

Curriculum Vitae

Fredric Bruce Shaffer, PhD, BCB, BCB-HRV

Truman State University
Department of Psychology
School of Social and Cultural Studies
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Education

Oklahoma State University, Department of Psychology
PhD, Social-Personality Psychology, 1975
MS, Clinical Psychology, 1973

Claremont Men's College
BA, Psychology and Political Science, 1971

Certification

Biofeedback Certification International Alliance (BCIA) Senior Fellow: Biofeedback, 1982 – present, #B1264.

Biofeedback Certification International Alliance (BCIA) Heart Rate Variability Biofeedback, 2018 – present, #H4071264.

Biofeedback Certification International Alliance (BCIA) Certificate of Completion in HRV Biofeedback, 2014.

Professional Experience

Truman State University
Professor of Psychology, 1991— to present
Associate Professor of Psychology, 1981–1991
Tenure, 1979
Assistant Professor of Psychology, 1975–1981

Saybrook University
Adjunct Faculty in the College of Integrative Medicine and Health Sciences, 2009 – 2015
Adjunct Faculty in the PsyD Program, 2010–2011

Truman State University Courses

Clinical Psychology
Crisis Intervention
Experimental Psychology
General Psychology
Independent Study in Heart Rate Variability Biofeedback
Physiological Psychology
Psychological Research
Psychopharmacology
The Science of Health and Resilience

Professional Service

President, Association for Applied Psychophysiology and Biofeedback, 2022 – present.
President-Elect, Association for Applied Psychophysiology and Biofeedback, 2019 – 2022.
Treasurer, Association for Applied Psychophysiology and Biofeedback, 2015 – 2022.
Treasurer, Biofeedback Certification International Alliance, 2017 – present.
Chair, Biofeedback Certification International Alliance, 2010 – 2017.
Past-Chair, Biofeedback Certification International Alliance, 2017 – present.
Board member, Biofeedback Certification International Alliance, 2005 – present.
Co-editor, *Evidence-Based Practice in Biofeedback and Neurofeedback*, 2013 – present.
Treasurer, Foundation for Education and Research in Biofeedback and Related Sciences, 2010– 2015.
Program Chair, Association for Applied Psychophysiology and Biofeedback, 2012–2013.
Program Chair, Association for Applied Psychophysiology and Biofeedback, 2006–2008.
Consulting Editor, *Applied Psychophysiology and Biofeedback*, 2006 – present.
Contributing Editor, *Biofeedback*, 2010 – present.
Board member, Association for Applied Psychophysiology and Biofeedback, 2002–2005.
Director, Truman Center for Applied Psychophysiology, 1976 – present.

Professional Honors

Distinguished Scientist, Association for Applied Psychophysiology and Biofeedback (AAPB), March 2019.
Honorary Fellow, Association for Applied Psychophysiology and Biofeedback (AAPB), March, 2019.
Outstanding Research Mentor of the Year, Truman State University, Spring 2013.
Doris and Walker Allen Fellowship for Academic Excellence, Truman State University, Spring 2008.
Presidential Recognition Award, Association for Applied Psychophysiology and Biofeedback (AAPB), Spring 2006.
Sheila Adler Award for Distinguished Service, Association for Applied Psychophysiology and Biofeedback (AAPB), Spring 2005.

Professional Presentations

Shaffer, F., & Moss, D., & Khazan, I. (2022). BCIA HRV Didactic Workshop: Part I. Workshop. Course presented at the 51st annual meeting of the Association for Applied Psychophysiology and Biofeedback, Dallas, TX.

Shaffer, F., & Moss, D., & Khazan, I. (2021). AAPB Biofeedback Bootcamp presented at the 51st annual meeting of the Association for Applied Psychophysiology and Biofeedback, Dallas, TX.

Shaffer, F., & Moss, D., & Khazan, I. (2021). AAPB Heart Rate Variability Biofeedback Bootcamp.

Shaffer, F., & Moss, D., & Khazan, I. (2021). BCIA HRV Didactic Workshop: Part I. Workshop presented virtually.

Shaffer, F., & Moss, D., & Khazan, I. (2021). AAPB Heart Rate Variability Biofeedback Bootcamp.

Shaffer, F., & Moss, D., & Khazan, I. (2021). AAPB Biofeedback Bootcamp.

Shaffer, F., & Moss, D., & Khazan, I. (2021). BCIA HRV Didactic Workshop: Part I. Workshop presented at the virtual annual meeting of the Association for Applied Psychophysiology and Biofeedback.

Shaffer, F. (2021). Clinical Update: Distance HRV Training Strategies for COVID-19. BCIA Clinical Update series.

Shaffer, F. (2020). Practical steps to improve sleep during a Zombie Apocalypse. Talk presented at the virtual annual meeting of the Association for Applied Psychophysiology and Biofeedback.

Shaffer, F. (2020). Distance HRV biofeedback training strategies for the COVID-19 pandemic. Association for Applied Psychophysiology and Biofeedback webinar series.

Shaffer, F. (2020). Sleep - What we know and how we can help. BCIA Clinical Update series.

Shaffer, F. (2020). Sleep - What do we know and how can we improve it? Association for Applied Psychophysiology and Biofeedback webinar series.

Shaffer, F. (2019). Strategies to increase the effectiveness of HRV biofeedback. AAPB webinar series.

Khazan, I., Moss, D., and Shaffer, F. (2019). BCIA biofeedback exam preparation workshop. Course presented at the 50th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Denver, CO.

Khazan, I., & Shaffer, F. (2019). Practical strategies for teaching your clients to breathe. Course presented at the 50th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Denver, CO.

- Shaffer, F., & Moss, D., & Khazan, I. (2019). BCIA HRV Didactic Workshop: Part I. Workshop presented at the 50th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Denver, CO.
- Shaffer, F. (2019). Strategies to increase the effectiveness of HRV biofeedback. BCIA Clinical Update series.
- Khazan, I., Moss, D., Shaffer, F., & Steffen, P. (2018). BCIA biofeedback exam preparation workshop. Course presented at the 49th annual meeting of the annual meeting of the Association for Applied Psychophysiology and Biofeedback, Orlando, FL.
- Khazan, I., & Shaffer, F. (2018). Practical strategies for teaching your clients to breathe. Course presented at the 49th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Orlando, FL.
- Shaffer, F. (2018). Heart rate variability data analysis. Course presented at the 49th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Orlando, FL.
- Shaffer, F. (2018). Strategies to increase the effectiveness of HRV biofeedback. BCIA Clinical Update series.
- Shaffer, F., & Moss, D. (2018). BCIA HRV Didactic Workshop: Part I. Workshop presented at the 49th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Orlando, FL.
- Shaffer, F., & Moss, D. (2017). BCIA 2-day HRV biofeedback didactic workshop presented at the MSBMB annual meeting, Ann Arbor, Michigan.
- Shaffer, F. (2017). Lessons from the neuroscience of addiction for clinicians and Olympic coaches. Keynote address presented at the Applied Neuroscience Society of Australasia conference, Canberra, Australia.
- Shaffer, F. (2017). BCIA 2-day HRV biofeedback didactic workshop presented at the Applied Neuroscience Society of Australasia, Canberra, Australia.
- Shaffer, F. (2017). Lessons from the neuroscience of addiction. Keynote address presented at the Biofeedback Association of South Africa, Johannesburg, South Africa.
- Shaffer, F. (2017). The neuroscience of addiction. BCIA Clinical Update series.
- Shaffer, F., & Moss, D. (2017). BCIA 2-day HRV biofeedback didactic workshop presented at the Biofeedback Federation of Europe meeting, Aveiro, Portugal.
- Shaffer, F., & Moss, D. (2017). BCIA HRV Didactic Workshop: Part I. Workshop presented at the 48th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Chicago, IL.

Shaffer, F., Moss, D., & Peper, E. (2017). BCIA 5-day Biofeedback didactic workshop presented at the Biofeedback Federation of Europe meeting, Aveiro, Portugal.

Shaffer, F. (2016). How to increase the effectiveness of your HRV biofeedback practice. BCIA Clinical Update series.

Shaffer, F. (2016). How to increase the impact of HRV biofeedback. Thought Technology, Ltd. workshop, Montreal, Canada.

Shaffer, F. (2016). Lessons from the neuroscience of addiction. AAPB Webinar Series.

Shaffer, F., & Moss, D. (2016). BCIA HRV Didactic Workshop: Part I. Workshop presented at the 47th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Seattle, TX.

Shaffer, F. (2015). HRV Biofeedback: How, why, and how well does it work? Address at the Northeast Regional Biofeedback Society annual meeting, Chester, PA.

Shaffer, F., & Moss, D. (2015). BCIA HRV Didactic Workshop: Parts I and II. Workshop presented at the 23rd annual meeting of the International Society for Neurofeedback and Research, Denver, CO.

Shaffer, F. (2015). How to increase the impact of HRV biofeedback training. AAPB Webinar Series.

Shaffer, F. (2015). What's new in HRV biofeedback? BCIA Clinical Update Series.

Shaffer, F., & Moss, D. (2015). BCIA HRV Didactic Workshop: Part I. Workshop presented at the 46th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Austin, TX.

Shaffer, F., Moss, D., & Gevirtz, R. (2014). BCIA HRV Didactic Workshop: Parts I and II. Workshop presented at the 22nd annual meeting of the International Society for Neurofeedback and Research, San Diego, CA.

Shaffer, F., & Moss, D. (2014). BCIA HRV Didactic Workshop: Part I. Workshop presented at the 45th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Savannah, GA.

Shaffer, F., & Moss, D. (2014). BCIA Biofeedback didactic workshop: Parts I-III. Workshop presented at the 17th annual meeting of the Biofeedback Federation of Europe, Venice, Italy.

Shaffer, F., & Moss, D. (2014). BCIA HRV Didactic Workshop: Parts I and II. Workshop presented at the 17th annual meeting of the Biofeedback Federation of Europe, Venice, Italy.

Shaffer, F. (2014). BCIA HRV Didactic Workshop: Parts I and II. Workshop presented at the 40th annual meeting of the Biofeedback Society of Texas, San Antonio, TX.

- Shaffer, F. (2013). Psychopharmacology of ADHD. Workshop presented at the 21st annual meeting of the International Society for Neurofeedback and Research, Dallas, TX.
- Shaffer, F., & Moss, D. (2013). BCIA HRV Didactic Workshop: Parts I and II. Workshop presented at the 21st annual meeting of the International Society for Neurofeedback and Research, Dallas, TX.
- Shaffer, F. (2013). Heart rate variability basics: Part III. BCIA Clinical Update Series.
- Shaffer, F., & Moss, D. (2013). BCIA HRV Didactic Workshop: Part I. Workshop presented at the 44th annual meeting of the Association for Applied Psychophysiology and Biofeedback, Portland, OR.
- Shaffer, F. (2012). Neuroscience of addiction: Part I. BCIA Clinical Update Series.
- Shaffer, F. (2012). Heart rate variability basics: Parts I and II. BCIA Clinical Update Series.
- Shaffer, F. (2012). Lessons from the neuroscience of addiction. AAPB Virtual Learning Series.
- Shaffer, F. (2012). Psychopharmacology of depression. Workshop presented at the 20th annual meeting of the International Society for Neurofeedback and Research, Orlando, FL.
- Shaffer, F. (2012). Intermediate HRV biofeedback. Workshop presented at the 20th annual meeting of the International Society for Neurofeedback and Research, Orlando, FL.
- Moss, D., & Shaffer, F. (2012). Heart rate variability. What is heart rate variability? Workshop presented at the 43rd annual meeting of the Association for Applied Psychophysiology and Biofeedback, Baltimore, MD.
- Shaffer, F. (2011). How reliable is the resonance frequency? Paper presented at the 19th annual meeting of the International Society for Neurofeedback and Research, Carefree, AZ.
- Shaffer, F. (2011). Heart rate variability (HRV) biofeedback for beginners. Workshop presented at the 19th annual meeting of the International Society for Neurofeedback and Research, Carefree, AZ.
- Shaffer, F. (2011). Clinical update on brain anatomy and physiology. AAPB Virtual Learning Series.
- Moss, D., & Shaffer, F. (2011). Respiratory training and heart rate variability biofeedback for anxiety disorders and functional medical disorders. Workshop presented at the 43rd annual meeting of the Association for Applied Psychophysiology and Biofeedback, New Orleans, LA.

- Shaffer, F. (2011). BCIA certification preparation. Workshop presented at the 15th annual meeting of the Biofeedback Foundation of Europe, Munich.
- Shaffer, F. (2011). Finding the resonance frequency. Scientific presentation at the 15th annual meeting of the Biofeedback Foundation of Europe, Munich.
- Shaffer, F. (2011). Integrating heart rate variability (HRV) biofeedback into your clinical practice. Two-day workshop presented at the meeting of the Biofeedback Society of Florida, Orlando, Florida.
- Shaffer, F. (2011). How to integrate HRV biofeedback into your practice. Teleseminar presented for the Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F. (2010). Clinical update series 2010: Brain anatomy and physiology. Short course presented at the 41st annual meeting of the Association for Applied Psychophysiology and Biofeedback, San Diego, CA.
- Shaffer, F. (2010). How reliable is the resonance frequency? Paper presented at the 19th annual meeting of the Biofeedback Foundation of Europe, Rome, Italy.
- Shaffer, F., & Moss, D. (2010). Respiratory training and heart rate variability biofeedback for anxiety disorders and functional medical disorders. Workshop presented at the 41st annual meeting of the Association for Applied Psychophysiology and Biofeedback, San Diego, CA.
- Moss, D., & Shaffer, F. (2009). Respiratory training and heart rate variability biofeedback for anxiety disorders and functional medical disorders. Workshop presented at the 18th annual meeting of the Biofeedback Foundation of Europe, Eindhoven, The Netherlands.
- Peper, E., & Shaffer, F. (2008). Foundations of biofeedback. Workshop presented at Deson Medical, Hong Kong.
- Peper, E., & Shaffer, F. (2006). Foundations of biofeedback. Workshop presented at Deson Medical, Hong Kong.

Publications

- Anderson, J., Davis, J., & Shaffer, F. (2022). *Neurofeedback tutor: Assessment and training*. BioSource Software, LLC.
- Anderson, J., Davis, J., & Shaffer, F. (2022). *qEEG 100 testing service*. BioSource Software, LLC.
- Meehan, Z. M., & Shaffer, F. (Manuscript submitted for publication). Adding core muscle contraction to wrist-ankle rhythmical skeletal muscle tension increases respiratory sinus arrhythmia and low-frequency power.

- Moss, D., & Shaffer, F. (2022). *A Primer of biofeedback*. Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F. (2022). *Biofeedback tutor*. BioSource Software, LLC.
- Shaffer, F. (2022). *HRV biofeedback tutor*. BioSource Software, LLC.
- Shaffer, F., & Meehan, Z. M. (2022). An undergraduate program with heart: Thirty years of Truman HRV research. *Appl Psychophysiol Biofeedback*.
<https://doi.org/10.1007/s10484-022-09543-5>
- Shaffer, F., Moss, D., & Meehan, Z. M. (2022). Rhythmic skeletal muscle tension increases heart rate variability at 1 and 6 contractions per minute. *Appl Psychophysiol Biofeedback*.
<https://doi.org/10.1007/s10484-022-09541-7>
- Shaffer, F., & Meehan, Z. M. (2020). A practical guide to resonance frequency assessment for heart rate variability biofeedback. *Frontiers in Neuroscience*.
<https://doi.org/10.3389/fnins.2020.570400>
- Shaffer, F., Meehan, Z. M., & Zerr, C. L. (2020). A critical review of ultra-short-term heart rate variability norms research. *Frontiers in Neuroscience*.
<https://doi.org/10.3389/fnins.2020.594880>
- Anderson, J. S., Davis, J., & Shaffer, F. (2020). *Neurofeedback tutor: Introduction to neurofeedback*. BioSource Software, LLC.
- Physiological recording technology and applications in biofeedback and neurofeedback*. D. Moss & F. Shaffer (Eds.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Moss, D. (2019). Biofeedback. In D. Bugada, V. Bellini, E. G. Bignami, & L. F. Lorini. *Brain and heart dynamics*. Springer Nature.
- Shaffer, F., Shearman, S., Meehan, Z. M., Gravett, N., & Urban, H. (2019). The promise of ultra-short-term (UST) heart rate variability measurements: A comparison of Pearson Product Moment Correlation Coefficient and Limits of Agreement (LoA) concurrent validity criteria. In D. Moss & F. Shaffer (Eds.). *Physiological recording technology and applications in biofeedback and neurofeedback*. Association for Applied Psychophysiology and Biofeedback.
- Moss, D., & Shaffer, F. (2017). The application of heart rate variability biofeedback to medical and mental health disorders. *Biofeedback*, 45(1), 2-8.
- Shaffer, F. & Ginsberg, J. P. (2017). An Overview of heart rate variability (HRV) metrics and norms. *Frontiers in Public Health: Family Medicine and Primary Care*.
<https://doi.org/10.3389/fpubh.2017.00258>
- Moss, D., & Shaffer, F. (2016). *Foundations of heart rate variability biofeedback: A book of readings*. Association for Applied Psychophysiology and Biofeedback.

- Shaffer, F., Shearman, S., & Meehan, Z. M. (2016). The promise of ultra-short-term (UST) heart rate variability measurements. *Biofeedback*, 44(4), 229-233.
- Shaffer, F. Combatalade, D., & Peper, E. (2016). A guide to cleaner skin temperature recordings and more versatile use of your thermistor. *Biofeedback*, 44(3), 168-176.
- Shaffer, F. (2016). Repetitive strain injury (RSI). In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Wheat Ridge, CO: Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F. (2016). Vasovagal syncope. In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Wheat Ridge, CO: Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F. Combatalade, D., Peper, E., & Meehan, Z. M. (2016). A guide to cleaner electrodermal activity measurements. *Biofeedback*, 44(2), 90-100.
- Peper, E., Groshans, G. H., Johnston, J., Harvey, R., & Shaffer, F. (2016). Calibrating respiratory strain gauges: What the numbers mean for monitoring respiration. *Biofeedback*, 44(2), 101-105.
- Shaffer, F., & Bartochowski, Z. (2016). Immune function. In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Crawford, J. (2016). Biofeedback Certification International Alliance (BCIA). In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Gravett, N. (2016). Motion sickness. In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Mannion, M. (2016). Hyperhidrosis. In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Mannion, M. (2016). Tinnitus. In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Meehan, Z. (2016). Diabetes. In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.

- Shaffer, F., & Meehan, Z. (2016). Preeclampsia. In G. Tan, F. Shaffer, R. Lyle, & I. Teo (Eds.). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Moss, D. (2016). Foreword. *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Tan, G., Shaffer, F., Lyle, R., & Teo, I. (2016). *Evidence-based practice in biofeedback and neurofeedback* (3rd ed.). Association for Applied Psychophysiology and Biofeedback.
- Shaffer, F., & Schwartz, M. S. (2016). Entering the field and assuring competence. In M. S. Schwartz & F. Andrasik (Eds.). *Biofeedback: A practitioner's guide* (4th ed.). Guilford Press.
- McCraty, R., & Shaffer, F. (2015). Heart rate variability: New perspectives on physiological mechanisms, assessment of self-regulatory capacity, and health risk. *Global Advances in Health and Medicine*, 4(1), 46-61. <https://doi.org/10.7453/gahmj.2014.073>
- Shaffer, F., McCraty, R., & Zerr, C. L. (2014). A healthy heart is not a metronome: An integrative review of the heart's anatomy and heart rate variability. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2014.01040>.
- Shaffer, F. (2014). What nonprofit board members don't know can hurt them (and their organizations). *Biofeedback*, 42(2), 39-41.
- Peper, E., Booiman, A., Lin, I.-M., & Shaffer, F. (2014). Making the unaware aware: Surface electromyography to unmask tension and teach awareness. *Biofeedback*, 42(1), 16-23.
- Shaffer, F., & Combatalade, D. (2013). Don't add or miss a beat: A guide to cleaner HRV recordings. *Biofeedback*, 41(3), pp. 121-130.
- Shaffer, F., & Venner, J. (2013). Heart rate variability anatomy and physiology. *Biofeedback*, 41(1), 13-25.
- Hughes, P. A., & Shaffer, F. (2012). Certification and ethics in applied psychophysiology. W. A. Edmonds, & G. Tenenbaum (Eds.). *Case studies in applied psychophysiology: Neurofeedback and biofeedback treatments for advances in human performance*. Wiley-Blackwell.
- Shaffer, F., & Neblett, R. (2010). Practical anatomy and physiology: The skeletal muscle system. *Biofeedback*, 38(2), 57-61.
- Peper, E., Shaffer, F., & Lin, I. (2010). Garbage in; Garbage out—Identify blood volume pulse (BVP) artifacts before analyzing and interpreting BVP, blood volume pulse amplitude, and heart rate/respiratory sinus arrhythmia data. *Biofeedback*, 38(1), 19-23.
- Shaffer, F., & Moss, D. (2006). Biofeedback. In Y. Chun-Su, E. J. Bieber, & B. Bauer (Eds.). *Textbook of complementary and alternative medicine* (2nd ed.) (pp. 291-311). Informa Healthcare.