

CHRIS BRAMMER

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EDUCATION

Indiana University

Doctor of Philosophy, Human Performance (Exercise Physiology)
Master of Science, Kinesiology (Exercise Physiology)

Bloomington, IN

Oct 2017

Aug 2010

Truman State University

Bachelor of Science, Exercise Science

Kirksville, MO

May 2006

TEACHING EXPERIENCE

Humboldt State University, Department of Kinesiology

Lecturer

Arcata, CA

Jan 2018–Dec 2018

- Taught a graduate class on physiological measurement and data processing
- Instructed a section on assessment of muscular strength & endurance, flexibility, and balance
- Taught two sections on the structure and function of the musculoskeletal system, and the mechanics of movement

Indiana University, School of Public Health

Associate Instructor

Bloomington, IN

Aug 2012–May 2016

- Lab coordinator for undergraduate exercise physiology lab (6 semesters)
- Instructor for undergraduate exercise physiology lab (2 semesters)
- Undergraduate biomechanics lecture assistant (2 semesters)
- Undergraduate biomechanics lab instructor (7 semesters)
- Instructor for undergraduate exercise physiology lab (4 semesters). *Aug 2006–May 2009*
- Instructed personal fitness, fitness and jogging, weight training, and beginning and intermediate swimming courses.

WORK EXPERIENCE

Counsilman Center for the Science of Swimming

Data Science Consultant

Bloomington, IN

Dec 2016–Oct 2017

- Developed applications (R) to facilitate processing and feature extraction of (1) EMG and force data (10MB) and (2) respiratory flow-volume data.
- Helped graduate students determine appropriate statistical methods, scrape data from the web (Selenium), 'clean' & process data (Tidyverse), and evaluate statistical results.

Swimming Laboratory Coordinator

Aug 2012–May 2017

- Constructed a suitable valve and tubing system for metabolic measurement whilst swimming
- Established swimming maximal oxygen consumption ($\dot{V}O_{2max}$) protocols
- Responsible for maintenance (water sanitization and filtration) of 'swimming treadmill' (Endless Pool)

Davidson College

Assistant Men's and Women's Swimming Coach

Davidson, NC

Aug 2009–July 2012

- Directed team's strength and conditioning program
- Determined strategies for improving technique by implementing innovative performance measurement tools
- Developed and implemented season training plan for the sprint-event focused athletes
- Recorded, analyzed, and evaluated weekly performance test data

Dhahran Youth Swim League (DYSL)

Head Swimming Coach

Dhahran, Saudi Arabia

Mar 2010–Jun 2010

- Directed practice and training sessions as DYSL's first-ever professional coach (120 athletes, ages 5-16 years)
- Developed a team grouping and management strategy to maximize skill acquisition and performance progress

SKILLS

Computer Programming

- Highly competent in data processing and analysis using R, with experience creating data displays (ggplot2, Plotly), digital notebooks (R Markdown), and developing web applications (Shiny)
- Moderately practiced at managing and querying large databases using MySQL
- Experience in developing and deploying static web sites using HTML/CSS and Jekyll
- Working knowledge of Python (Pandas, & Selenium packages)
- Familiarity with using LaTeX to prepare scientific documents and presentations

Statistics

- Competent with supervised and unsupervised machine learning methods (linear mixed effect models, random forests, cluster analysis, factor analysis)
- Expert in the use of inferential statistics to estimate population parameters and test experimental hypotheses
- Highly skilled in the use of statistical computing, particularly exploratory data analysis techniques (data displays, re-expression, evaluating distributions, standardization, robust regression)
- Proficient with many time series analysis techniques (smoothing techniques, spectral analysis, autoregressive (AR) and moving average (MA) models)

Data Collection

- Successfully managed a team of researchers in the data collection process for both small and large-scale projects (“Ventilatory strategies in swimming” and “Chocolate milk as a recovery aid”)
- Extensive background in obtaining various physiological measurements related to the cardiovascular, respiratory, and nervous systems
- Highly committed to ensuring measurement on human subjects is valid and reliable, especially as it relates to instrumentation and experimental protocol

RESEARCH PUBLICATIONS

- Brammer, C.**, Cornett, A., & Stager, J. (2017). Lane Bias in Elite-level Swimming Competition. *Journal of Sports Sciences*, 35(3), 283-289.
- Kojima, K., **Brammer, C. L.**, Sossong, T. D., Abe, T., & Stager, J. M. (2017). In-Water Resisted Swim Training for Age-Group Swimmers: An Evaluation of Training Effects. *Pediatric Exercise Science*, 1-22.
- Cornett, A., **Brammer, C.**, & Stager, J. (2015). Current Controversy: Analysis of the 2013 FINA World Swimming Championships. *Medicine and science in sports and exercise*, 47(3), 649-654.
- Brammer, C. L.**, Cornett, A. C., & Stager, J. M. (2014). Lane bias at the 2013 World Swimming Championships. In B. Mason (Ed.), *Biomechanics and medicine in swimming XII* (pp. 558–565). Canberra: Australian Institute of Sport. (conference proceedings)
- Kojima, K., **Brammer, C.L.**, Sossong, T.D., Abe, T., & Stager, J.M. (2014). In-water resisted sprint swim training for age-group swimmers. In B. Mason (Ed.), *Biomechanics and medicine in swimming XII* (pp. 431–437). Canberra: Australian Institute of Sport. (conference proceedings)
- Brammer, C.L.**, Stager, J.M., Tanner, D.A. (2012). Beyond the “high-tech” suits: Predicting 2012 Olympic swim performances. *Measurement in Physical Education and Exercise*, 16, 183-193.
- Stager, J.M., **Brammer, C.L.**, Tanner, D.A. (2010). Identification of a bias in the natural progression of swim performance. In P. Kjendlie, R. Stallman, & J. Cabri (Eds.), *Biomechanics and Medicine Swimming XI* (pp. 294-296). Champaign: Human Kinetics. (conference proceedings)
- Brammer, C.L.** (2010). Cutaneous Input and Motorneuron Excitability. Retrieved from Indiana University Library. (Masters thesis)

RESEARCH PRESENTATIONS

- Brammer, C.**, Cornett, A., & Stager, J. (2017). Empirical Model Of Lane Bias Suggests Different Finish Order At 2016 Olympic Swimming Competition. *Medicine and Science in Sports and Exercise*, 49(5S), 151. (presented as a poster)
- Goss, C.S., Greenshields, J.T., **Brammer, C.L.**, Kojima, K., Wright, B.V., & Stager, J.M. (2017). Absence of Cardiac Drift during a Prolonged, Submaximal Swim Bout. *Medicine and Science in Sports and Exercise*, 49(5S), 719. (presented as a poster)
- Kojima, K., Jamison, P.L., **Brammer, C.L.**, & Stager, J.M. (2017). Interpopulation Variations in Height Growth: a Potential Explanation for Differences in Adolescent Swim Performance. *Medicine and Science in Sports and Exercise*, 49(5S), 5. (presented as a poster)
- Skutnik, B., Li, T., **Brammer, C.L.**, Lu, Y., & Stager, J.M. (2017). Ventilatory Strategies Of Swimmers During Submaximal Efforts. *Medicine and Science in Sports and Exercise*, 49(5S), 798. (presented as a poster)
- Skutnik, B.C., Li, T., Stager, J.M., Lu, Y., & **Brammer, C.** (2016). Ventilatory Strategies Of Competitive Swimmers During Incremental Swimming And Cycling Tests To Exhaustion. *Medicine and Science in Sports and Exercise*, 48(5S1), 455. (presented as a poster)
- Wright, B.V., **Brammer, C.L.**, Stager, J.M. (2015). Estimating swimming energy expenditure using accelerometer-based activity monitors. *Medicine and Science in Sports and Exercise*, 47, S125. (presented as a poster)
- Stager, J. M., **Brammer, C.L.**, Sossong, T., Kojima, K., Spanbauer, D., Grand, K., & Wright, B. V. (2014). Supplemental recovery nutrition affects swim performance following glycogen depleting exercise. *Medicine and Science in Sports and Exercise*, 46(5), 156. (presented as a poster)
- Brammer, C.**, & Stager, J. (2013). Swimsuit constraints favor women at the 2012 Olympic swim competition. *Medicine and Science in Sports and Exercise*, 45(5), 406-406. (oral presentation)
- Brammer, C.L.**, Koceja, D.M., & Stager, J.M. (2010). Shaving and perceptual sensory threshold. In P. Kjendlie, R.Stallman, & J. Cabri (Eds.), *Biomechanics and Medicine Swimming XI* (p. 77). Champaign: Human Kinetics. (oral presentation)
- Brammer, C.L.**, Tanner, D.A., Stager, J.M. (2009). Identification of bias in the natural progression of swim performance. *Medicine and Science in Sports and Exercise*, 41, S306. (presented as a poster)
- Kojima, K., **Brammer, C.L.**, Stager, J.M. (2009). Age Classification in USA swimming: Are current competitive age groups appropriate? *Medicine and Science in Sports and Exercise*, 41, S306. (presented as a poster)
- Wright, B.V., **Brammer, C.L.**, Stager, J.M. (2009). Five week assessment of in-water power output in competitive swimmers. *Medicine and Science in Sports and Exercise*, 41, S302. (presented as a poster)

RESEARCH GRANTS

- Counsilman-Hunsaker pool design company. **Brammer, C.**, Cornett, A., Stager, J. (July 2014). Lane assignment and distance freestyle split variability in elite-level swimming competition. Awarded \$5,000.
- Fédération Internationale de Natation (FINA). Stager, J., **Brammer, C.**, Schlader, Z., Cornett, A., Rodeo, S., Abe, T., Wright, B. (June 2014). Identification of a minimum safe water temperature for open-water swimming competition. This proposal was not funded.
- National Fluid Milk Processor Promotion Board. Stager, J., Klaunig, J., Lindeman, A., Grand, K., Stickford, J., Sossong, T., **Brammer, C.**, Spanbauer, D. (October 2012). Swimmers, got chocolate milk? Awarded \$100,000.
- USA Swimming. **Brammer, C.**, Cornett, A., Stager, J. (December 2008). Shaving, Perceptual Sensory Threshold, and Motorneuron Excitability. Awarded \$3,000.

INVITED LECTURES

- China Institute of Sport Science. (Sept 2017). Data to insight to action: Quantifying swim performance in the 21st century.
- Beijing Sport University & Shanghai Sport University. (May 2016). Data science in sport.
- Midwestern Swimming Coaching Clinic. (Aug 2013). Application of research to age-group swimming.
- Total Performance Swim Camp. (June 2007). Swimming power.