My program of research investigates emotional and behavioral processes in romantic relationships that are related to the psychological and physical well-being of individual partners as well as to the health of the relationship itself. Within this broader scope, my research focuses on three related aims: 1) identifying (dys)functional processes during couple interaction, 2) testing the efficacy of couple-based interventions designed to interrupt and/or reduce risk for engaging in dysfunctional processes, and 3) developing methods for assessing and characterizing couple interaction processes in the laboratory and daily life. I outline my work and plans for future research in these areas below.

(Dys)functional couple interaction processes

My work on couple interaction processes is grounded in a functionalist perspective that organizes communication in terms of whether it promotes or inhibits relational well-being and stability as well as individual physical and mental health; it additionally allows for outcomes of the same behavior to vary depending on the unique individual, relational, and environmental context of the couple (*B. Baucom & D. Baucom, 2022*). My early work in this area focused on couple conflict where I investigated the premise that there are individual differences in emotional sensitivity to conflict, partners are motivated to reduce aversive emotional activation, and attempts to do so often have unintended consequences that promote maladaptive outcomes (*Baucom & Atkins, 2012; Baucom & Eldridge, 2013; Eldridge & Baucom, 2012*). My colleagues and I integrated findings from a series of studies in proposing the interpersonal process model of demand/withdraw behavior which proposes that demand/withdraw behavior and both partner's emotional sensitivities are linked in a reciprocal, reinforcing cycle (*B. Baucom et al., 2011; B. Baucom et al., 2015*); a more recent replication extended the model to include emotional experience and expression (*Leo et al., 2021*). This model provides a rich conceptualization of the phenomenon that is more readily applicable to couple therapy than previous models.

My more recent work applies this functionalist perspective to the study of couple interaction processes in the context of psychopathology (anxiety disorders: *Fischer et al., 2017, 2022, 2025*; depression: *Fischer et al., 2025*; eating disorders: *Weber et al., 2019*; suicide risk: *Baucom et al., 2017, Chakravarthula et al., 2020*) and physical disease, such as cancer (*Fischer et al., 2015, Leo et al., 2024, Ramos et al., 2023, Reblin et al., 2019, Weber et al., 2023*). Collectively, this body of work investigates, and supports, the idea that the individual and relational outcomes of same interaction process vary depending on the unique individual, relational, and environmental context of the couple. Evidence documenting context-sensitive functionality provides an important foundation for tailoring couple-based interventions to better meet the needs of couples coping with a range of health concerns.

Interventions for dysfunctional processes

My work on couple-based intervention follows a similar developmental trajectory as my work on couple interaction processes. My early work focused on testing the efficacy of and predictors of response to cognitive-behavioral couple-based interventions for relationship distress (EPL: *B. Baucom et al., 2012, Fischer et al. 2019, Kliem et al., 2015; Weber et al., 2021*; Integrative Behavioral Couple Therapy: *B. Baucom et al., 2009, 2015, Christensen et al., 2010; Nasir et al., 2017*; Prevention and Relationship Education Program: *Laurenceau et al., 2004*). More recently, I've transitioned to focusing on assisting with the development of and testing the efficacy of couple-based interventions for physical disease (cancer: *Ketcher et al., 2020, 2021*; obstructive sleep apnea: *Baron et al., 2021, 2022*; stroke: *Terrill et al., 2022, 2023, in press*) and psychopathology (anorexia nervosa: *D. Baucom et al., 2017*; binge-eating disorder: *Runfola et al., 2019*). The results of these studies add to the growing body of evidence documenting the feasibility and acceptability of couple-based interventions for a wide-range of physical and mental health conditions; the efficacy of couple-based interventions for physical and mental health conditions as being at least as strong as that of many individual interventions for the same conditions; and the benefits of couple-based interventions beyond their impact on primary outcome

measures (e.g., increasing the likelihood of attending and completing treatment).

Methodological development in the assessment and characterization of interaction processes

My basic and translational research on behavioral and emotional processes is heavily reliant on measuring emotion and behavior as they occur while partners interact. Current gold standard methods for acquiring these data have produced a wealth of invaluable findings; however, these methods are also subject to a number of substantial limitations including compromised ecological validity, being time and resource intensive, and being limited in scalability. To overcome these limitations, I have developed a line of interdisciplinary research that applies passive sensing, ubiquitous monitoring, signal processing, and machine learning techniques to the study of couple interaction in both laboratory and real-life settings. These efforts have produced a number of methodological and statistical advancements that not only increase the reliability, precision, and efficiency of studying couple interaction but also that open up entirely new possibilities. For example, my team and I have developed and tested "study in a box", equipment mailing methods (*B. Baucom et al., 2017*) and methods for using online video conferencing platforms (*Perry et al., 2021*) to record couple conversations that partners have in their own homes in studies whether the sample includes participants who live across the country. We have also developed and tested rigorous and ethical methods for collecting long-term audio recordings of participant's daily lives (*B. Baucom et al., 2018; Kilshaw et al., 2024; Reblin et al., 2018; Timmons et al., 2017*). We have additionally developed new observational coding schemes (*Langer et al., 2022; Leo et al., 2019, 2021, 2024*) and new data processing methods for measuring behavioral and emotional processes during couple interaction (*B. Baucom et al., 2017; Black et al., 2011; Chakravarthula et al., 2021; Clayton et al., 2019; Lee et al., 2014; Li et al., 2020, 2021; Nasir et al., 2021; Tseng et al., 2019*). Finally, we have developed and tested new methods for modeling, interpreting, and visualizing complex affective-behavioral processes (*Adamo et al., 2021; Butner et al., 2014, 2017[a,b], 2018, in press; Leifker et al., 2020; Perry et al., 2017; Shi et al., 2025*) in both laboratory in real-life settings.

Summary and Future Directions

In sum, my three inter-related lines of research converge to provide direction for both basic relationship science and intervention research. The combined findings generate new conceptual models and create innovation in data collection methods, measurement, and data analytic techniques for testing conceptually-driven models of couple and individual functioning. The interdisciplinary nature of my work has benefitted from the involvement of collaborators in other disciplines within and beyond the social sciences and has also increased its relevance for a range of interdisciplinary applications. My research will continue to pursue both conceptual and methodological advancements in the future inspired by John Watson's century-old observation, "As our methods become better developed it will be possible to undertake investigations of more and more complex forms of behavior. Problems which are now laid aside will again become imperative, but they can be viewed as they arise from a new angle and in more concrete settings." My research seeks to realize this maxim by developing and rigorously testing sophisticated conceptual models using the best available data acquisition methods and data analytic techniques, and, when the necessary technologies are not available, collaborating with an interdisciplinary team to create them. I currently am, and plan to continue, focusing my research efforts on developing technology-facilitated methods for measuring and monitoring affective-behavioral processes in partner's daily lives through a combination of multimodal passive sensing, near real time data processing (on device and in the cloud), and rapid modeling using cutting-edge artificial intelligence models and methods (e.g., knowledge distillation). My long-term goal is to use these developments as the foundation for a just in time, adaptive intervention that can deliver a tailored intervention in the moments when it is most needed.