

Kimberly Lewis Meidenbauer

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[Research Gate Profile](#) | [Personal Website](#) | [OSF Profile](#) | [Twitter](#)

ACADEMIC APPOINTMENTS

2020 – present ***Postdoctoral Teaching Fellow***
University of Chicago, Department of Psychology
Environmental Neuroscience Lab, Director: Marc Berman

EDUCATION

2020 **The University of Chicago, Department of Psychology**
Ph.D. in Integrative Neuroscience
Dissertation: “The Role of Preference in the Affective and Cognitive Benefits of Nature”
Committee: Marc Berman (Chair), Alex Shaw, Ed Vogel, & Christine Larson

2016 **The University of Chicago, Department of Psychology**
M.A. in Integrative Neuroscience
Thesis: “Distinct Components of Empathy and their Neurophysiological Markers”
Committee Chair: Jean Decety

2012 **University of Wisconsin-Milwaukee**
B.A. in Psychology with Honors, *summa cum laude*
Senior Thesis: “Does Attention Play a Mediating Role in Affective Empathy?”
Committee Chair: Christine Larson

PUBLICATIONS

PEER-REVIEWED ARTICLES

1. **Meidenbauer, K. L.**, Choe, K. W., Cardenas-Iniguez, C., Huppert, T.J., & Berman, M. G. (2021) [Load-Dependent Relationships between Frontal fNIRS Activity and Performance: A Data-Driven PLS Approach](#). *NeuroImage*. 117795. doi: 10.1016/j.neuroimage.2021.117795 [Impact factor = 5.9]
2. **Meidenbauer, K. L.**, Stenfors, C. U. D., Bratman, G. N., Gross, J. J., Schertz, K. E., Choe, K. W., & Berman, M. G. (2020). [The affective benefits of nature exposure: What’s nature got to do with it?](#) *Journal of Environmental Psychology*, 72. doi: 10.1016/j.jenvp.2020.101498 [Impact factor = 3.55]
3. **Meidenbauer, K. L.**, Stenfors, C. U. D., Ingram, M. P., & Berman, M. G. (2019). [A tablet-based task for assessing environmental preferences in children and adults](#). *MethodsX*, 6, 1901-1906. doi: 10.1016/j.mex.2019.08.002

4. **Meidenbauer, K. L.**, Stenfors, C., Young, J., Layden, E. A., Schertz, K. E., Kardan, O., Decety, J., & Berman, M. G. (2019). [The gradual development of the preference for natural environments](#). *Journal of Environmental Psychology*, 65. doi: 10.1016/j.jenvp.2019.101328 [Impact factor = 3.55]
5. **Meidenbauer, K. L.**, Cowell, J. M., & Decety, J. (2018). [Children's neural processing of moral scenarios provides insight into the formation and reduction of in-group biases](#). *Developmental Science*, e12676. doi: 10.1111/desc.12676 [Impact factor = 4.08]
6. Decety, J., **Meidenbauer, K. L.**, & Cowell, J. M. (2017). [The development of cognitive empathy and concern in preschool children: A behavioral neuroscience investigation](#). *Developmental Science*, e12570. doi: 10.1111/desc.12570 [Impact factor = 4.08]
7. **Meidenbauer, K. L.**, Cowell, J. M., Killen, M., & Decety, J. (2016) [A developmental neuroscience study of moral decision-making regarding resource allocation](#). *Child Development*, 89, 1177-1192. doi: 10.1111/cdev.12698 [Impact factor = 5.02]
8. Decety, J., **Lewis, K. L.**, & Cowell, J. M. (2015). [Specific electrophysiological components distinguish affective sharing and empathic concern in psychopathy](#). *Journal of Neurophysiology*, 114(1), 493-504. doi: 10.1152/jn.00253.2015 [Impact factor = 2.23]
9. **Lewis, K. L.**, Taubitz, L. E., Duke, M. W., Steuer, E. L., & Larson, C. L. (2015) [State rumination enhances elaborative processing of negative material as evidenced by the late positive potential](#). *Emotion*, 15(6), 687-693. doi: 10.1037/emo0000095 [Impact factor = 3.04]
10. Humphries, C., Sabri, M., **Lewis, K.** & Liebenthal, E. (2014). [Hierarchical organization of auditory cortex in speech perception](#). *Frontiers in Neuroscience*, 8:406. doi: 10.3389/fnins.2014.00406 [Impact factor = 3.71]

MANUSCRIPTS IN PREPARATION

11. **Meidenbauer, K. L.**, Choe, K. W., & Berman, M. G. Characterizing the role of impulsivity in costly reactive aggression using a novel paradigm.
12. Fan, S., **Meidenbauer, K. L.**, Choe, K. W., & Berman, M. G. Efficient and reliable subjective preference rating through multiple image presentation.
13. Zhuang, C.*, **Meidenbauer, K. L.***, Stier, A. J., Kardan, O., Choe, K. W., Huppert, T. J., & Berman, M. G. Scale Invariance in fNIRS as a Measurement of Cognitive Load (*co-first authors)

BOOK CHAPTERS

14. Berman, M. G., Cardenas-Iniguez, C., & **Meidenbauer, K. L.** (in press) *An Environmental Neuroscience Perspective on the Benefits of Nature*. Proceedings from the 67th Nebraska Symposium on Motivation--Nature and Psychology.
15. Schertz, K. E.*, **Meidenbauer, K. L.***, & Berman, M. G. (in press) *Understanding the Affective Benefits of Interacting with Nature*. (*co-first authors). Nature, Physical Activity and Health.

GRANTS & FELLOWSHIPS

UNIVERSITY OF CHICAGO

Center for Health Administration Studies (CHAS) Seed Grant July 2020 – 2022

Project title: “Prioritizing Urban Green Infrastructure (UGI) to Reduce Heat, Improve Human Self-control and Reduce Crime.”

Grant PI: Dr. Marc Berman

Amount Awarded: \$10,000

Role: Co-Investigator

William Rainey Harper Dissertation Year Fellowship 2019 – 2020

Highly competitive fellowship (1 awarded for all applicants in Social Sciences Division) providing full tuition and stipend for additional year of PhD work

Norman Anderson Award Spring 2020

Research Funding, Amount: \$1000

Norman Anderson Award Winter 2017

Conference Travel Funding, \$800

Norman Anderson Award Fall 2015

Conference Travel Funding, \$400

PRESENTATIONS

INVITED TALKS

1. *Is nature only good for us because we like it?* Elmhurst College Psychology Club Research Talk, Feb 27, 2020, Elmhurst, IL.
2. *Children’s environmental preferences.* 3rd annual Wolf Lake Watershed Advisory Committee Meeting, Nov 1, 2019, Whiting, IN.

POSTERS & PRESENTATIONS

1. Letourneau-Freiberg, L. R., **Meidenbauer, K. L.**, Denson, A. M., Tian, P., Choe, K. W., Berman, M. G., Greely, S. A. W. (2020). Use of Functional Near-infrared Spectroscopy (fNIRS) To Assess Cognitive Effort In KATP-Related Neonatal Diabetes (KATP-NDM). Presented at the *American Diabetes Association 80th Scientific Session*, June 2020.
2. **Meidenbauer, K. L.**, Choe, K. W., Cardenas-Iniguez, C., Huppert, T.J., & Berman, M. G. (2020). Frontal fNIRS Activity Predicts Performance Differently Across Levels of Cognitive Load. *Poster presented at the Association for Psychological Science Annual Meeting Virtual Poster Showcase*, June 2020.
3. **Meidenbauer, K. L.** (2019) *Task-evoked fNIRS activity during an n-back task*. Talk given at the winter meeting of the University of Chicago fNIRS User Interest Group, Jan 2020.

4. **Meidenbauer, K. L.** (2019) *Using fNIRS activation as a neural index of cognitive effort*. Talk given at the University of Chicago Cognition Workshop, May 2019.
5. **Meidenbauer, K. L.** (2019) *Fundamentals of Functional Near-Infrared Spectroscopy*. Talk given at the first meeting of the University of Chicago fNIRS User Interest Group, February 2019.
6. **Meidenbauer, K. L.** (2018) *The Gradual Development of Nature Preferences*. Talk given at the University of Chicago Cognition Workshop, November 2018.
7. Young, J., **Meidenbauer, K.L.**, Choe, KW., Berman, M.G. (2018). *Functional Near-Infrared Spectroscopy Imaging of Auditory and Visual Cortex*. Presented at the Annual University of Chicago Neuroscience Retreat, New Buffalo, MI, September 2018.
8. **Meidenbauer, K. L.**, Cowell, J. M. & Decety, J. (2017). *Neurophysiological Indices of Conflicting Group Attitudes and Incongruent Moral Behaviors*. Presented at Biennial Meeting of the Society for Research in Child Development, Austin, April 2017.
9. **Meidenbauer, K. L.**, Cowell, J. M., & Decety, J. (2017). *Developmental Changes in the Neural Processing of Equity and Equality in Resource Allocation*. Presented at the Biennial Meeting of the Society for Research in Child Development, Austin, April 2017.
10. **Lewis, K. L.**, Cowell, J. M., & Decety, J. (2015). *Neural Correlates of Contextualized Moral Decision Making in Children and Adolescents*. Presented at Society for Social Neuroscience Annual Meeting, Chicago, October 2015.
11. **Lewis, K. L.**, Cowell, J. M., & Decety, J. (2015). *Electrophysiological Signatures of Distinct Facets of Empathy and Their Relation to Trait Empathy and Psychopathy*. Presented at Society for Neuroscience Annual Meeting, Chicago, October 2015.
12. Sabri, M., **Lewis, K.**, Humphries, C. J., & Liebenthal, E. (2014). *Differential neural adaptation of spectral transition and steady-state features in speech and nonspeech*. Presented at Society for Neuroscience Annual Meeting, Washington D.C., November 2014.
13. Humphries, C., Sabri, M., Heugel, N., **Lewis, K.** & Liebenthal, E. (2013). *Pattern Specific Adaptation to Speech and Nonspeech Sounds in Human Auditory Cortex*. Presented at the Society for Neuroscience Annual Meeting, San Diego, November 2013.
14. **Lewis, K. L.**, Robinson, J.S., & Larson, C. L. (2012). *ERPs during Emotion Regulation Task Affected by Symptoms of Dissociation in PTSD Patients*. Presented at the Society for Psychophysiological Research Conference, New Orleans, September 2012 and the International Neuropsychology Society (INS) Conference, Montreal, Canada, February 2012.
15. Taubitz, L. E., **Lewis, K. L.**, & Larson, C. L. (2012). *Emotion Modulation of the P2 ERP Component in Dysphoric and Non-Dysphoric Subjects and its Modification by SSRI Treatment*. Presented at the Society of Biological Psychiatry Annual Scientific Convention & Program, Philadelphia, May 2012.
16. Taubitz, L. E., **Lewis, K. L.**, & Larson, C. L. (2011). *Elaborating the Time Course of Attentional Bias in Dysphoria: Combining Event-Related Potential and Behavioral*

Measures. Presented at the Society for Psychophysiological Research Conference, Boston, September 2011.

17. **Lewis, K. L.,** Steuer, E. L., Duke, M. W., Taubitz, L. E., Belleau, E. L., & Larson, C. L. (2011). *Frontal Late Positive Potential Predicts Subsequent Memory for Pleasant Pictures.* Presented at the Society for Psychophysiological Research Conference, Boston, September 2011, Midwestern Psychological Association Conference, Chicago, May 2011, and the UW-Milwaukee Undergraduate Research Symposium, Milwaukee, April 2011.

COMMITMENT TO OPEN SCIENCE PRACTICES

- [Open Science Framework \(OSF\) Profile](#)
- Member of University of Chicago chapter of ReproducibiliTea ([OSF site](#)) ([Twitter](#))

Shared Datasets:

- fNIRS and behavior data (N-back task) in Meidenbauer et al. (*NeuroImage*, 2021): <https://osf.io/sh2bf/>
- Nature exposure, aesthetic preferences, and affect change (M-turk) data from Meidenbauer et al. (*J. Environmental Psychology*, 2020): <https://osf.io/ehk9/>

Shared Study Materials

- Nature and Urban picture stimuli from Meidenbauer et al. (*J. Environmental Psychology*, 2019) and Meidenbauer et al., (*MethodsX*, 2019): <https://osf.io/xj3pk/>
- Picture stimuli with ratings of preference and naturalness from Meidenbauer et al. (*J. Environmental Psychology*, 2020): <https://osf.io/ehk9/>

Shared Task Code

- N-back PsychoPy experiment from Meidenbauer et al. (*NeuroImage*, 2021): <https://osf.io/m6brz/>
- Tablet-based image rating task used to evaluate child nature preferences from Meidenbauer et al. (*J. Environmental Psychology*, 2019) and Meidenbauer et al. (*MethodsX*, 2019): <https://osf.io/hc2ne/>

Neuroimaging and Statistical Analysis Code

- Matlab code for fNIRS data Analysis using Brain AnalyzIR toolbox + Running Behavioral PLS in fNIRS and R code for behavior analysis (from Meidenbauer et al., *NeuroImage*, 2021): <https://osf.io/sh2bf/>

Preregistrations

- Preregistrations for effects of nature and preference on affect change in Meidenbauer et al. (*J. Environmental Psychology*, 2020): <https://osf.io/u5r4c>, <https://osf.io/u2e6n>

RESEARCH POSITIONS

Environmental Neuroscience Lab (Dr. Marc G. Berman) 2017 – present

Graduate Research Assistant & Post-doctoral Fellow

University of Chicago

- Demonstrated the importance of considering aesthetic preferences for natural environments in the affective and cognitive impacts of nature exposure
- Conducted first empirical investigation on the development of nature preferences
- First researcher at U of C to develop an acquisition and analysis protocol for fNIRS technique & trained other researchers on how to utilize this neuroimaging modality
- Co-developed a novel, lab-based measure of impulsive aggression
- Contributed to grant proposals examining the impact of heat stress on aggressive behaviors

Social Cognitive Neuroscience Lab & Child Neurosuite (Dr. Jean Decety) 2014 – 2016

Graduate Research Assistant

University of Chicago

- Designed, ran, analyzed, and published ERP studies examining children's development of moral decision making, empathy, and intergroup moral evaluation
- Conducted research on specific empathy deficits in psychopathy and how this can be identified using EEG biomarkers

Speech Perception Lab (Dr. Merav Sabri & Dr. Einat Liebenthal) 2012 – 2014

Lab Manager

Medical College of Wisconsin

- Collected and analyzed multimodal neuroimaging data (simultaneous and parallel fMRI-EEG, EEG-MEG) examining the neural substrates of speech comprehension in healthy and clinical populations

Affective Neuroscience Lab (Dr. Christine L. Larson) 2010 – 2014

Undergraduate Researcher & Post-Baccalaureate Research Technician

University of Wisconsin-Milwaukee

- Conducted independent research study on empathy and attention using eyetracking and behavioral measures
- Assisted on EEG studies of emotion regulation, rumination, and affective processing, analyzed the data, and presented findings at conferences
- Analyzed ERP asymmetry in rumination, and published results in academic journal

Brain Injury Research Lab (Dr. Michael McCrea) 2012

Research Technician

Medical College of Wisconsin

- Ran participants through a battery of concussion testing procedures for baseline and post-injury athletes

Inquiries in Affective Science Lab (Dr. Nakia Gordon)

2012

Research Technician

Marquette University

- Helped design studies testing the affective evaluation of violence towards out-groups
- Programmed EEG study on emotion processing in children with autism
- Learned and mentored undergraduates in analysis of heart-rate variability data

F.E.A.R. Lab (Dr. Shawn Cahill)

2010

Undergraduate Research Assistant

University of Wisconsin-Milwaukee

- Assisted with experiments on anxiety-induced changes in social cooperation and trust

TEACHING EXPERIENCE

Teaching Fellow at University of Chicago

Social Psychology

Fall 2020

Mind-I (Social Sciences Core class)

Fall 2020

Mind-II (Social Sciences Core class)

Winter 2021

Graduate Student Instructor at University of Chicago

Summer 2019

Cognitive Psychology

Graduate Teaching Assistant at University of Chicago

Cognitive Psychology

Spring 2018, Spring 2019

Intro to Developmental Psychology

Spring 2017

Violence in the Early Years (Public Policy Course)

Winter 2017, Winter 2018

Social Psychology

Fall 2016, Fall 2017

Teaching Intern at UW-Milwaukee

Introduction to Psychology

Fall 2010

WORKSHOPS & PROFESSIONAL DEVELOPMENT

Array of Things Workshop

August 29 – 30, 2018

Argonne National Laboratory, Chicago

Advanced fNIRS Data Analysis Workshop

May 24 – 25, 2018

University of Pittsburgh, Course led by Ted Huppert, PhD

SERVICE

- Ad-Hoc Manuscript Review** ([Publons Profile](#)) 2017 – present
- Scientific Reports*
 - Child Development*
 - Biological Psychology*
 - Journal of Environmental Psychology*
 - Society & Natural Resources*
 - Applied Psychology: Health and Well-Being*
 - Applied Science*
- U Chicago fNIRS User Interest Group** 2019 – present
- Co-organized monthly meeting/workshop for University of Chicago labs interested in using fNIRS
- Psychology Graduate Student Organization (U Chicago PGSO) Service**
- Health & Wellness Committee Founder and Chair 2017 – 2020
 - PGSO President 2016 – 2017
 - Graduate Student Mentorship Coordinator 2015 – 2016
 - Social Committee Member 2014 – 2016

MENTORSHIP

- Annie Li (MAPSS Student, 2020-present). Mentoring M.A. thesis on development of online, bonus-based Stop Signal Task.
- Selina Liu (MACSS Student, 2019-present). Co-mentored M.A. thesis on Mouse Movement and Personality.
- Siyi Fan (MAPSS Student, 2018-2019 & Post-MA Research Assistant, 2019-2020). Co-mentored M.A. thesis on Reliable Preference Rating Through Multiple Image Presentation. Supervised Siyi's first-author manuscript based on her thesis and mentored her on PhD applications.
- Chu Zhuang (MAPSS Student, 2019-2020). Mentored M.A. Thesis on Scale Invariance in fNIRS as a Measurement of Cognitive Effort. Supervised Chu's first-author manuscript based on her thesis.
- Jillian Bowman (Undergraduate RA, 2017-2020). Provided mentorship and data analysis assistance on B.A. thesis project, assisted with professional development. Jillian was accepted to medical school in 2020.
- Tanvi Lahktakia (Undergraduate RA, 2017-2020). Provided mentorship and data analysis assistance on B.A. thesis project, mentored on research job and PhD application process.
- Jaime Young (Post-MA Research Assistant, 2017-2019). Mentored on research projects and PhD program applications. Jaime was accepted into a PhD program in psychology in 2019.

MEDIA COVERAGE

Children's environmental preferences:

- UChicago News: *Children don't like nature as much as adults—but preferences change with age*. <https://news.uchicago.edu/story/children-dont-nature-much-adults-preferences-change-age>
- Research also covered by the Times, London and Talk Radio London.

TECHNICAL SKILLS

- **Statistical Analysis** using R (Frequentist & Bayesian statistics) and Matlab (multivariate PCA and PLS analysis)
- **Neuroimaging** expertise in multiple modalities (EEG, fNIRS, fMRI), designing, collecting, and analyzing data
- **Experimental design** and programming (E-prime, Qualtrics, JavaScript, PsychoPy)

PROFESSIONAL AFFILIATIONS & ACADEMIC MEMBERSHIPS

- Association for Psychological Science (APS)
- American Psychological Association of Graduate Students (APAGS)
- American Psychological Association (APA): Student Affiliate
- Society for Psychophysiological Research (SPR): Student Member
- Society for Neuroscience (SfN): Student Member
- Society for Research in Child Development (SRCD): Student Member
- Psi Chi (National Honor Society in Psychology)
- Golden Key (International Academic Honor Society)
- Phi Beta Kappa (National Academic Honor Society)
- Phi Kappa Phi (National Academic Honor Society)