

Kyle W. Wasserberger, Ph.D., CSCS

2032 Stephanie Ct ∞ Auburn, Alabama 36830

Cell: 616.502.4969 e-mail: kwasserb@gmail.com

Mission and Vision

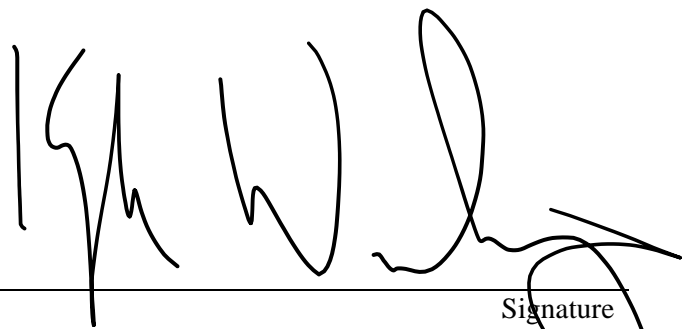
"Somewhere, something incredible is waiting to be known"

– Carl Sagan

My dad made me watch Carl Sagan's "*Cosmos*" when I was ten years old. He was not an astronomer. He was not a cosmologist. He was a mechanical engineer who had a passion for learning, regardless of subject. My dad impressed in me that same passion for – and love of – learning, questioning, and scientific discovery.

I have read the following and certify
that it is a current and accurate statement
of my professional record
as of the date below

Kyle William Wasserberger
Name



Signature

2021-10-25
Date

Education

- 2021 Doctor of Philosophy; Kinesiology
 Auburn University; Auburn, Alabama, USA
 Dissertation: *The Effect of Intensity on Overhead Throwing Mechanics: Implications for Throwing Rehabilitation*
 Advisors: Gretchen Oliver (chair); Wendi Weimar, David Shannon, William Murrah
- 2018 Master of Science; Exercise Science
 Biomechanics Emphasis
 Auburn University; Auburn, Alabama, USA
- 2016 Bachelor of Arts; Exercise Science
 Pre-professional Emphasis
 Calvin University; Grand Rapids, Michigan, USA

Employment

- 2021 – Present Sport Scientist
 Driveline Baseball
 Kent, Washington, USA
- 2018 – 2021 Graduate Teaching Assistant
 Undergraduate Research Mentor
 Auburn University
 Auburn, Alabama, USA
- 2016 – 17 Assistant Baseball Coach
 Pitching Coordinator
 Calvin University
 Grand Rapids, Michigan, USA
- 2016 – 17 Head Strength and Conditioning Coach
 Hofbauer Performance
 Byron Center, Michigan, USA

Research Statement

My research lives at the intersection of motion analysis, statistical methodology, and data visualization. Using these tools, I hope to improve understanding of the associations between movement technique, workload, performance, and injury in overhead athletic populations. To improve our understanding of these complex, real-world relationships, I have gained experience in many different motion analysis technologies as well as statistical software solutions. I have experience in both electromagnetic and passive optical motion capture as well as electromyography and force plates. To help process and analyze the biomechanical data obtained from these technologies, I have attained varying levels of proficiency in several software platforms such as The MotionMonitor xGen, Optitrak Motive, Vicon Nexus, MATLAB, RStudio, SPSS, Python, and Mplus.

My research started by examining the associations between baseball pitching mechanics and clinical assessment outcomes to connect what clinicians learn from movement assessments with what researchers learn from lab-based biomechanical analyses. I then became interested in biomechanical and statistical methodology and have since published several manuscripts bringing new analysis techniques to baseball and softball biomechanics research. In 2020, I published a paper using statistical parametric mapping to examine differences in pelvis and trunk mechanics between youth and collegiate softball pitchers. Then, earlier this year, I published a paper using energy flow analysis to examine the energetic demands placed on the shoulder and elbow during the baseball pitch. These two papers showcased research techniques previously unused in the field (in one case statistical; in the other case biomechanical). Moving forward, I hope to expand on the insights gained from using alternative statistical and biomechanical approaches and further emphasize the need for more rigorous statistical analyses in the sport sciences.

In my time with the Sports Medicine and Movement Laboratory I have published 14 manuscripts in refereed journals including 5 first author and 6 second author papers. In addition to manuscripts, I have written or help write over 30 conference abstracts and presented many of those abstracts at regional and national conferences. In 2020, I was awarded the Foundation Scholarship by the National Strength and Conditioning Association; one of several awards given to graduate students around the United States for furthering the strength and conditioning profession through their studies and research.

Peer-Reviewed Manuscripts

(organized by year of publication; accepted manuscripts ahead of print are included in the year they were accepted)

† = indicates undergraduate or masters student author under my supervision

2021

1. Plummer H, Bordelon NM, **Wasserberger KW**, Opitz TJ, Oliver GD. Associations between Hip Range of Motion and Pitching Kinematics in High School Baseball Pitchers. *International Journal of Sports Physical Therapy* (**IF: 2.550**). 2021; xx(xx): xxxx – xxxx.
2. **Wasserberger KW**, Giordano KA, de Swart A†, Barfield JW, Oliver GD. Energy Generation, Absorption, and Transfer at the Shoulder and Elbow in Youth Baseball Pitchers. *Sport Biomechanics* (**IF: 2.832**). 2021; xx(xx): xxxx – xxxx.
3. Downs JL, **Wasserberger KW**, Saper M, Oliver GD. Elbow Valgus Loading Rate and Upper Extremity Anthropometric Measures and Elbow Kinetics in Youth Baseball Pitchers. *American Journal of Sports Medicine* (**IF: 6.202**). 2021; xx(xx): xxxx – xxxx.
4. **Wasserberger KW**, Friesen KB, Downs JL, Bordelon NM, Oliver GD. Comparison of pelvis and trunk kinematics between youth and collegiate softball pitchers. *Orthopaedic Journal of Sports Medicine* (**IF: 2.727**). 2021; xx(xx): xxxx – xxxx.
5. Bordelon NM, **Wasserberger KW**, Cassidy M†, Oliver GD. The Effect of Load Magnitude and Placement on Muscle Activation during Unilateral Dumbbell Carries. *Journal of Strength and Conditioning Research* (**IF: 3.775**). 2021; 35: S114 – S119.
6. Downs JL, **Wasserberger KW**, Oliver GD. The Influence of a Pre-throwing Protocol on Shoulder and Hip Range of Motion Over the Course of a Season in High School Baseball Athletes. *International Journal of Sports Medicine* (**IF: 3.118**). 2021; 42(02): 183 – 190.
7. Oliver GD, **Wasserberger KW**, de Swart A†, Friesen KB, Downs JL, Bordelon NM. Effects of Hip Range of Motion and Isometric Strength on Energy Flow during Windmill Softball Pitching. *Journal of Athletic Training* (**IF: 2.860**). 2021; 56(3): 280 – 285.
8. Barfield JW, **Wasserberger KW**, Bordelon NM, Oliver GD. Relationship Between Humeral Energy Flow During the Baseball Pitch and Glenohumeral Stability. *International Journal of Sports Medicine* (**IF: 3.118**). 2021; 42(08): 760 – 765.

2020

9. **Wasserberger KW** & Downs JL, Barfield JW, Williams TK†, Oliver GD. The Effects of Elastic Resistance Bands on Lumbopelvic-Hip Complex and Scapular Stabilizing Muscle Activation during Four Full-Body Exercises. *Journal of Strength and Conditioning Research* (**IF: 3.775**). 2020; 34(10): 2840 – 2848.
10. Friesen KB, Downs JL, **Wasserberger KW**, Shannon D, Oliver GD. Glenohumeral and Hip Range of Motion in Youth Softball Athletes. *International Journal of Sports Medicine* (**IF: 3.118**). 2020; 41(01): 59 – 64.
11. **Wasserberger KW**, Barfield JW, Downs JL, Oliver GD. Glenohumeral External Rotation Weakness Partially Accounts for Increased Humeral Rotation Torque in Youth Baseball Pitchers. *Journal of Science and Medicine in Sport* (**IF: 4.319**). 2020; 23(4): 361 – 365.
12. Brittain AR, Friesen KB, **Wasserberger KW**, Barfield JW, Oliver GD. Single Leg Squat Performance and Reported Pain within Youth Softball Players. *Applied Sciences* (**IF: 1.689**). 2020; 10(5): 1648.

2019

13. **Wasserberger KW**, Barfield JW, Anz A, Andrews J, Oliver GD. Using the Single Leg Squat as an Assessment for Efficient Stride Leg Knee Mechanics in Adolescent Baseball Pitchers. *Journal of Science and Medicine in Sport* (IF: 4.319). 2019; 22(11): 1254 – 1259.
14. Giordano KA, **Wasserberger KW**, Barfield JW, Oliver GD. Acute and Chronic Kinematic Effects of a Resistance Tubing Training Device on Youth Baseball and Softball Swings. *Journal of Athletic Enhancement* (IF: 1.540). 2019; 8(6): xxxx – xxxx.

In review

1. Giordano KA, **Wasserberger KW**, Oliver GD. The Effects of Cervical and Body Positioning on Shoulder External Rotation Strength. *Clinical Orthopaedics and Related Research*.
2. Barfield JW, Bordelon NM, **Wasserberger KW**, Oliver GD. Closed Kinetic Chain Upper Extremity Stability Test Kinematic Differences between Healthy and Previously Injured Baseball Pitchers. *Journal of Athletic Training*.
3. Giordano KA, **Wasserberger KW**, Watterson MW[†], Oliver GD. The Effects of Hip Rotation during the Pitch on Shoulder Kinetics in Youth Baseball Pitchers. *Journal of Science and Medicine in Sport*.

In preparation

1. Bordelon NM, **Wasserberger KW**, Oliver GD. Pelvis and Trunk Energy Flow in Collegiate Softball Pitchers with and without Upper Extremity Pain. *Expected submission within 6 months*.
2. **Wasserberger KW**, Giordano KA, Bordelon NM, Oliver GD. Upper Extremity Muscle Activity and Strength during Isometric Glenohumeral Internal and External Rotation in Commonly Used Testing Positions. *Expected submission within 12 months*.
3. **Wasserberger KW**, Murrah HW, Oliver GD. Multilevel regression modeling as an Alternative to Traditional Repeated Measures Analysis of Variance for Sport Biomechanics Applications. *Expected submission within 12 months*.
4. **Wasserberger KW**, Oliver GD. Within and Between Thrower Changes in Shoulder and Elbow Joint Loads with Increasing Effort during a Typical Throwing Warm-Up. *Expected submission within 12 months*.
5. Bordelon NM, **Wasserberger KW**, Friesen KF, Talmage JD, Washington JK, Oliver GD. Description of Energy Flow through the Kinetic Chain during Softball Batting. *Expected submission within 9 months*.

Conference Abstracts and Presentations

(organized by conference date)

† = indicates undergraduate or masters student author under my supervision

2021

1. Bordelon NM, **Wasserberger KW**, Giordano KA, Cassidy MM, Mendel J, Oliver GD. Muscle Activation and Peak Torque Analysis during Commonly Used Shoulder Rotational Strength

Testing Positions. 2021 National Strength and Conditioning Association Annual Conference. Orlando, FL, USA. July 6 – 10, 2021. *Poster Presentation.*

2. Plummer HA, Bordelon NM, **Wasserberger KW**, Opitz TJ, Anz AW, Oliver GD. Association between hip range of motion, strength, and pitching kinematics and kinetics in high school baseball pitchers. 2021 Society for American Baseball Research Virtual Analytics Conference. March 11-14, 2021. *Podium presentation.*

**virtual conference due to COVID-19*

3. Cassidy MM[†], Bordelon NM, **Wasserberger KW**, Giordano KA, Oliver GD. Electromyographic Analysis of Shoulder Rotation Strength Testing Positions. 2021 Annual Meeting of the Southeast Chapter of the American College of Sports Medicine. Greenville, SC, USA. February 18-19, 2021. *Poster presentation.*

**virtual conference due to COVID-19*

4. Bordelon NM, **Wasserberger KW**, Downs JL, Friesen KB, Giordano KA, Fava A, Brittain AR, Washington JK, Oliver GD. Comparison between Front and Back Side Upper Extremity and Pelvis Segment Energy Flow during the Softball Swing. 2021 Annual Meeting of the Southeast Chapter of the American College of Sports Medicine. Greenville, SC, USA. February 18-19, 2021. *Poster presentation.*

**virtual conference due to COVID-19*

5. Maddox L[†], **Wasserberger KW**, Giordano KA, Oliver GD. Associations between a Pitcher's Arm Slot and Shoulder Joint Loads. 2021 Annual Meeting of the Southeast Chapter of the American College of Sports Medicine. Greenville, SC, USA. February 18-19, 2021. *Poster presentation.*

**virtual conference due to COVID-19*

6. Skinner MG[†], Giordano KA, Friesen KB, **Wasserberger KW**, Downs JL, Oliver GD. Association of Upper Extremity Pain and Preparatory Softball Pitch Kinematics. 2021 Annual Meeting of the Southeast Chapter of the American College of Sports Medicine. Greenville, SC, USA. February 18-19, 2021. *Poster presentation.*

**virtual conference due to COVID-19*

2020

7. Cassidy M[†], Bordelon NM, **Wasserberger KW**, Oliver GD. Electromyographic Analysis of Shoulder Strength Testing Positions. 2020 Auburn University COSAM Research Fair. Auburn, AL, USA. November 5, 2020. *Poster presentation.*

**virtual conference due to COVID-19*

8. Maddox L[†], **Wasserberger KW**, Giordano KA, Oliver GD. Associations between a Pitcher's Arm Slot and Shoulder Joint Loads. 2020 Auburn University COSAM Research Fair. Auburn, AL, USA. November 5, 2020. *Poster presentation.*

**virtual conference due to COVID-19*

9. Bordelon NM, **Wasserberger KW**, Down JL, Friesen KB, Washington JK, Oliver GD. The Relationship between Humeral Segment Energy and Hand Angular Velocity in Softball Hitting. 2020 American Society of Biomechanics Annual Conference. Atlanta, GA, USA. August 4 – 7, 2020. *Poster presentation.*

**virtual conference due to COVID-19*

10. Barfield JW, **Wasserberger KW**, Oliver GD. Bilateral Differences in Lumbopelvic-Hip Complex Kinematics during the CKCUEST. 2020 American Society of Biomechanics Annual Conference. Atlanta, GA, USA. August 4 – 7, 2020. *Poster presentation.*

**virtual conference due to COVID-19*

11. **Wasserberger KW**, Giordano KA, Downs JL, Oliver GD. Humeral Energy Transfer and Glenohumeral Rotation Strength in Adolescent Baseball Pitchers. 2020 American Society of Biomechanics Annual Conference. Atlanta, GA, USA. August 4 – 7, 2020. *Poster presentation.*

**virtual conference due to COVID-19*

12. Bordelon NM, **Wasserberger KW**, Cassidy M[†], Oliver GD. The Effect of Unilateral Dumbbell Carries on Lumbopelvic-Hip Complex Muscle Activation. 2020 NSCA National Conference. Las Vegas, NV, USA. July 8 – 11, 2020. *Poster Presentation*.
13. Cassidy M[†], Bordelon NM, **Wasserberger KW**, Oliver GD. The Effect of Load Magnitude on Muscle Activation during Unilateral Overhead Dumbbell Carries. Auburn University COSAM Research Fair. April 9, 2020. *Poster presentation*.
14. Cassidy M[†], Bordelon NM, **Wasserberger KW**, Oliver GD. The Effect of Load Magnitude on Muscle Activation During Unilateral Overhead Dumbbell Carries. 2020 Mid-South Biomechanics Conference. Memphis, TN, USA. February 20 – 21, 2020. *Oral presentation*.
15. Giordano KA, **Wasserberger KW**, Oliver GD. The Effects of Cervical Positioning and Mobilization on Shoulder External Rotation Strength. 2020 Combined Sections Meeting of the American Physical Therapy Association. Denver, CO, USA. February 12 – 15, 2020. *Poster presentation*.
16. **Wasserberger KW**, Downs JL, Giordano KA, Oliver GD. Humeral Segment Energy and its Relationship to Clinical Glenohumeral Measures in Youth Baseball Pitchers. 2020 Southeast American College of Sports Medicine Annual Conference. Jacksonville, FL, USA. February 13 – 15, 2020. *Oral presentation*.
17. Young MW[†], **Wasserberger KW**, Downs JL, Giordano KA, Washington JK, Oliver GD. Does Pitch Location Affect Hitting Mechanics in Collegiate Softball Players? 2020 Southeast American College of Sports Medicine Annual Conference. Jacksonville, FL, USA. February 13 – 15, 2020. *Oral presentation*.
18. Brittain AR, Friesen KB, **Wasserberger KW**, Downs JL, Giordano KA, Bordelon NM, Oliver GD. Associations between Single Leg Squat Stability and Overhead Throwing Kinetics in Youth Softball Athletes. 2020 Southeast American College of Sports Medicine Annual Conference. Jacksonville, FL, USA. February 13 – 15, 2020. *Oral presentation*.
19. Downs JL, Friesen KB, **Wasserberger KW**, Giordano KA, Brittain AR, Bordelon NM, Oliver GD. Association between Pitching a Simulated Game and Pitching Performance in Youth Softball Pitchers. 2020 Southeast American College of Sports Medicine Annual Conference. Jacksonville, FL, USA. February 13 – 15, 2020. *Poster presentation*.
20. Friesen KB, Downs JL, **Wasserberger KW**, Giordano KA, Bordelon NM, Brittain AR, Oliver GD. Body Mass Index Affects Kinematic and Kinetic Parameters during the Windmill Softball Pitch. 2020 Southeast American College of Sports Medicine Annual Conference. Jacksonville, FL, USA. February 13 – 15, 2020. *Poster presentation*.
21. Bordelon NM, Cassidy M[†], **Wasserberger KW**, Downs JL, Friesen KB, Brittain AR, Giordano KA, Oliver GD. The Effects of Load Magnitude and Placement on Muscle Activity during Unilateral Weighted Dumbbell Carries. 2020 Southeast American College of Sports Medicine Annual Conference. Jacksonville, FL, USA. February 13 – 15, 2020. *Oral presentation*.
22. Watterson MW[†], Giordano KA, **Wasserberger KW**, Downs JL, Oliver GD. Impact of Hip Internal and External Rotation on Shoulder Kinetics during a Baseball Pitch. 2020 Southeast American College of Sports Medicine Annual Conference. Jacksonville, FL, USA. February 13 – 15, 2020. *Oral presentation*.

2019

23. **Wasserberger KW**, Downs JL, Giordano KA, Brittain AR, Oliver GD. Associations between Glenohumeral Rotation Strength and Select Kinetic Parameters during the Baseball Pitch in Adolescent Baseball Pitchers. The 37th International Society of Biomechanics in Sports Annual Conference. Oxford, Ohio, USA. July 21 – 25, 2019. *Poster presentation*.
24. **Wasserberger KW**, Friesen KB, Barfield JW, Oliver GD. The Association between Single-Leg Squat Performance and Stride Leg Kinematics in Adolescent Baseball Pitchers. The 43rd Annual

Meeting of the American Society of Biomechanics and the XXVII Congress of the International Society of Biomechanics Joint Conference. Calgary, Alberta, Canada. July 31 – August 4, 2019.

Poster presentation.

25. **Wasserberger KW**, Barfield JW, Giordano KA, Young MW[†], Oliver GD. Acute Effects of Resistance Tubing Device on Hand Path in Youth Baseball and Softball Hitters. 2019 Southeast American College of Sports Medicine Annual Conference. Greenville, South Carolina, USA. February 14 – 16, 2019. *Podium presentation.*
26. Giordano KA, Barfield JW, **Wasserberger KW**, Oliver GD. Effects of a Resistance Tubing Training Device Intervention on Youth Baseball and Softball Swings. 2019 Southeast American College of Sports Medicine Annual Conference. Greenville, South Carolina, USA. February 14 – 16, 2019. *Podium presentation.*

2018

27. **Wasserberger KW**, Downs JL, Williams TK[†], and Oliver GD. The Effects of Resistance Bands on Trapezius Activity during Full-Body Exercises. The 42nd Annual Meeting of the American Society of Biomechanics. Rochester, Minnesota, USA. August 8 – 11, 2018. *Poster presentation.*
28. Friesen KB, **Wasserberger KW**, Downs JL, Washington JK, Williams TK[†], and Oliver GD. A comparison of total body band-resisted exercises on gluteus medius activation. The 42nd Annual Meeting of the American Society of Biomechanics. Rochester, Minnesota, USA. August 8 – 11, 2018. *Poster presentation.*
29. **Wasserberger KW**, Washington JK, Gilmer GG[†], and Oliver GD. Correlation of trunk and upper extremity kinematics at ball contact in the softball swing: a pilot study. 2018 Southeast American College of Sports Medicine. Chattanooga, Tennessee, USA. February 15 – 17, 2018. *Poster presentation.*
30. Hanks MM, Brewer LE, Gilmer GG[†], Washington JK, Gascon SS, Barfield JW, Williams PT, Friesen KB, **Wasserberger KW**, Downs JL, Brittain AR, Oliver GD. *The influence of self-selected protective equipment on kinematics in youth lacrosse players.* 2018 Southeast American College of Sports Medicine. Chattanooga, Tennessee, USA. February 15 – 17, 2018. *Poster presentation.*

Invited Presentations

2019

1. **Wasserberger KW**, Barfield JW, Anz A, Andrews J, Oliver GD. Using the Single Leg Squat as an Assessment for Efficient Stride Leg Knee Mechanics in Adolescent Baseball Pitchers. Alabama Physical Therapy Association Annual Conference. Homewood, AL, USA. August 16 – 17, 2019.

Research Collaborators

Andrews, James R.	Andrews Research Institute & Education Foundation; Gulf Breeze, Florida, USA
Anz, Adam W.	Andrews Research Institute & Education Foundation; Gulf Breeze, Florida, USA
Barfield, Jeff W.	Lander University; Greenwood, South Carolina, USA
Bordelon, Nicole M.	Auburn University; Auburn, Alabama, USA
Brittain, Abby R.	Auburn University; Auburn, Alabama, USA
Fava, Anthony W.	Auburn University; Auburn, Alabama, USA
Friesen, Kenzie B.	University of Saskatchewan; Saskatoon, Saskatchewan, Canada

Giordano, Kevin A.	Creighton University; Phoenix, AZ, USA
Hanks, Mathew M.	University of Wisconsin-Milwaukee; Milwaukee, Wisconsin, USA
Oliver, Gretchen D.	Auburn University; Auburn, Alabama, USA
Opitz, Tyler J.	Andrews Research Institute & Education Foundation; Gulf Breeze, Florida, USA
Plummer, Hillary A.	U.S. Department of Defense; Belcamp, MD, USA
Saper, Michael G.	Seattle Children's Hospital; Seattle, Washington, USA
de Swart, A.	Vrije Universiteit; Amsterdam, Netherlands
Talmage, Jessica D.	Northern State University; Aberdeen, SD, USA
Trigt, B.V.	Vrije Universiteit; Amsterdam, Netherlands
Veeger, H.E.J.	Vrije Universiteit; Amsterdam, Netherlands
Washington, Jessica K.	Berry College; Mount Berry, Georgia, USA

Teaching Experience

Key: DEPARTMENT Class# – Class Title (credit hours) (semesters of experience)

KINE = Kinesiology

PHED = Physical Education

KINE 1103 – Wellness (2 credit hours) (2 semesters)

- Basic concepts and principles of wellness with laboratory experiences for the self-appraisal of health-related physical fitness.

KINE 3621 – Biomechanics of Human Movement Laboratory (1 credit hour) (5 semesters)

- Laboratory experience focuses on application of knowledge of anatomical, neuromuscular, and biomechanical principles of human movement. Content emphasizes understanding the science of exercise, how to apply and interpret common mechanical measures, and writing about findings using basic scientific writing techniques.

KINE 4403 – Applied Anatomy for the Allied Health Professional (3 credit hours) (2 semesters)

- Study of skeletal anatomy with an applied approach.

KINE 4560 – Sport Technique and Movement Analysis (3 credit hours) (1 semester)

- Skills and knowledge for observing, evaluating, and correcting movement patterns.

KINE 4880 – Training and Conditioning Programming (3 credit hours) (3 semesters)

- Skills and knowledge related to sport specific annual training regimens.

PHED 1383 – Kettlebell Training (2 credit hours) (1 semester)

- Introductory approach to kettlebell techniques and kettlebell program development.

Professional Memberships

2020 – Present American Baseball Biomechanics Society

2018 – Present International Society of Biomechanics in Sport

2018 – Present American Society of Biomechanics

2017 – Present American Kinesiology Association

2017 – Present American College of Sports Medicine

2016 – Present National Strength and Conditioning Association

2018 – 2019 Honor Society of Phi Kappa Phi

2015 – 2016 NCAA Division III Student Athlete Advisory Committee

Professional Certifications

2016 – Present Certified Strength and Conditioning Specialist®
National Strength and Conditioning Association

2016 – Present First Aid, CPR, AED
American Heart Association

Honors and Awards

2020
Foundation Scholarship; National Strength and Conditioning Association \$2,000

Service

June 2019 Volunteer Group Organizer
Auburn Kinesiology Summer Sports Science Camp

2018 – 2019 Student Social Subcommittee
American Society of Biomechanics

2018 – 2019 Student Information Dissemination Subcommittee
American Society of Biomechanics