

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE

Drew E. Winters, PhD.

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Biographical Sketch

Drew E. Winters, PhD. holds a Research Faculty appointment at the University of Colorado Anschutz Medical Campus in the department of Psychiatry. His research focuses on brain and behavior mechanisms underlying executive and socio-affective function with an emphasis on adolescents with callous-unemotional traits. In this vein, this work aims to identify replicable neural mechanisms that may improve development and testing of interventions for youth with antisocial phenotypes.

Education

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| University of Colorado, Aurora, CO. | July 2023 |
| - T32 Post-Doctoral Fellow: Developmental Psychobiology | |
| - Primary mentor: Dr. Joseph Sakai, M.D. | |
| Indiana University, Indianapolis, IN. – Ph.D. | April 2020 |
| Indiana University, Indianapolis, IN. – MSW | May 2016 |
| Purdue University, Fort Wayne, IN. – B.S. | May 2013 |

Certifications

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| Machine Learning Using Scikit-Learn in Python – Inira | May 2022 |
| Data Scientist in Python - DataCamp | Nov 2021 |
| Computational Neuroscience – Neuromatch Academy | July 2021 |
| Data Scientist in R – DataCamp | April 2020 |
| Multilevel Modeling II Advanced Topics – EITM | Oct 2020 |
| Network Analysis II Advanced Topics – EITM | Oct 2020 |
| Structural Equation Modeling with Latent Variables – EITM | Oct 2018 |

Academic Appointments

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|----------------------------|-------------|----------------------------|--------------|
| University of Colorado SOM | Psychiatry | Associate Research Faculty | 2023–Present |
| Indiana University | Psychology | Adjunct Professor | 2023–Present |
| University of Colorado SOM | Psychiatry | Post-Doctoral Fellow | 2020–2023 |
| University of Colorado SOM | Psychiatry | Statistician | 2021–2022 |
| University of Michigan | Statistics | Instructor | 2019–2023 |
| Indiana University | Social Work | Adjunct Professor | 2017–2020 |
| Indiana University SOM | Psychiatry | Research Analyst | 2018–2020 |
| Indiana University SOM | Social Work | Research Assistant | 2016–2020 |
| Indiana University | Psychology | Research Assistant | 2014–2015 |

Clinical Positions

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| UCHealth Encompass program - Aurora, CO | Therapist | 2020–2021 |
| Family Works Inc. - Indianapolis, IN | Home-Based Therapist | 2016–2020 |
| Rogers behavioral health – Skokie IL | Behavioral Therapist | 2015–2016 |
| ASPIRE behavioral health – Indianapolis IN | Case Worker | 2013–2015 |
| Park Center mental health – Fort Wayne, IN | Case Worker | 2008–2013 |

Honors, Special Recognitions, and Awards

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| Joseph and Alida Newman Award | 2023 |
| Society for the Scientific Study of Psychopathy (SSSP) | |
| Postdoctoral Association Travel Award – | 2021 |
| University of Colorado, Aurora, CO | |
| Multilevel Modeling II: Advanced Topics – Statistical Competence | 2021 |
| Empirical Implications of Theoretical Models | |
| Network Analysis II: Advanced Topics – Statistical Competence | 2021 |
| Empirical Implications of Theoretical Models | |
| Structural Equation Modeling with Latent Models – Statistical Competence | 2018 |
| Empirical Implications of Theoretical Models | |
| Developmental, Child, and Family Psychology Fellowship | 2018 |
| ICPSR Quantitative Methods of Social Research Ann Harbor, MI | |
| Indiana University Travel Fellow | 2017–2019 |
| Graduate Professional Student Government Fellowship | 2016 |
| Miranda Pang Endowment | 2014 |
| Phi Kappa Phi: Academic Honor Society | 2013 |
| Tau Upsilon Alpha: Human Services Academic Honor Society | 2013 |
| Hellen I. and Rodney E. Nern Scholarship | 2013 |
| Membership in professional organizations | |
| Society for the Scientific Study of Psychopathy (SSSP) | 2022 |
| Society of Clinical Child and Adolescent Psychology | 2020 |
| Society for Social Work and Research (SSWR) | 2017 |
| Major Committee and Service Responsibilities | |
| Board of Directors, National Association of Alcohol and other Drugs of Abuse | 2011–2018 |
| Counselors, Indiana Chapter, Indianapolis, IN | |
| Licensure and Board Certification | |
| Nationally Certified Addiction Counselor level two (NCAC-II) | 2013-2015 |
| Licensed Social Worker (LSW) | 2015-2023 |
| Licensed Clinical Social Worker (LCSW) | 2023-Present |
| Review and Referee Work | |
| <u>Ad Hoc Reviewer</u> | |
| Cortex | 2023 |
| Brain and Behavior Functions | 2023 |
| European Child and Adolescent Psychiatry | 2023 |
| Personality and Individual Differences | 2023 |
| Translational Psychiatry | 2023 |
| Neuroimage | 2022 |
| Emotion | 2022 |
| Journal of Drug Issues | 2022 |
| Addictive Behaviors Reports | 2022 |
| Brain Imaging and Behavior | 2022 |
| Cerebral Cortex | 2021 |
| Neuroscience Letters | 2021 |
| Psychophysiology | 2021 |
| Journal of Drug and Alcohol Dependence | 2021 |
| Journal of Juvenile Justice | 2018 |
| Journal of Child and Family Studies | 2017 |

Open-Source Software Packages

resmod. A python package that derives interaction terms using centered residuals
<https://pypi.org/project/resmod/>, role: author

fsub_extractor. A python package that ties diffusion and functional brain data together.
https://github.com/smeisler/fsub_extractor, role: contributor

Invited Extramural lectures, Presentations and Visiting Professorships

- Winters, D.E., *Statistical approaches to model functional brain data*. Quantitative Collective, Pittsburgh, PA. Dec 2023
- Winters, D.E., *Distinct functional brain patterns underlying executive and social function in adolescents with callous-unemotional traits*. EDEN lab at the University of Pennsylvania, Philadelphia, PA. August 2023
- Winters, D.E., Massey, S., Sakai, J. T., *Adolescent substance use in response to social consequences of use: The role of empathy*. Research Society on Alcoholism, Bellevue, WA. June 2023
- Winters, D.E., Sakai, J.T., *Affective theory of mind impairments underlying callous-unemotional traits and the role of cognitive control*. Society for Scientific Study of Psychopathy. New York, New York May 2023
- Winters, D.E.**, *Functional Brain Properties in Adolescents with Callous-Unemotional Traits and Potential Mechanisms*. Developmental Psychobiology Research Group, Denver, CO April 2023
- Winters, D.E.**, *Longitudinal Data Analysis Using Secondary Data. S728 multivariate statistics*, Dr. Sadaaki Fukui. Indiana University School of Social Work, Indianapolis, IN. Jan 2023
- Winters, D.E.**, Sakai, J.T., Carter, R.M., *Computational Lesioning of Heterogenous Functional Connectomes Explains Variance in Adolescent Callous-Unemotional Traits*. Neurohackadamy, University of Washington, Seattle, WA July 2022
- Sanchez, C.R., Cooley, J.L., **Winters, D.E.**, Ricker, B.T., & Fite, P.J. *Prospective associations between forms of aggression and peer victimization: The moderating role of prosocial behavior*. Biennial Research Conference on Relational Aggression, Virtual Conference. July 2022
- Winters, D.E.**, *Introduction to R for medical students*. University of Colorado Anschutz Medical Campus, Aurora, CO April 2022
- Winters, D.E.**, *Cognitive Load Sensitivity Impacts Theory of Mind Impairments in Callous-Unemotional Traits*. Developmental Psychobiology Research Group, Denver, CO April 2022
- Winters, D.E.**, *Affective Theory of Mind Impairments in Youth with Callous-Unemotional Traits: The Role of Cognitive Control*. American College of Neuropsychopharmacology. San Juan, PR Dec 2021
- Winters, D.E.**, *Network typology of adolescents with callous-unemotional traits*. Department of Psychiatry Poster Session, University of Colorado Anschutz Medical Campus, Aurora, CO March 2021
- Winters, D.E.**, *Adolescent Prosocial Behavior and Affective Theory of Mind:* March 2021

The Role of Cognitive Control and Callousness. Developmental Psychobiology Research Group, Denver, CO

Winters, D.E., *Longitudinal Data Analysis Using Secondary Data.* S728 multivariate statistics, Dr. Sadaaki Fukui. Indiana University School of Social Work, Indianapolis, IN. Jan 2021

Winters, D.E., *Neural Connectivity of Empathy and its Impairments in Adolescents.* Developmental Psychobiology Research Group, Denver, CO Oct 2020

Winters, D.E., *Statistical Approaches of Propensity Score Matching.* Training the Indiana Department of Children Services data analysis and evaluation team, Indianapolis, IN. March 2020

Winters, D.E., *Secondary data analysis.* S728 multivariate statistics, Dr. Sadaaki Fukui. Indiana University School of Social Work, Indianapolis, IN. Jan 2020

Winters, D.E. *Mindfulness and Acceptance and Commitment Therapy in Clinical Practice.* Advanced clinical practice, Dr. Vincent Starnino, instructor. Indiana University School of Social Work, Indianapolis, IN. June 2017

Winters, D.E. *Mindfulness in Addictions Treatment.* Presentation to staff and clients at the Life Recovery Center, Indianapolis, IN. Aug 2016

Winters, D.E. *Mindfulness in Clinician Self-Care, and Clinical Practice.* Presented to the staff and honor society recipients of Chi Eta Sigma for marriage and family therapist. Purdue University. April 2016

Teaching Record

Indiana University– Adjunct Professor in Psychology

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|--------------------------------------|--------|-------------|
| PSY-I 535 Developmental Neuroscience | Online | Spring 2024 |
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University of Michigan: Institute for Social Research ICPSR - Instructor

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| Multilevel Modeling I: Introduction and applications | Seminar | Summer 2023 |
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| Regression Analysis II: Linear models | Online | Summer 2020 |
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| Regression Analysis II: Linear models | Seminar | Summer 2019 |
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Indiana University– Adjunct Professor in Social Work

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| S728 Advanced Statistics – Statistics Lab | Seminar | Spring 2020 |
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| S718 Intermediate Statistics – Statistics Lab | Seminar | Fall 2019 |
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| S728 Advanced Statistics – Statistics Lab | Seminar | Spring 2019 |
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| S718 Intermediate Statistics – Statistics Lab | Seminar | Fall 2018 |
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| S517 Assessment in Mental Health & Addictions | Seminar | Summer 2018 |
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Indiana University School of Social Work – Teaching Assistant

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| S623 Practice Research Integrative Seminar | Online | Summer 2017 |
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| S623 Practice Research Integrative Seminar | Online | Spring 2017 |
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| S623 Practice Research Integrative Seminar | Seminar | Fall 2016 |
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Mentoring

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| Women in STEM – Role: Research Mentor | 2023-Current |
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- I mentored Loretta Tsu and Jillian King on the areas of conducting research, statistical analyses, and navigating academia.

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| Juliet Spitz, B.A. – Role: Research Mentor | 2023-Current |
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- I mentored Juliet in research recruitment, data management, statistical analyses using modern programing languages, and dissemination.

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| Harshith Alete, MS. – Role: Research Mentor | 2023 |
| - I mentored Harshith in conducting research and writing manuscripts resulting in one article submission. | |
| Neuromatch Academy – Role: Computational Neuroscience Mentor | 2022 |
| - I mentored a group of five participants in the computational neuroscience track on completing capstone project. | |
| Gabriel Yepes, M.D. – Role: Research Mentor | 2021 |
| - I mentored Dr. Yepes on conducting research and writing manuscripts resulting in one research publication. | |

Grant Support

Current

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| Developmental Psychobiology Endowment. Project title: ‘Cognitive control limitations amongst adolescents with callous-unemotional traits that impact the capacity for theory of mind: Evidence from a dual-task paradigm.’ Funding amount \$7,355 <u>Role</u> : PI | 2023–2025 |
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Submitted and Pending Grants

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| National Institute of Mental Health – K23. Project title: ‘Functional connectivity underlying callous-unemotional traits in early adolescents implicated in cognitive control impairments that impact affective theory of mind.’ <u>Role</u> : PI | 2023–2028 |
| National Institute of Mental Health – R21. Project title: ‘Functional brain network topology and changes in salience, social, and executive function systems in adolescents with callous-unemotional traits.’ <u>Role</u> : PI | 2023–2025 |

Completed

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| National Institutes of Mental Health T32MH015442-42; Laudenslager, Mark (PI), Developmental Psychopathology, Psychobiology & Behavior. <u>Role</u> : Postdoctoral Fellow | 2020–2023 |
| Developmental Psychobiology Endowment. Project title: ‘The effects of cognitive load on prosocial behavior amongst early adolescents with high callous-unemotional traits and typically developing controls.’ Funding amount \$7,220 <u>Role</u> : PI | 2021–2022 |
| Indiana Department of Children Services Title IV-E Waiver A93-3-13-4F-C0-0981; Hall, Jim (PI), Pierce, Barbra (PI), Indiana University School of Medicine. <u>Role</u> : Research Analyst | 2017–2020 |

Bibliography

Published

Open science legend: * = preregistered; + = analysis code shared; # = shared/open data

Published Peer-Reviewed Articles

Sanchez, C.R., Ricker, B., **Winters, D.E.**, Fite, P.J., Cooley, J. (in press). Associations Between Forms of Aggression and Peer Victimization: Does Prosocial Behavior Matter? *Development and Psychopathology*.

*+**# Winters, D. E.**, Guah, A., Sakai, J.T. (2023). Connectome-based predictive modeling of empathy in adolescents with and without the low-prosocial emotion specifier. *Neuroscience Letters*. DOI: 10.1016/j.neulet.2023.137371

- *+ # **Winters, D. E.**, Leopold, D. R., Sakai, J. T., & Carter, R. M. (2023). Efficiency of heterogenous functional connectomes explains variance in callous-unemotional traits after computational lesioning of cortical midline and salience regions. *Brain Connectivity*. DOI: 10.1089/brain.2022.0074
- *+ # **Winters, D.E.**, Sakai, J.T. (2023). Cognitive processes underlying prosocial decision making in callous-unemotional traits. *Psychopathy & Behavioral Assessment*. DOI: 10.1007/s10862-023-10043-x
- + # **Winters, D.E.**, Sakai, J.T. (2023). Affective theory of mind impairments underlying callous-unemotional traits and the role of cognitive control. *Cognition and Emotion*. DOI: 10.1080/02699931.2023.2195154
- + # Sakai, J.T., Chintaluru, Y., **Winters, D.E.**, Raymond, K., McWilliams, S., Carter, R.M., Mikulich, S. (2023) A revised prosocial behavior game: Testing association with psychopathic traits and the effects of moral elevation using a randomized clinical trial. *PLOS One*.
- Winters, D.E.**, Leopold, D.R., Sakai, J.T., Carter, R.M. (2023) Resting-state connectivity underlying cognitive control's association with perspective taking in callous-unemotional traits. *Psychiatry Research: Neuroimaging*. DOI: 10.1016/j.psychresns.2023.111615
- Winters, D.E.**, Massey, S., Sakai, J.T., (2023) Adolescent substance use outcomes in response to social consequences of use: the role of empathy. *Journal of Drug Issues*. DOI: 10.1177/00220426231159303
- *+ # Richie-Halford, A., Cieslak, M., Ai, L., Caffarra, S., Covitz, S., Franco, A.R., Karipidis, I.I., Kruper, J., Milham, M., Avelar-Pereira, B., Roy, E., Sydnor, V.J., Yeatman, J.D., The Fibr Community Science Consortium (**Winters, D.E.**), Theodore D. Satterthwaite, Ariel Rokem (2022) An analysis-ready and quality-controlled resource for pediatric brain white-matter research. Scientific Data. DOI: 10.1038/s41597-022-01695-7
- + **Winters, D.E.**, Hyde, L. W. (2022). Shared Functional Network Connectivity Between Callous-Unemotionality and both Cognitive and Affective Empathy. *Journal of Affective Disorders*. DOI: 10.1016/j.jad.2022.08.103
- Winters, D.E.**, Sakai, J.T. (2022) Emotion identification for self and other associated with callous-unemotional traits and sex differences in early adolescents. *Child Psychiatry & Human Development*. DOI: 10.1007/s10578-022-01429-1
- Winters, D.E.**, Pruitt P. J., Damoiseaux J.S, Sakai, J.T. (2021). Moderating effect of CU traits on functional connectivity underlying empathy in adolescents. *Psychiatry Research Neuroimaging*. DOI: 10.1016/j.psychresns.2021.111429
- Winters D.E.**, Sakai, J.T., Carston, R.M. (2021) Resting-state network topology characterizing callous-unemotional traits in adolescence. *Neuroimage: Clinical*. DOI: 10.1016/j.nicl.2021.102878
- Winters, D.E.**, Susan M., Hopfer, C., Sakai, J.T. (2021). Moderating effects of CU traits on transdiagnostic symptoms association with suicidality in adolescents. *Child Psychiatry and Human Development*. DOI: 10.1007/s10578-021-01256-w
- Winters D.E.**, Pruitt P. J., Fukui S., Cyders M.A., Pierce B. J., Lay K., Damoiseaux J.S. (2021). Indirect paths between functional connectivity underlying heterogenous depression symptoms in adolescents via cognitive and affective empathy. *Child Psychiatry and Human Development*. DOI: 10.1007/s10578-021-01242-2
- Winters, D.E.**, Pruitt P.J., Fukui, S., Cyders, M. A., Pierce, B. J., Lay, K., Damoiseaux, J. S.

(2021). Network functional connectivity underlying dissociable cognitive and affective components of empathy in adolescence. *Neuropsychologia*. DOI: 10.1016/j.neuropsychologia.2021.107832

Winters, D.E., Brandon-Friedman, R., Yepes, G., Hinkley, J. (2020). Systematic review and meta-analysis of socio-cognitive and socio-affective processes association with adolescent substance use. *Drug and Alcohol Dependence*. DOI: 10.1016/j.drugalcdep.2020.108479

Winters, D.E., Pierce, B. J., Imburgia, T. (2020) Concrete services usage on child placement stability: Propensity score matched effects. *Child and Youth Service Review*. DOI: 10.1016/j.childyouth.2020.105362

Winters, D.E., Wu, W., Fukui, S. (2020). Longitudinal effects of cognitive and affective empathy on adolescent substance use. *Substance Use & Misuse*, 1-7. DOI: 10.1080/10826084.2020.1717537

Winters, D.E., Fukui, S., Leibenluft, E., Hulvershorn L.A., (2018). Improvements in Irritability with Open-Label Methylphenidate in Youth with Comorbid Attention Deficit/Hyperactivity Disorder and Disruptive Mood Dysregulation Disorder. *Journal of Child and Adolescent Psychopharmacology*, 28(5): 298-305.

Beerbower, E., **Winters, D.E.**, Kondrat, D. (2018). Bio-psycho-social-spiritual needs of adolescents and young adults with life-threatening illnesses: Implications for social work practice. *Social Work in Health Care*, 1-17. DOI: 10.1080/00981389.2018.1430091

Winters, D.E., Beerbower, E. (2017). Mindfulness and Meditation as an Adjunctive Treatment for Adolescents Involved in the Juvenile Justice System: Is Repairing the Brain and Nervous System Possible? *Social Work in Health Care*, 1-21. Doi:10.1080/00981389.2017.1316341

Published Book Chapters

Armstrong, E., **Winters, D.E.**, Jagers, J. (2018). Mental Health in Prison Populations. Serving the Stigmatized: Working within the Incarcerated Environment. W.T. Church and D.W. Springer, Oxford University Press.

Technical Reports for the State of Indiana

Winters, D.E., Imburgia, T., Pierce, B. J. (2017, 2018, 2019, 2020). Concrete Services Spending and outcomes for youth. Indiana Department of Child Services Child Welfare Title IV-E Waiver Demonstration Project Extension: Final Report.

Unpublished

Under Review

*+ # Pettine W.W., **Winters D.E.**, Murray, J.D., Anticevic, A., Jacob, S. (under review). A tool for longitudinal assessment of individual differences in judgment calibration during category learning. Preprint DOI: <https://doi.org/10.31234/osf.io/n32gy>

*+ # **Winters, D.E.**, Dugre J., Sakai, J.T., Carter, R.M. (under review). Executive function and underlying brain network distinctions for callous-unemotional traits and conduct problems in adolescents. Preprint DOI: <https://doi.org/10.1101/2023.10.31.565009>

*+ # Dugre J., Hopfer, C., **Winters, D.E.** (under review). The Dark Sides of the Brain: A Systematic Review and Meta-Analysis of Functional Neuroimaging Studies on Aggression. Preprint DOI: <https://doi.org/10.31234/osf.io/4zafd>

Winters, D.E., Sakai, J.T. (under review). Prosocial Behavior Limitations Associated with

Callous-Unemotional Traits are Moderated by Internalizing Symptoms.

Winters, D.E., Sakai, J.T. (under review) Callous-Unemotional Traits Association with Prosocial Behavior and the Mediating Role of Cognitive Control.

In preparation

Winters, D.E., Schacht, J., Cognitive control and brain regions implicated at various stages of alcoholism.

Winters, D.E., Connectome-Based Data-Driven Subgroups Association with Theoretical Groups of Callous-Unemotional Traits and Low Prosocial Emotion Specifier

*+ **Winters, D.E.**, Kim, H., Leopold, D. R., Carlson, K., & Banich, M. Difference in Task-Based Functional Connectivity Under Higher Cognitive Demands Unique to Callous-Unemotional Traits.