ
Graduate Assistant, *Electrophysiological Study of the Basal Ganglia*
- Conducted electrophysiological recordings in a rodent behavioral pharmacology paradigm.
 - Used SAS, SPSS, and HLM to develop and implement various univariate and multivariate data analytic strategies for complex multilevel neural and behavioral data.
- Winter / Spring 1996 Rutgers University, Dept. of Psychology Piscataway, NJ
Research Assistant, *AIDS Prevention Study*
- Programmed the PARADOX database software for data entry and analysis.
 - Entered qualitative interview data into PARADOX.
 - Trained undergraduates in operation of PARADOX.
- Summer 1993 Franklin & Marshall College, Dept. of Psychology Lancaster, PA
Data Analyst, *HUD Survey of Project Hope II Public Housing Recipients*
- Analyzed quantitative survey data for a large-scale HUD program using Statistica.
 - Created over 100 pages of graphics for a HUD conference presentation.
- Summer 1992 Franklin & Marshall College, Dept. of Psychology Lancaster, PA
Data Manager and Research Assistant, *Childhood Trauma Study*
- Programmed and maintained Statistica for data management purposes.
 - Interviewed subjects to obtain extensive life history profiles.
 - Coded interview data and scored psychological tests.
 - Analyzed quantitative test and interview data using multivariate techniques.

 RESEARCH AND DATA ANALYSIS SKILLS

Statistical/Methodological: Experimental design, Longitudinal research design, ANOVA/MANOVA, Multiple regression, Multivariate statistics, Generalized linear mixed models (GLMM), Hierarchical linear modeling, Growth curve modeling, Principal component analysis/Factor analysis, Structural equation modeling, Mixture modeling, Latent class analysis, Cluster analysis, Multidimensional scaling

Psychometrics: Classical test theory, Item response theory (IRT), Nonparametric item response theory, Test equating, Differential item functioning

Software: SAS, R, Stata, Mplus, HLM, SPSS, Bilog, Data Desk, Datawave, Origin, Sigma Plot, MySQL, MS Word, Excel, & PowerPoint

Qualitative Research: Grounded theory

 STATISTICS AND SOFTWARE TRAINING WORKSHOPS ATTENDED

- An Introduction to Latent Class Models, Mixture Rasch Models, and Diagnostic Mixture Models, March 2008
- A “Gentle” Introduction to Statistical Analysis and Teaching with R, March 2008
- APA Advanced Training Institute on Longitudinal Data Modeling, August 2004
- Mplus Short Course, November 2003
- SAS Programming I: Essentials, 2002
- SAS Programming II: Manipulating Data with the DATA step, 2002

 STUDENT MENTORING IN STATISTICS & RESEARCH METHODOLOGY

- Rutgers University, Dept. of Psychology, *Laboratory of Mark O. West, Ph.D.:*
 - Joshua Stamos, Ph.D., graduate student, 2012 – 2018, NIH F31 grant
 - Nicholas Beacher, Ph.D. (A.B.D.), graduate student, 2016 – 2018, applied for NIH F31 grant
- Rutgers University, Center of Alcohol Studies, *Laboratory of Marsha E. Bates, Ph.D.:*
 - Laura Lesnewich, M.S., graduate student, 2018 – present, NIH F31 grant
 - Sarah Grace Helton, M.S., graduate student, 2018 – present

 TEACHING EXPERIENCE

Rutgers University, Dept. of Psychology:

- Quantitative Methods in Psychology Recitation, Spring 2001, Fall 2000
- Neuropsychopharmacology Lab, Spring 2000
- Cognition Lab, Fall 1999

 PROFESSIONAL AFFILIATIONS

- American Educational Research Association
- American Psychological Association
- Association for Psychological Science
- National Council on Measurement in Education
- Society for Neuroscience

 AWARDS AND FELLOWSHIPS RECEIVED

- APA Student Travel Award to travel to the APA Advanced Training Institute on Longitudinal Data Analysis, \$700, 2004

 LANGUAGES

- Conversational Polish

PUBLISHED REFEREED (PEER REVIEWED) ARTICLES

- Klein, S.D., Beacher, N.J., Kulik, J., Pawlak, A., & West, M.O. (in preparation). The emergence of negative affect as motivation for drug taking rats chronically self-administering cocaine.
- Stamos, J.P., Beacher, N.J., Pawlak, A.P., & West, M.O. (in preparation). Accumbens processing of food associated cues in a rat model of binge eating.
- Kulik, J.M., Pawlak, A.P., Kalkat, M., Coffey, K.R., & West, M.O. (2017). Representation of the body in the lateral striatum of the freely moving rat: Fast spiking interneurons respond to stimulation of individual body parts. *Brain Research*, 1657, 101–108.
- Barker, D.J., Striano, B.M., Coffey, K.C., Root, D.H., Pawlak, A.P., Kim, O.A., Kulik, J., Fabbriatore, A.T., & West, M.O. (2015). Sensitivity to self-administered cocaine within the lateral preoptic-rostral lateral hypothalamic continuum. *Brain Structure & Function*, 220(3), 1841–1854.
- Coffey, K.R., Barker, D.J., Gayliard, N., Kulik, J.M., Pawlak, A.P., Stamos, J.P., & West, M.O. (2015). Electrophysiological evidence of alterations to the nucleus accumbens and dorsolateral striatum during chronic cocaine self-administration. *European Journal of Neuroscience*, 41(12), 1538–1552.
- Barker, D.J., Simmons, S.J., Servilio, L.C., Bercovicz, D., Ma, S., Root, D.H., Pawlak, A.P., & West, M.O. (2014). Ultrasonic vocalizations: Evidence for an affective opponent process during cocaine self-administration. *Psychopharmacology (Berl)*, 231(5), 909–918.
- Striano, B.M., Barker, D.J., Pawlak, A.P., Root, D.H., Fabbriatore, A.T., Coffey, K.R., Stamos, J.P., & West, M.O. (2014). Olfactory tubercle neurons exhibit slow-phasic firing patterns during cocaine self-administration. *Synapse*, 68(7), 321–323.
- Barker, D.J., Bercovicz, D., Servilio, L.C., Simmons, S.J., Ma, S., Root, D.H., Pawlak, A.P., & West, M.O. (2013). Rat ultrasonic vocalizations demonstrate that the motivation to contextually reinstate cocaine-seeking behavior does not necessarily involve a hedonic response. *Addiction Biology*, 19(5), 781–790.
- Ma, S., Pawlak, A.P., Cho, J., Root, D.H., Barker, D.J., & West, M.O. (2013). Amphetamine's dose-dependent effects on dorsolateral striatum sensorimotor neuron firing. *Behavioural Brain Research*, 244, 152–161.
- Root, D.H., Fabbriatore, A.T., Pawlak, A.P., Barker, D.J., Ma, S., & West, M.O. (2012). Slow phasic and tonic activity of ventral pallidal neurons during cocaine self-administration. *Synapse*, 66(2): 106-27.
- Barker, D.J., Root, D.H., Ma, S., Jha, S., Megehee, L., Pawlak, A.P., & West, M.O. (2010). Dose-dependent differences in short ultrasonic vocalizations emitted by rats during cocaine self-administration. *Psychopharmacology (Berl)*, 211(4): 435-442.
- Root, D.H., Tang, C.C., Ma, S., Pawlak, A.P., & West, M.O. (2010). Absence of cue-evoked firing in rat dorsolateral striatum neurons. *Behavioral Brain Research*, 211(1): 23-32.
- Barker, D.J., Sanabria, F., Lasswell, A., Thrailkill, E.A., Pawlak, A.P., & Killeen, P.R. (2010). Brief light as a practical aversive stimulus for the albino rat. *Behavioral Brain Research*, 214(2): 402-408.
- Pawlak, A.P., Tang, C., Pederson, C., Wolske, M.B., & West, M.O. (2010). Acute effects of cocaine on movement-related firing of dorsolateral striatal neurons depend on baseline firing rate and dose. *Journal of Pharmacology and Experimental Therapeutics*, 332: 667–683.
- Root, D.H., Fabbriatore, A.T., Barker, D.J., Ma, S., Pawlak, A.P., & West, M.O. (2009). Evidence for habitual and goal-directed behavior following devaluation of cocaine: A multifaceted interpretation of relapse. *PLoS One*, 4: e7170.
- Tang, C., Mittler, T., Duke, D.C., Zhu, Y., Pawlak, A.P., & West M.O. (2008). Dose- and rate-dependent effects of cocaine on striatal firing related to licking. *Journal of Pharmacology and Experimental Therapeutics*, 324: 701-713.
- Tang, C., Pawlak, A.P., Prokopenko, V., & West, M.O. (2007). Changes in activity of the striatum during formation of a motor habit. *European Journal of Neuroscience*, 25: 1212-1227.

- Bates, M.E., Pawlak, A.P., Tonigan, J.S., & Buckman, J.F. (2006). Cognitive impairment influences drinking outcome by altering therapeutic mechanisms of change. *Psychology of Addictive Behaviors*, 20(3): 241-253.
- Prokopenko, V.F., Pawlak, A.P., & West, M.O. (2004). Fluctuations in somatosensory responsiveness and baseline firing rates of neurons in the lateral striatum of freely moving rats: Effects of intranigral apomorphine. *Neuroscience*, 125: 1077–1082.
- Ghitza, U.E., Fabbriatore, A.T., Prokopenko, V., Pawlak, A.P., & West, M.O. (2003). Persistent cue-evoked activity of accumbens neurons after prolonged abstinence from self-administered cocaine. *Journal of Neuroscience*, 23(19): 7239-7245.

PROFESSIONAL PRESENTATIONS

- Beacher, N.J., Dao, A., Karnam, M., Leichner, S.J., Kulik, J., Pawlak, A.P., & West, M.O. (2019, October). *Behavioral and electrophysiological evidence for "high risk" cocaine addiction identified in a subset of outbred Long Evans rats*. Poster to be presented at the Society for Neuroscience convention, Chicago, IL.
- Helton, S.G., Pawlak, A.P., & Todaro, S.M. (2019, June). *Factors that predicts client use of a technology-based paced breathing adjunct to substance use treatment as usual*. Poster to be presented at the Research Society on Alcoholism meeting, Minneapolis, MN.
- Todaro, S.M., Helton, S.G., Pawlak, A.P., Morgano, J.A., Lesnewich, L.M., Bates, M.E., & Buckman, J.F. (2019, April). *Experiencing medical problems promotes the use of an iPhone app-based breathing intervention*. Presented at the Collaborative Perspectives on Addiction Meeting, Providence, RI.
- Pawlak, A.P. (2019, March). *A conceptual introduction to linear mixed modeling: A (hopefully!) gentle basic primer*. Lecture presented at the Emerging Addictions Science Seminar series at the Center of Alcohol Studies, Rutgers University, Piscataway, NJ.
- Beacher, N.J., Kulik, J., Stamos, J., Klein, S., Estrin, D., Chen, V., Leonte, A., Pawlak, A.P., & West, M.O. (2017, November). *Heterogeneous development of drug abuse: Individual differences and predisposition to addiction*. Poster session presented at the Society for Neuroscience convention, Washington, DC.
- Klein, S.D., Kulik, J., Beacher, N., Pawlak, A.P., & West, M.O. (2017, November). *The emergence of negative affect as motivation for drug taking in rats chronically self-administering cocaine*. Poster session presented at the Society for Neuroscience convention, Washington, DC.
- Stamos, J., Pawlak, A., Sicherer, M., Pan, R., Stamos, C., Kulik, J., Beacher, N., Bello, N., & West, M. (2017, November). *Accumbens processing of a food associated cue in a rat model of binge eating*. Poster session presented at the Society for Neuroscience convention, Washington, DC.
- Beacher, N.J., Kulik, J., Stamos, J., Coffey, K., Klein, S., Estrin, D., Pawlak, A., & West, M. (2016, December). *Heterogeneous development of drug abuse: Identifying different forms of addictive behavior*. Poster session presented at the Rutgers Brain Health Institute symposium, Branchburg, NJ.
- Beacher, N.J., Kulik, J., Stamos, J., Coffey, K., Pawlak, A., Estrin, D., Damcevskaja, M., & West, M. (2016, November). *Individual differences and predisposition to drug abuse*. Poster session presented at the Society for Neuroscience convention, San Diego, CA.
- Stamos, J., Taylor, A., Quintin, D., Coffey, K., Kulik, J., Pawlak, A., Bello, N., & West, M.O. (2016, November). *Accumbens firing in a dietary-induced model of binge eating*. Poster session presented at the Society for Neuroscience convention, San Diego, CA.
- Kulik, J., Coffey, K., Pawlak, A., & West, M. (2015, October). *Investigating activity of fast spiking interneurons in dorsolateral striatum*. Poster session presented at the Society for Neuroscience convention, Chicago, IL.
- Stamos, J., Bello, N., Pawlak, A., Tylor, D., Quintin, D., Coffey, K., Kulik, J., & West, M. (2015, October). *Accumbens cue reactivity and affective state in a rat model of binge eating*. Poster session presented at the Society for Neuroscience convention, Chicago, IL.

- Kim, O.A., Coffey, K.R., Barker, D.J., Ma, S., Pawlak, A.P., Fabbriatore, A.T., & West, M.O. (2014, November). *Evidence for tuning to preferred drug levels during cocaine self-administration by nucleus accumbens neurons*. Poster session presented at the Society for Neuroscience convention, Washington, DC.
- Stamos, J., Bello, N. Ma, S., Pawlak, A., Coffey, K., Quintin, D., & West, M. (2014, November). *Accumbens mechanisms of reactivity and affective state in a rat model of binge eating*. Poster session presented at the Society for Neuroscience convention, Washington, DC.
- Barker, D.J., Striano, B.S., Root, D.H., Pawlak, A.P., Fabbriatore, A.T., & West, M.O. (2013, November). *Firing of lateral preoptic area during cocaine self-administration*. Poster session presented at the Society for Neuroscience convention, San Diego, CA.
- Barker, D.J., Ma, S., Root, D.H., Pawlak, A.P., Coffey, K.R., Striano, B., Fabbriatore, A.T., & West, M.O. (2012, October). *Cocaine Addiction: Is it a habit?* Poster session presented at the Society for Neuroscience convention, New Orleans, LA.
- Coffey, K., Barker, D.J., Ma, S., Pawlak, A., Fabbriatore, A., & West, M.O. (2012, October). *The role of dorsolateral striatum neurons in skill learning and drug abuse*. Poster session presented at the Society for Neuroscience convention, New Orleans, LA.
- Ma, S., Pawlak, A.P., Cho, J., Root, D.H., Barker, D.J., & West, M.O. (2011, November). *Amphetamine's dose-dependent effects on dorsolateral striatum sensorimotor neuron firing*. Poster session presented at the Society for Neuroscience convention, Washington, DC.
- Root, D.H., Fabbriatore, A.T., Ma, S., Barker, D.J., Pawlak, A.P., & West, M.O. (2011, November). *Ventral pallidal firing patterns during cocaine self-administration*. Poster session presented at the Society for Neuroscience convention, Washington, DC.
- Ma, S., Root, D.H., Tang, C., Pawlak, A.P., Barker, D.J., & West, M.O. (2009, October). *Absence of cue-evoked firing in dorsolateral striatum neurons during the formation and expression of habitual behavior*. Poster session presented at the Society for Neuroscience convention, Chicago, IL.
- Bates, M.E., Pawlak, A.P., & Buckman, J.F. (2006, August). *The influence of cognitive impairment on social functioning*. Poster session presented at the American Psychological Association convention, New Orleans, LA.
- Pawlak, A.P., Buckman, J.F., & Bates, M.E. (2006, May). *Neuropsychological impairment indirectly influences recovery from negative alcohol consequences after treatment*. Poster session presented at the Association for Psychological Science convention, New York.
- Tang, C., Mittler, T., Duke, D.C., Pawlak, A.P., Zhu, Y., Prokopenko, V.F., & West, M.O. (2005, November). *Striatal neurons related to licking: Dose- and rate-dependent effects of cocaine on firing rate concurrent with licking stereotypy in rats*. Poster session presented at the Society for Neuroscience convention, Washington, D.C.
- Buckman, J.F., Bates, M.E., Pawlak, A.P., & Tonigan, J.S. (2005, August). *Linking alcohol-related cognitive impairment to therapeutic process*. Poster session presented at the American Psychological Association convention, Honolulu, HI.
- Pawlak, A., Bates, M.E., Labouvie, E., Tonigan, J.S., & Fals-Stewart, W. (2004, February). *Indirect effects of neuropsychological ability on addiction treatment outcome*. Poster session presented at the International Neuropsychological Society convention, Baltimore, MD.
- Duke, D.C., Leone, A.M., Pawlak, A.P., & West, M.O. (2000, November). *Firing-rate dependent change in activity of striatal neurons related to licking: An effect of cocaine?* Poster session presented at the Society for Neuroscience convention, New Orleans, LA.
- Fabbriatore, A.T., Ghitzza, U.E., Pawlak, A.P., West, M.O., & Peoples, L.L. (2000, November). *Phasic firing patterns of nucleus accumbens core and shell neurons during intravenous cocaine self-administration session*. Poster session presented at the Society for Neuroscience convention, New Orleans, LA.
- Pawlak, A.P., Duke, D.C., Pederson, C.L., Wolske, M., Mittler, T., Cho, J., Peoples, L.L., & West, M.O. (1998, November). *Firing rate dependent effect of psychomotor stimulant drugs on lateral striatal neurons in*

awake, unrestrained rats. Poster session presented at the Society for Neuroscience convention, Los Angeles, CA.

Duke, D.C., Pawlak, A.P., & West, M.O. (1998, November). *Anesthetics abolish somatosensory responses of neurons in the somatotopically organized sensorimotor striatum of the rat*. Poster session presented at the Society for Neuroscience convention, Los Angeles, CA.

Neighbors, C.N., O'Leary, A., Pawlak, A.P., & Gendel, D. (1996, September). *Reactions of high-risk males to condom request messages*. Poster session presented at the APA "Psychosocial and Behavioral Factors in Women's Health" conference, Washington, D.C.

Penn, M.L., Chapman, T., Pawlak, A., & Brinser, M. (1993, August). *Lemonwood Housing Study: Hope I and Hope II HUD Project Proposal and Study*. Presentation of community and housing survey data to all officially involved parties of the Hope I and II project for the Pottstown, PA community, which was part of a \$10,000,000 HUD grant for urban improvement and development