Wendi Hannah Weimar
School of Kinesiology
Auburn University

Present Rank: Associate Professor
Years at Auburn: 13 years
Graduate Faculty Status Granted: 2004
College: Education
Pay basis: 9 months
Type of Appointment: Tenured

Service elsewhere: Five years at Colonie Central High School, Albany, NY (physics and chemistry teacher)

Education

PhD, Auburn University, 1999.
Major: Exercise Science-Biomechanics
Dissertation Title: The Influence of the Coriolis Effect on the Joint Dynamics of a Martial Art Front Kick

MEd, University of Virginia, 1991.
Major: Adapted Physical Education
Supporting Areas of Emphasis: Biomechanics
Thesis Title: The Effects of Modeling on the Performance of a Non-Learning Motor Task

BS, Castleton State College, 1989.
Dual Major: Secondary Education and Physics & Chemistry

Professional Experience:

Auburn University	Associate Professor	2005-present
Auburn University	Assistant Professor	1999-2005
Auburn University	Doctoral Student	1997-1999
Colonie Central High School	Science Teacher	1991-1996
Union College	Asst. Field Hockey Coach	1992-1996

Percentage breakdown for the allocation of time and effort:

100% Teaching	1999
60% Teaching, 30% Research, 10% Outreach	2000-2009
60% Teaching, 25% Research, 10% Outreach, 5% Service	2010-2013
100% Teaching, Summers	1999-2013

Honors and Awards

Outstanding Graduate Mentor, Graduate School, Auburn University (2011)
In recognition of excellence, innovation and effectiveness in mentoring graduate students for their professional and personal development.

Emily and Gerald Leischuck Outstanding Graduate Faculty Teaching Award, College of Education (2009)
For outstanding contribution to the teaching of graduate students

OCMMIE Award, Office of Communications and Mass Marketing (2009)
For the most widely publicized research and the project that brought the most positive publicity to Auburn University

Who's Who Among America's Teachers, Who's Who (2003-2005)
Nominated by students to the national organization

Honorary Golden Key Member, Golden Key (2002)
The Golden Key is an academic honors association that recognizes the top achieving juniors and seniors in all academic fields. Periodically they induct faculty members (on an honorary basis) who have been nominated by the students and who have supported the development of students

Inducted into Phi Kappa Phi (1999)
The Honor Society of Phi Kappa Phi is the oldest and most selective academic honor society dedicated to the recognition and promotion of academic excellence in all fields of higher education.

Invited Faculty, Auburn University Athletics Academic Top Tigers Award (2002)-Tyanne Fries

Mission Statements

Auburn University is a land grant institution whose mission is Teaching, Research and Outreach.

The mission of the School of Kinesiology at Auburn University is to promote the creation and application of knowledge about physical activity and performance, create and implement an invigorating learning environment for undergraduate and graduate students, and improve the health and wellness of society through research, outreach, and teaching.

The Biomechanics Program mission focuses on promoting movement optimization with the primary focus being on lower extremity mechanics. The laboratory is sustained by an extensive movement analysis program and technology development.

Research

Research statement:
My research interest is focused primarily on the lower extremity, particularly, the influence of footwear on the kinematics and kinetics of gait. This research has far reaching implications as our of understanding of footwear begins to shed light on foot development in children and the role of shoes in slips, trips and falls in occupational settings as well as in the elderly population.

Books

Hamilton, N., **Weimar, W.,** and Luttgens, K. (2011). *Kinesiology: Scientific basis of human motion* (12th ed.,). New York City, NY: McGraw Hill.
At last report, this is the third most popular Kinesiology book on the market.

Hamilton, N., **Weimar, W**., Luttgens, K. (2007). *Kinesiology: Scientific basis of human motion* (11th ed.,). New York City, NY: McGraw Hill.

Book Chapter

Hastie P, Miller M, Oliver GD, & **Weimar W**. (in press). Tameka: Curves. In K. Armour [Ed.]. *Pedagogical cases in sport, exercise and movement.* London UK: Rutledge.

Refereed Journal Articles
*indicates students

Lead author takes responsibility for manuscript preparation for publication. In addition, the lead author often takes responsibility for handling further correspondence related to the publication. Others listed are presented in descending order of contribution with the exception of the last author. The last author is often the director who provides a substantial contribution to the development and execution of the project.

Weimar, W. & Shroyer, J.* (2013). Arch height index normative values of college-aged women using the arch height index measurement system. *Journal of American Podiatric Medical Association* 103(3), pp. 213-217.
This article was featured on MDLinx.

Knight, A. C.* & **Weimar, W**. (2012). Development of a fulcrum methodology to replicate the lateral ankle sprain mechanism and measure dynamic inversion. *Sport Biomechanics* 11(3), pp.402-413.

Knight, A. C.*, & **Weimar, W**. (2012). Effects of ankle taping and previous injury on the latency of the peroneus longus. S*port Biomechanics* 11(1), pp. 48-56.

Knight, A. C.* & **Weimar, W**. (2012). Effects of inversion perturbation after step down task on the latency of the peroneus longus and peroneus brevis. *Journal of Applied Biomechanics* 27, pp. 283-290.

Angle, T.C.*, Gillette, R., & **Weimar, W**.H. (2012). Kinematic analysis of maximal movement initiation in Greyhounds. *Australian Veterinary Journal* 90(3), pp. 60-68.

Angle, T.C.*, Gillette, R., & **Weimar, W**.H. (2012). Caudal displacement during movement initiation and its implications for possible injury mechanisms. *Veterinary & Comparative Orthopaedics and Traumatology* 25(5), pp. 397-401.

Weimar, W., Martin, E. V. & Wall, S. (2011). Kindergarten students' movement responses to cues and modeling. *Physical Education and Sport Pedagogy*, 16(3), pp. 213-222.

Robinson, L., Rudisill, M., **Weimar, W**., Shroyer, J. F.*, Breslin, C. M.*, Morera, M.* (2011). Footwear and locomotor skill performance in preschoolers. *Perceptual and Motor Skills*, 113(2) pp. 534-538.

Knight, A. C.* & **Weimar, W**. (2011). Difference in response latency of the peroneus longus between the dominant and non-dominant leg. *Journal of Sport Rehabilitation*, 20(3), pp.321-332.

Knight, A. C.* & **Weimar, W**. (2011). Effects of ankle taping on single and double leg balance. *Sport Science Review, 19*, pp. 5-19.

Urbin, M. A.*, Stodden, D. F., Fischman, M., **Weimar, W**. (2011). Impulse-variability theory: Implications for ballistic, multi-joint motor skill performance. *Journal of Motor Behavior, 43*(3), pp. 275-283.

Shroyer, J.* & **Weimar, W**. (2010). Comparative analysis of human gait while wearing flip-flops versus wearing sneakers. *Journal of American Podiatric Medical Association, 100(4),* pp. 251-257.

Breslin, C. M., Garner, J. C.*, Rudisill, M., Parish, L. E., St Onge, P. M., Campbell, B. J.*, & **Weimar, W**. (2009). The influence of task constraints on the humeral lag of the overarm throw of novice throwers. *Research Quarterly in Exercise and Sport, 80*(2), pp. 375-379.

Garner, J. C.*, Blackburn, T., **Weimar, W**., & Campbell, B. J.* (2008). Comparison of electromyographic activity during an eccentrically loaded versus concentrically loaded isometric muscle contractions. *Journal of Electromyography and Kinesiology, 18*(3), pp. 466-471.

Wade, C.*, Davis, G., Marzilli, S., & **Weimar, W**. (2006). Information processing capacity while wearing personal protective eyewear. *Ergonomics, 49*(10), pp. 955-967.

Wade, L. C.*, **Weimar, W**., & Davis, G. (2004). Effect of personal protective eyewear on postural stability. *Ergonomics, 47*(15), pp. 1614-1623.

Weimar, W. (2002). Computers and physical education. *Teaching Elementary Physical Education*, 13 (6).

Wang, Y., Pascoe, D.D. & **Weimar, W.** (2001). Evaluation of book backpack load during walking. *Ergonomics, 44*(9), pp. 859-869.

Weimar, W. (2001). Physical education and science. *Teaching Elementary Physical Education,*12(3).

Weimar, W. (2001). Brain research. *Teaching Elementary Physical Education,*12(3).

Martin, E., **Weimar, W.**, & Schnuelle, D. (1999). Respectful competition, movement activities, and technology. *Teaching Elementary Physical Education,*10(3).

Martin, E., Schnuelle, D. & **Weimar, W.** (1999). Benefits, behavior, and building the perfect program. *Teaching Elementary Physical Education*, 9(3).

Martin, E., **Weimar, W.** & Schnuelle, D. (1998). The internet, learning styles and appropriate practice. *Teaching Elementary Physical Education*. 9(4).

Martin, E., **Weimar, W.** & Schnuelle, D. (1998) Active youth and physical education in the next decade. *Teaching Elementary Physical Education*, Vol. 9 (5).

Martin, E., **Weimar, W.** & Schnuelle, D. (1998). Advice for parents, preservice teachers and others on a budget. *Teaching Elementary Physical Education*, Vol. 9 (6).

Hughes, C., **Weimar, W.**, Sheth, P. P., Brubaker, C. (1992). Biomechanics of wheelchair propulsion as a function of seat position and user-to-chair interface. *Archives of Physical Medicine and Rehabilitation, 73*(3), pp. 263-269.

Invited Contributions

Manuscripts:

Knight, A.C. & **Weimar, W.H.** (2012). Peroneal latency's role in inversion ankle sprain. *Lower Extremity Review* 4(5), pp. 61-68.
Following a series of peer reviewed articles on ankle sprain mechanics, the editors of Lower Extremity review asked that we submit a manuscript that encapsulated the findings and implications of our work.

Shroyer, J.F. & **Weimar, W.H.** (2010). Flip-flops: Fashionable but functionally flawed. *Lower Extremity Review* 2(9), 49-53.
Based on the international popularity of our research on flip-flops, we were contacted by the editors of Lower Extremity Review to submit a manuscript further delineating our findings regarding flip-flops and gait.

Consultant:

Discovery Channel Documentary: XMA: Extreme Martial Arts
As a result of my work on the kinematics of the marital art front kick, I was asked by the producers of Base Productions to be a part of this television program.

Professional Witness/Biomechanics/Forensics Consultant – due to my national reputation in biomechanics, I have been contacted by 3 attorneys to consult on cases ranging from automobile accidents, the influence of gunshot wounds on gait and postural control and using anthropometrics to identify suspected criminals.

Presentation:

Georgia Athletic Trainer's Annual Conference (2013). " Using Dartfish to analyze movement." Following a presentation at Southeast American College of Sports Medicine Annual Conference, I was asked to present to the Athletic Trainers in Atlanta, Ga. This hour long presentation was the only presentation of the conference at that time.

Dartfish National Users Conference as a presenter 2010 – Workshop symposium
Dartfish is a movement analysis software program. Due to my national reputation as an expert in movement analysis and the use of this software, the company invited me to present to the first user's conference at the Olympic Training Center in Colorado Spring, CO.

Lectures:

Columbus State University – "Biomechanics of Skill Analysis" (2000-2005)
Internal Revenue Service yearly meeting – "Biomechanics of Strength and Conditioning" (2004)
Georgia State University – "The Influence of the Coriolois Effect of on the Knee During Kicking" (2001).
Auburn University Sports Medicine Program – "The Biomechanics of Gait" (2000)
***Based on my national reputation I was contacted and invited to speak to # number of people in # program for #**

Peer Reviewed Papers in Conference Proceedings

*There are no page numbers for conferences starting in 2012, as the full program is only available online. These are three page summary papers.

Weimar, W., Romer, B*., Fox, J.*, Patel, J.*, & Rehm, J.*, (2013). Cadence effects on shod gait kinematics, *37th Annual American Society of Biomechanics Meeting*, Omaha, NE.

Patel, J. H.*, Jagodinsky, A. E.*, Oliver G.D., & **Weimar, W.H**. (2013). The role of pelvic girdle position in force development and electromyography of the Latissimus Dorsi. *37th Annual American Society of Biomechanics Meeting*, Omaha, NE.

Romer, B.*, Fox, J.*, Patel, J.*, Rehm, J.*, & **Weimar, W**. (2013). Fixed cadence effect on shod & barefoot gait kinematics. *37th Annual American Society of Biomechanics Meeting*, Omaha, NE.

Jagodinsky, A.*, Fox, J.*, Rehm, J.*, Romer, B.*, Patel, J.*, & **Weimar, W**. (2013). A comparison of electromyography from four loading configurations. *37th Annual American Society of Biomechanics Meeting*, Omaha, NE.

Romer, B.*, Patel, J.*, Fox, J.*, Rehm, J.*, & **Weimar, W**. (2013). Footwear and cadence effect on spatiotemporal and sagittal plane gait kinematics, *2013 Gait and Clinical Movement Analysis Society Annual Meeting*, Cincinnati, OH.

Weimar, W.H. & Campbell, B.J. (2012). Latissimus dorsi anthropometry and swimming. *36th Annual American Society of Biomechanics Meeting*, Gainesville, FL.

Romer, B.*, Fox, J.*, Patel, J.*, Rehm, J.* & **Weimar, W**. (2012). The effect of varying cadences on shod and barefoot gait kinematics. *36th Annual American Society of Biomechanics Meeting*, Gainesville, FL.

Patel, J.*, Sumner, A.*, Fox, J.*, Romer, B.*, Rehm, J.*, Campbell, B. & **Weimar, W**. (2012). The role of the latissimus dorsi muscle in pelvic girdle and trunk rotations. *36th Annual American Society of Biomechanics Meeting*, Gainesville, FL.

Romer, B.*, Fox, J.*, Patel, J.*, Rehm, J.*, Shroyer, J., & **Weimar, W**. (2012). Influence of a fixed cadence on shod and barefoot gait kinematics, *2012 Gait and Clinical Movement Analysis Society Annual Meeting*, Grand Rapids, MI.

Weimar, W., Sumner, A. M.*, Patel, J.*, Romer, B.*, Fox, J.*, Snead, J.*, & Shroyer, J. F.* (2011). Kinetics and kinematics of swimming push-off strategies. *Proceedings of the 35th Annual Meeting of the American Society of Biomechanics*. Long Beach, CA. (pp. 354-355).

Romer, B.H**.***, Johnson, D., Romer, T.L., Sinclair, A., & **Weimar, W**. (2011). Changes in effort distribution of American collegiate triple jumpers during the course of a season, *Proceedings of the 35th Annual Meeting of the American Society of Biomechanics*. Long Beach, C.A. (pp. 656-657).

Shroyer, J. F.* & **Weimar, W**. (2010). Effect of various thong flip-flops on gait kinetics. *Proceedings of the 34th Annual Meeting of the American Society of Biomechanics, Providence, Rhode Island.* (pp. 500-501).

Weimar, W., Madsen, N., Garner, J.*, & Wang, Y. (2010). Two-dimensional sequential analysis of the front snap kick. *Proceedings of the 34th Annual Meeting of the American Society of Biomechanics, Providence, Rhode Island* (pp. 890-891).

Shroyer, J. F.*, **Weimar, W**. & Robinson, L. (2009). Influence of thong flip-flops on running kinematics in preschoolers. *Proceedings of the 33rd Annual Meeting of the American Society of Biomechanics, University Park, Pennsylvania*. (pp. 823-824).

Weimar, W., Garner, J. C.*, Campbell, B. J.*, & St. Onge, P.* (2008). The influence of height and edge proximity on balance and reaction time. *Proceedings of the North American Congress on Biomechanics*. *University of Michigan, Ann Arbor, Michigan.* (pp. 454-455).

Garner, J.C.*, **Weimar, W**., & Madsen, N. (2008). Two-dimensional sequential analysis of the underhand softball pitch. *The Proceedings of the North American Congress on Biomechanics, University of Michigan, Ann Arbor, Michigan*. (pp. 710-711).

Wade, L.*, **Weimar, W**., & Davis, G. (2004). The influence of an inclined surface on flat surface postural control. *Proceedings of the Human Factors and Ergonomics Society (HFES) 48th Annual Meeting.* (pp. 1431-1434).

Wade, L.*, **Weimar, W**., & Davis, G. (2003). The effect of flat surface postural stability following extended durations on a pitched roof setting. *Proceedings of the Human Factors and Ergonomics Society 47th Annual Meeting* (pp. 1295-1298).

Weimar, W., Williams, C., Clark, T., Vrongistinos, K., Zhong, Y., & Wang, T. (1998). Balance in older individuals. *Proceedings of the North American Congress on Biomechanics, University of Waterloo, Ontario, Canada*. (pp. 29-30).

Manuscripts in Revision

Weimar, W.H., Shroyer, J.F.*, & Wade, L.* The effect of various thong style flip-flops on dorsiflexion and tibialis anterior electromyography. *Gait and Posture.*

Weimar, W.H., Patel, J.H.*, Sumner, A.M.*, Romer, B.H.*, Fox, J.W.* & Rehm, J.H.* A kinematic and kinetic analysis of swimming flip-turn strategies. *Sport Biomechanics.*

Manuscripts in Preparation

Weimar, W.H., Campbell, B.J., Patel, J.H.*, Romer, B.H.*, Fox, J.W.*, Rehm, J.* & Oliver, G.D. Role of the latissimus dorsi muscle in pelvic girdle and trunk rotations. Data is collected, manuscript is being formatted for Journal of Strength and Conditioning Research.

Weimar, W.H., Romer, B.H.*, Fox, J.W.*, Rehm, J.M.*, & Patel, J.H.* Footwear and cadence effects on spatiotemporal gait parameters. Data collection and reduction is complete. Anticipated journal: Gait and Posture.

Peer Reviewed Conference Abstracts for Professional Meeting Presentations

Patel, J. H., Jagodinsky, A. E., Oliver, G.D., & **Weimar, W. H.** (2013). Force test of internal rotation during various pelvis girdle positions. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise, 45.*

Oliver, G. D., Stone, A.J. & **Weimar, W.H.** (2013). Effects of shoulder fatigue on ground reaction forces in softball players. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise, 45.*

Fox, J.W.*, Rehm, J.M.*, Romer, B.H.*, Patel, J.H.*, Oliver, G.D.*, & **Weimar, W.H.** (2013). A comparison of impulse from four loading configurations. American College of Sports Medicine, Annual Meeting, *Medicine and Science in Sports and Exercise, 45.*

Weimar, W.H., Oliver, G.D., & Patel, J.H.* (2013). Glenohumeral joint motion involves the whole body, just ask Dartfish. *Proceedings SEACSM Conference,* (Tutorial).

Sumner, A.M. & **Weimar, W.H.** (2013). Influence of a marching snare drum lumbar belt on contact pressure and its clinical relevance. *American Academy of Physician Assistants Annual Conference, Washington, D.C.*

Romer, B.H.*, Fox, J.W.*, Rehm, J.M.*, Patel, J.H.* & **Weimar, W.H**. (2013). Footwear and cadence effects on spatiotemporal gait parameters. *Proceedings SEACSM Conference,*

Fox, J.W.*, Patel, J.W.*, Romer, B.H.*, Rehm, J.M.* & **Weimar, W.H**. (2013). Vertical ground reaction forces during four loading conditions. *Proceedings SEACSM Conference.*

Lowe, C.*, Romer, B.*, Bass, R., & **Weimar, W.** (2012). Subconscious human gait alteration to external stimuli. *Annual Biomedical Research Conference for Minority Students,* San Jose, CA.

Romer, B.H.*, Patel, J.H.*, Fox, J.W.*, Rehm, J.M.*, Sumner, A.M.*, & **Weimar, W.H.** (2012). Turn time for four different flip-turn styles. *Proceedings SEACSM Conference*.

Rehm, J.M.*, Patel, J.H.*, Romer, B.H.*, Fox, J.W.*, Sumner, A.M.*, & **Weimar, W.H.** (2012). Force production of three different flip-turn styles while riding a dry land cart. *Proceedings SEACSM Conference*.

Sumner, A.M.*, **Weimar, W.H.,** Patel, J.H.*, Romer, B.H.*, Fox, J.F.*, & Rehm, J.M.* (2012). Influence of a marching snare drum system on contact pressure. *Proceedings SEACSM Conference.*

Romer, B.H.*, Fox, J.*, Johnson, D., Romer, T.L., Sinclair, A., & **Weimar, W.H**. (2011). Phase lengths of division-one American collegiate triple jumpers. American College of Sports Medicine, *Medicine and Science in Sports and Exercise, 43, S289-S290.*

Patel, J.H.*, Romer, B.H.*, Fox, J.*, & **Weimar, W.H.** (2011). Vertical compression with a back squat. *Proceedings SEACSM Conference*.

Weimar, W. & Martin, E. H. (2011). Using skill analysis to inform assessment. American Alliance for Health, Physical Education, Recreation and Dance National Meeting, *Research Quarterly for Exercise and Sport*, 82: S653.

Etheredge, C.E., Shroyer, J.F.*, & **Weimar, W.H**. (2011). Effect of minimalist footwear on arch rigidity index. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise,* 43: S214.

Shroyer, J.F.*, Etheredge, C.E. & **Weimar, W.H.** (2011). Effect of minimalist footwear on medial arch height. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise,* 43: S215.

Romer, B.H.*, Fox, J.*, Johnson, D., Romer, T.L., Sinclair, A., & **Weimar, W.H.** (2011). Phase lengths of division-one American Collegiate triple jumpers. American College of Sports Medicine Annual Meeting. *Medicine and Science in Sports and Exercise,* 43: S289.

Weimar, W., & Sumner, A. E.* (2011). Dartfish: A movement analysis and data collection tool. *Proceedings Southeast ACSM*.

Fox, J.*, Shroyer, J. F.*, Patel, J.*, Sumner, A. E.*, & **Weimar, W.** (2011). Influence of footwear on limits of stability. *Proceedings Southeast ACSM*.

Snead, J.*, Shroyer, J. F.*, Patel, J.*, Sumner, A. E.* & **Weimar, W**. (2011). The effect of footwear on dual stance balance. *Proceedings Southeast ACSM*.

Shroyer, J. F.*, Shroyer, J. E.*, Sumner, A. E.*, Patel, J.*, & **Weimar, W.** (2011). The effect of footwear on unilateral stance sway velocity. *Proceedings Southeast ACSM*.

Patel, J.*, Romer, B.*, Fox, J.* & **Weimar, W.** (2011). Vertebral compression with a back squat. *Proceedings Southeast ACSM*.

Knight, A.C.* & **Weimar, W.** (2011). Effects of injury and tape on dynamic ankle inversion using a fulcrum methodology. National Athletic Trainers' Association Annual Meeting, *Journal of Athletic Training, 46*(3), S183.

Adam, K. C.* & **Weimar, W.** (2010). Startle response in inversion perturbation. *Proceedings Southeast ACSM*.

Knight, A. C.* & **Weimar, W.** (2010). Startle response of the ankle musculature to repeated inversion perturbations. National Athletic Trainers' Association Annual Meeting, *Journal of Athletic Training,* 45(3), S109.

Shroyer, J. F.* & **Weimar, W.** (2010). The effect of flip-flops on dorsiflexion and tibialis anterior electromyography. *Proceedings of Southeast ACSM*.

Weimar, W., Shroyer, J. F.*, Sumner, A. M.*, Shroyer, J. E.* & Robinson, L. (2010). Influence of thong flip-flops on the kinematics of the horizontal jump of pre-schoolers. *Proceedings of Southeast ACSM*.

Sumner, A. M.*, **Weimar, W.,** Shroyer, J. F.*, Shroyer, J. E.*, & Robinson, L. (2010). Influence of thong flip-flops on the kinematics of the gallop of preschoolers. *Proceedings of Southeast ACSM*.

Shroyer, J. E.*, **Weimar, W.,** Shroyer, J. F.*, & Sumner, A. M.* (2010). Bilateral balance and footwear. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 42(5), S350.

Shroyer, J. F.*, Shroyer, J. E.*, Sumner, A. M.*, & **Weimar, W.** (2010). Effect of various thong flip-flops on pronation and eversion during midstance. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 42(5), S190.

Weimar, W., Shroyer, J. F.*, Sumner, A. M.*, & Shroyer, J. E.* (2010). Limit of stability and footwear. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise* 42(5), S347.

Sumner, A. M.*, **Weimar, W.**, Shroyer, J. F.*, & Shroyer, J. E.* (2010). The influence of shoe type on rhythmic weight shift. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise* 42(5), S348.

Knight, A. C.* & **Weimar, W.** (2009). Difference in latency of the peroneus longus between dominant and non-dominant leg. National Athletic Trainers' Association Annual Meeting *Journal of Athletic Training*, 44(3), S119.

Guidry, T.*, Campbell, B. J.*, Shroyer, J. F.*, Knight, A. C.*, & **Weimar, W.** (2009). Neurological insufficiency: The biceps brachii potential in pronated elbow flexion. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 41(5), S293.

Rudisill, M., Robinson, L., Breslin, C. M., Shroyer, J. F., **Weimar, W.,** & Morera Castro, M. (2009). The influence of footwear on preschoolers' locomotor skill performance. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport & Exercise Psychology*, 41, S42.

Sumner, A. M.*, Good, R., & **Weimar, W.** (2009). The use of a two-dimensional comparison in collegiate conducting. *Proceedings Director National Association*.

Knight, A. C.*, Shroyer, J. F.*, Sumner, A. M.*, Booker, J. E.*, & **Weimar, W**. (2009). Influence of ankle taping on the kinetics of a lateral jump. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 41(5), S391.

Garner, J. C.*, **Weimar, W.,** & Madsen, N. (2009). Kinematic and kinetic comparison of overhand and underhand pitching: Implications to proximal-to-distal sequencing. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise* 41(5), S486.

Rudisill, M. E., Robinson, L. E., Breslin, C. M.*, Shroyer, J. F.*, **Weimar, W. H.**, & Morera, M.* (2009). The influence of footwear on preschoolers‟ locomotor skill performance. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport & Exercise Psychology*, 31, S34.

Garner, J. C.*, Knight, A. C.*, **Weimar, W.**, & McDonald, C.* (2008). Glenohumeral range of motion of overhead athletes versus non-overhead athletes. National Strength and Condition Association Annual Meeting, *Journal of Strength and Conditioning Research*, 22(5): S453.

Weimar, W. & Martin, E. H. (2008). Skill analysis – A toolbox necessity: The specifics. American Alliance for Health, Physical Education, Recreation and Dance National Meeting, *Research Quarterly for Exercise and Sport*, 79, S181.

Knight, A. C.*, **Weimar, W.**, Shroyer, J. F.*, Sumner, A. M.*, & Booker, J. E.* (2008). The influence of four different types of athletic tape used for ankle taping on attack angle. *Southeastern Meeting of the American Society of Biomechanics*.

Campbell, B. J.*, Jeansonne, C.*, & **Weimar, W.** (2008). Football makes you shorter. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 40(5), S214.

Shroyer, J. F.*, **Weimar, W.**, Garner, J. C.*, Knight, A. C.* & Sumner, A. M.* (2008). Influence of sneakers versus flip-flops on attack angle and peak vertical force at heel contact. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 40(5), S333.

Garner, J. C.*, **Weimar, W.** & Madsen, N. (2008). Kinematic analysis of the underhand softball pitch. American College of Sports Medicine Annual Meeting, *Medicine & Science in Sports & Exercise*, 40(5), S377.

Weimar, W., Overfelt, R., Shroyer, J. F.*, Knight, A. C.*, Sumner, A. M.*, & Garner, J. C.* (2008). The influence of mechanical stimulation on center of gravity. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise* 40(5), S345.

Booker, J. E.*, Sumner, A. M.*, & **Weimar, W.** (2008). The influence of shoe type on ankle angle. American College of Sports Medicine Annual Meeting, *Medicine & Science in Sports & Exercise* 40(5), S338.

Sumner, A. M.*, & **Weimar, W.** (2008). The influence of shoe type on stride length. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 40(5), S355.

Garner, J.C.*, **Weimar, W.H.**, & Madsen, N.H. (2008). Analysis of the underhand windmill pitch. *Proceedings of the Southeast American Society of Biomechanics:* 32.

Campbell, B. J.*, Gary, M.*, Savoi, J.*, **Weimar, W**., & Garner, J. C.* (2007). External palm padding and its effect on sound production during football catching. National Strength and Condition Association Annual Meeting, *Journal of Strength and Conditioning Research*, 22(5), S453.

Weimar, W. & Martin, E. H. (2007). Skill analysis – A toolbox necessity. American Alliance for Health, Physical Education, Recreation and Dance National Meeting, *Research Quarterly for Exercise and Sport*, 78, S389.

Campbell, B. J.*, **Weimar, W**., Garner, J. C.*, & Knight, A. C.* (2007). Unilateral patella tendon strap effects on weight bearing squat in healthy males. National Athletic Trainers' Association Annual Meeting, *Journal of Athletic Training*, 42(2), S136.

Knight, A. C.*, Garner, J. C.*, Shroyer, J. F.* & **Weimar, W.** (2007). Comparison of glenohumeral range of motion in throwing athletes versus non-throwing athletes. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 39(5), S477.

Shroyer, J. F.*, **Weimar, W.**, Garner, J. C.*, & Overfelt, R. (2007). Effect of mechanical stimulation of peripheral nerves of the forearm on cognitive thinking performance. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise* 39(5), S268.

Breslin, C. M.*, **Weimar, W.**, Garner, J. C.*, Parish, L. E.*, Campbell, B. J.*,& Rudisill, M. (2007). Relationship between humeral angle and ball lag across different ball weights and sizes. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 39(5), S479.

Garner, J. C.*, **Weimar, W.**, Breslin, C. M.*, Parish, L. E.*, Campbell, B. J.* & Rudisill, M. E. (2007). The influence of ball size and weight on lag period of upper arm in overhand throwing. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 39(5), S477.

Weimar, W., Garner, J. C.*, Breslin, C. M.*, Parish, L. E.*, & Rudisill, M. (2007). The influence of ball weight and size on shoulder external rotation. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 39(5), S477.

Campbell, B. J.*, **Weimar, W.**, & Garner, J. C.* (2007). The role of an external counter-moment on the perceived pain of tennis elbow. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 39(5), S475.

Garner, J. C.*, **Weimar, W.**, Campbell, B. J.*, Breslin, C. M.*, Rudisill, M., & Parish, L. E.* (2006). Influence of ball weight on ball lag in throwing. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport and Exercise Psychology*, 28, S71.

Breslin, C. M.*, Rudisill, M., Parish, L. E.*, St Onge, P. M.*, **Weimar, W.**, Garner, J. C.*, & Campbell, B. J.* (2006). The effects of weight and size of the ball on humeral lag when throwing: Measurement concerns. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport and Exercise Psychology*, 28, S39.

Garner, J. C.* , Blackburn, J. T. , **Weimar, W.** , Campbell, B. J.* (2006). Comparison of EMG amplitude of eccentrically loaded versus concentrically loaded isometric muscle actions. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 38(5), S264.

Campbell, B. J.*, **Weimar, W.**, & Garner, J. C.* (2006). Counter-moment effects on active wrist extensor muscles during maximal gripping. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 38(5), S268).

Weimar, W., Campbell, B. J.*, Garner, J. C.* , & St Onge, P. M.* (2006). The influence of height and edge proximity on balance. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 38(5), S451.

St Onge, P. M.*, **Weimar, W.** , Parish, L. E.* , & Rudisill, M. (2005). Does static balance predict dynamic balance activity choices in toddlers. *Journal of Sport and Exercise Psychology*, 27, S32.

Parish, L. E.*, Rudisill, M., St Onge, P. M.*, & **Weimar, W.** (2005). Mastery motivational motor skills program: Influence on heart rate and physical activity levels in toddlers. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport and Exercise Psychology*, 27, S71.

Weimar, W. & Campbell, B. J.* (2005). The role of the latissimus dorsi in pelvic girdle motions. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 37(5), S394.

Weimar, W. & Martin, E. H. (2005). Influence of instructional strategies on the kinematics of motor skill performance. American Alliance for Health, Physical Education, Recreation and Dance National Meeting, *Research Quarterly for Exercise and Sport*, 76: S734.

Weimar, W. & Martin, E. (2004). The influence of cue words on shoulder and knee kinematics. American Alliance for Health, Physical Education, Recreation and Dance National Meeting, *Research Quarterly for Exercise and Sport*, 75, S698.

Weimar, W. & Campbell, B.* (2004). The influence of ankle cryotherapy on unilateral static balance. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 37(5), S187.

Wade, L.*, & **Weimar, W.** (2003). The influence of incline sprint training on postural stability. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 37(5), S266.

Weimar, W., Rudisill, M., Stodden, D.*, & Martin, E., (2002). Biomechanical changes of motor skill performance under different cue word conditions. American Alliance for Health, Physical Education, Recreation and Dance National Meeting, *Research Quarterly for Exercise and Sport*, 73, S54.

Rudisill, M., Martin, E., **Weimar, W.**, Wall, S.*, Valentini, N. (2002). Fundamental motor skill performance of young children living in urban and rural Alabama. American Alliance for Health, Physical Education, Recreation and Dance National Meeting, *Research Quarterly for Exercise and Sport*, 73, S398.

Weimar, W. & Williams, C. (2002). Changes in resultant ground reaction force at heel strike for older versus younger populations. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 34(5), S253.

McGinn, P. A.*, **Weimar, W.**, Mattacola, C.G. & Rudisill, M. (2002). Dynamic balance of injured division I collegiate athletes on two different surfaces. National Athletic Trainers' Association Annual Meeting, *Journal of Athletic Training*, 37(2), S98).

Weimar, W., Pascoe, D., Wang, Y., & Williams, C., (2001). Changes in resultant ground reaction force at heel strike at different load conditions. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 33(5), S128.

Maginn, P.*, **Weimar, W.** & Rudisill, M. , (2001). Comparison of division I athletes dynamic balance measures on two different surfaces. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 33(5), S83.

Weimar, W. H., Rudisill, M. E., Martin, E. H., Stodden, D. F., Adalbjornsson, C. F., & Goodway, J. D. (2001). How cue words influence the biomechanical parameters of motor skill acquisition. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport & Exercise Psychology*, 23, S54.

Martin, E., Rudisill, M., **Weimar, W**., Wiley, P., & Lehman, D. (2001). A mastery motivational climate motor skill intervention and motor skill development in a naturalistic setting. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport and Exercise Psychology*, 23, S55.

Weimar, W., Rudisill, M., Martin, E., Stodden, D., Adalbjornsson, C., & Goodway, J., (2001). How cue words influence the biomechanical parameters of motor skill acquisition. North American Society for the Psychology of Sport and Physical Activity Annual Meeting, *Journal of Sport and Exercise Psychology*, 23, S54.

Weimar, W. & Wang, T. (2000). Balance determination from force platform data only. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 32(5), S248.

Rudisill, M.E., **Weimar, W.**, Stodden, D.*, Adalbjornsson, C.*, Martin, E. H. & Goodway, J. D. (2000). Cue words and skill acquisition. Presented to the Motor Development Research Consortium, Bowling Green University, Bowling Green, Ohio.

Wang, T., Pascoe, D., **Weimar, W.**, & Pearl, M., (1999). Applications of the indexes of load stresses in walking. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 31(5), S407.

Weimar, W., Madsen, N., & Wang, T. (1999). Partitioning accelerations to reveal the influence of the Coriolis effect. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*,31(5), S304.

Williams, C., Wang, T., **Weimar, W.**, Vrongistinos, K., & Zhong, Y. (1999). The effect of age on gait kinetics. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 31(5), S407.

Weimar, W., Clark, T., Williams, C., Zhong, Y., Vrongistinos, K., & Wang, T. , (1998). Effects of age, gender and dominance on lower extremity muscle strength. American College of Sports Medicine Annual Meeting, *Medicine and Science in Sports and Exercise*, 30(5), S29.

Grants

Sefton, J. M. DOD ContractW911NF-11-D-0001: AU Warrior Research Center project team for contract extension of "Volunteer Investigations for Mounted and Head-Supported Mass in Dismounted Operations"; $91,000. (Weimar % effort: 20%). P*roject implementation for understanding the military vehicular influence on the biomechanics of head and helmet movement during driving and riding.*

Weimar, W.H. & Romer, B.H.* (2012). Effect of footwear on lumbopelvic and lower-extremity kinematics, kinetics, and muscular activation in an occupational setting. NIOSH Exploratory and/or developmental grant program (R21). $200,204. (Score: 50, Percentile: 39) *Resubmission

Weimar, W.H. & Romer, B.H.* (2011). Effect of footwear on lumbopelvic and lower-extremity kinematics, kinetics, and muscular activation in an occupational setting. NIOSH Exploratory and/or developmental grant program (R21). $194,602.

Weimar, W.H. (2011). Motion Capture System for Animal and Human Research. OVPR Intramural Grant Program: Level 4. $75,000 ($45,000 Matching funds from College of Education, Department of Kinesiology and College of Veterinary Medicine). This funding allowed the Sport Biomechanics Laboratory to purchase the first three-dimensional motion capture *ever* in the Department of Kinesiology.

Pascoe, D. , Sefton, J., & **Weimar, W.** (2010). Development of a multisystem imaging platform to coordinate diagnostic images for the purpose of improving assessment, treatment and diagnosis. Sponsored by NSF/NIH Major Equipment Grant, Federal.

Weimar, W. (2009). The push off the wall – A kinematic and kinetic analysis of approach and push-off strategies. USA Swimming. Funded ($15,000).

Overfelt, R, **Weimar, W.** & Chivukula, K. (2008). Bioeffects of Precision Electrical Shocks to Peripheral Nerves. Department of Defense Joint Non-Lethal Weapons Directorate. Funded ($120,000).

Weimar, W. (2005). Daniel F. Breeden Grant, Skill analysis as a teaching tool. Funded ($1380). The Breeden Endowment supplied $1380, however due to the appeal of this grant to the software developer; the software company upgraded the software package. The upgrade was equivalent to $1600.

Blackburn, T. & **Weimar, W.H.** The effects of trunk kinematics on knee kinematics and kinetics, and lower extremity EMG (2005) Centers for Disease Control and Prevention, Department of Health and Human Services Grants for New Investigator Training Awards for Unintentional Injury, Violence Related Injury, Injury Biomechanics, and Acute Injury Care Research. Funding requested:$99,617. Not funded.

Blackburn, T. & **Weimar, W.H.** Influences of trunk flexion on knee joint kinetics and kinematics, and lower extremity EMG (2005) National Athletic Trainers' Association Research and Education Foundation General Grant Program. Funding Requested: $130,200. Not funded.

Davis, GA, Carnahan, B & **Weimar, W.** (2004). Equipment grant from the Deep South Center for Occupational Safety & Health (DSC). Grant funded for $20,000 to purchase advanced Balance Master system based on previous research results.

Weimar, W., Martin, E. & Rudisill, M. (2004). NIH Funding: RFA#: CA-04-009, Mechanisms of Physical Activity Behavior Change: The role of balance in physical activity of young children. Funding requested: $54,000. Not Funded.

Rudisill, M.E., **Weimar, W.H.**, Martin, E.H., Buchanon, A., Jackson, E. (2004). College of Education Grant. Secured $4,000 to hire a person to write grant for NIH regarding physical activity and children.

Weimar, W.H. & Martin, E.H. Cue Words and Skill Performance, AAHPERD Collaboration Grant, (2000, 2002). $8500. Not funded.

Carnahan, B.J. & **Weimar, W.H.** Machine Recognition of Balance Control in Older Workers Through Posturography. NSF Pre-proposal – accepted for second round of consideration by the Samuel Ginn College of Engineering. Funding requested: $228,300. Not funded.

Weimar, W.H. & Carnahan, B.J. A Classification Model of Stability (2000). NIH: Department of Health and Human Services, Public Health Service. Funding requested: $106,408. Not funded

Weimar, W.H. & Carnahan, B.J. (1999). Understanding Balance. NSF 99-168 Pre-proposal. $123,962. Not funded.

Laboratory funding and support

Movement analyses:

Camps – Swim, Gymnastics, Softball, Speed/Agility - $50,000. During these experiences I teach my doctoral students how to perform analysis and implement an instructional tool that I have developed for providing feedback to the campers. During each week long camp, we use appropriate technology (i.e., underwater cameras) to capture movements, compare the movements to accomplished models and provide feedback to the camper.

Noah basketball – data collection for equipment improvement.

Equipment donated – shoes from Stride-rite, Sole, Reef, and Addidas, insoles from Sole. These companies have donated footwear for specific research studies. More than 150 shoes have been donated so far.

Intellectual Contributions

Laboratory Development

When I inherited the Sport Biomechanics Laboratory in 1999, there were two VHS cameras and a faulty Kisler force platform. I received $5,000 in start-up funds. Through grants, departmental support and the sport analyses program I have been able to develop a well-appointed, dynamic biomechanics laboratory. Steadily building the lab, as indicated by the timeline below, is even more impressive as we do not have laboratory fees and I was the sole faculty member in biomechanics. So in addition to acquiring new equipment, the laboratory must be self-sustaining.

Two force platforms: (1) AMTI OR-6 – purchased 2005
(2) AMTI WOR-6 (underwater force platform) – purchased 2009

Four Canon GL cameras
(1) 2 purchased 2006
(2) 2 purchased 2009

Ariel Performance Analysis System (APAS) –a basic motion capture system: purchased 2007

One 8 channel Noraxon Electromyography System (EMG) (tethered) – used to collect muscle activity – purchased 2007

One Troubleshooter 500 (high speed camera) – purchased 2008

One 10 camera Vicon motion capture system – purchased 2011*

One 16 foot GaitRite Mat – purchased 2011

One TekScan Pressure Mapping System – purchased 2011

*It should be noted that the acquisition of the Vicon Motion Capture systems has dramatically improved the productivity of the laboratory.

Copyrights

These copyrights are outgrowths of my teaching. In addition, to research, I feel that the development of intellectual property is extremely important and maintains my commitment to the Mission of the School of Kinesiology.

Copyright, "Using Dartfish(c) Motion Analysis to Evaluate & Educate Collegiate Conducting Students," New Technology Disclosure No. 10-076, Provisional, United States. (submit: June 2010).

Copyright. “Cross-Sectional Anatomy: A Teaching Tool.” New Technology Disclosure No. 8-034, Provisional, United States. (submit: June 2008).

Patents

These intellectual properties are the outgrowth of research projects conducted in the Sport Biomechanics Laboratory. By fostering an environment of creativity, unique solutions to problems can be identified and developed.

Patent, Marching Drum Stability & Mobility Belt, AU Technology Disclosure No. 2011-034. Provisional, United States. (submit: 2011). Sumner, A.E., Wolf, S. & **Weimar, W.H.**

Patent, Thong flip-flop sandal with adjustable straps, AU Technology Disclosure No. 10-072, Provisional, United States. (submit: 2010). Shroyer, J.F. & **Weimar, W.H.**

Patent, Adjustable bladder for a sport slide style flip-flop /sandal, 61/358,270, Provisional, United States. (submit: June 2010). **Weimar, W.H.** & Shroyer, J.F.

Patent, Balance Challenging Shoes - Altering the pivot point of toning, fitness shoes. AU Technology Disclosure No. 10-078, Provisional, United States. (submit: June 2010). **Weimar, W.H.** & Patel, J.

Patent, Thong flip-flop sandal with air bladder in straps, 61/353,497, Provisional, United States. (submit: June 2010). **Weimar, W.H.** & Shroyer, J.F.

Licensures and Certifications

Certified Dartfish Technician. (June 2010 - Present). Dartfish is a movement analysis software program and I am certified in the use of this software.

At-Scene Traffic Crash/Traffic Homicide Investigation, 2003

Advanced Traffic Accident Investigation, 2003

Accident reconstruction courses were to serve as the basis for the biomechanical behavior of bodies during crashes; specifically, the influence of inertia and automobile kinematics on restrained and unrestrained bodies during automobile crashes. This was to aid in the use of real world experiences for my students and as support for my work as a professional witness.

New York State Teaching Certifications: Physics, Chemistry, Mathematics, Theatre Arts, Physical Education (1991-present)

Contributions to Teaching:

Teaching statement – I believe that as an educator I have a responsibility to develop life-long learners, critical thinkers and dedicated professionals. To meet this responsibility I guide my students and provide them the opportunity to take leadership roles under my direct supervision. This is evidenced by first authorship of my students on many of my publications.

Curriculum development:

Program development:

I was one of three faculty members who developed the Fitness, Conditioning and Performance program area in 2011. This included the formulation of the concept and necessary materials for Alabama Commission on Higher Education (ACHE) approval as well as the creation of the supporting courses. In particular I created the following courses for this program area:

KINE 4400 – Applied Anatomy for the Allied Health Professional - This course presents skeletal anatomy in a unique manner. The focus of the course is how the muscle crosses joints to produce movement.

KINE 5620 – Sport Techniques and Movement Analysis- This course helps the student develop the tools necessary to observe, evaluate and correct movement patterns. Specific focus is directed toward component analysis of skill.

KINE 5630 – Strength and Conditioning Exam Preparation- This course helps the student develop tools necessary to take the National Strength and Conditioning Association's Certified Strength and Conditioning Specialist.

KINE 5640 – Corrective Exercise Specialist Exam Preparation- This course helps the student develop tools necessary to take the National Academy of Sports Medicine Corrective Exercise Specialist Examination.

In addition, to further enhance the educational experience of our graduate students and better prepare them for the more clinically areas of allied health professionals, I developed the following courses.

KINE 7400 – Advanced Anatomical Principles - This course is a clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact with and utilize anatomical knowledge.

KINE 7410 – Laboratory for Advanced Anatomical Principles - This course provides the student of KINE 7400 the opportunity to take the knowledge from class and apply it to anatomical models.

KINE 7420 – Dartfish I – Biomechanics of Skill Analysis - This course presents a practical approach to skill analysis as well as the rudiments of the use of the software program Dartfish.

KINE 7430 – Dartfish II – Advanced Biomechanics of Skill Analysis - This course presents the student with the tools to approach any movement analysis from a biomechanical perspective. The course also teaches the more advanced tools of the Dartfish software program.

I have also created a Graduate Certificate Program in Movement Analysis. This program is taught completely online and required me to translate these courses into distance education experiences. This process has increased my knowledge of online course delivery technology and has enhanced my on campus teaching.

Distance Education Classes Created and Implemented:
KINE 7406 – Distance Education: Advanced Anatomical Principles
KINE 7416 – Distance Education: Laboratory for Advanced Anatomical Principles
KINE 7426 – Distance Education: Dartfish I – Biomechanics of Skill Analysis
KINE 7436 – Distance Education: Dartfish II – Advanced Biomechanics of Skill Analysis
KINE 7626 – Distance Education: Principles of Biomechanics in Human Movement

Developed collaborative teaching partnership with Dr. Nels Madsen from Mechanical Engineering. Since 2001 Dr Madsen and I have team taught KINE 7620 – Principles of Biomechanics in Human Movement. In addition, I have developed several teaching packets to support the lectures for this class.

Doctoral Committee Chair:

Lloyd (Chip) Wade: PhD Biomechanics, 2004,
Current position: Assistant Professor Risk Management and Insurance, Mississippi State University
Dissertation title: Effect of exposure to an inclined surface and height on gait kinematics and postural stability.

Brian J. Campbell: PhD Biomechanics, 2006.
Current position: Associate Professor, University of Louisiana, Lafayette
Dissertation title: Wrist extension counter-moment force effects on muscle activity of the ECR with gripping implications for lateral epicondylagia.

John (Jay) Garner: PhD Biomechanics, 2007.

Current position: Assistant Professor, University of Mississippi
Dissertation title: Kinetic and kinematic comparison of overhand versus underhand throwing: The implications on proximal to distal sequencing.

Adam C. Knight: PhD Biomechanics, 2009.
Current position: Assistant Professor, Mississippi State University
Dissertation title: Effects of inversion perturbation after drop landing on the latency of the ankle musculature.

Thomas (Craig) Angle: PhD Biomechanics, 2009.
Current position: Associate Director of the Veterinary Sports Medicine Program, Auburn University
Dissertation title: An evaluation of the effects of two natural surfaces on the kinematics of the canine sprint start.

Justin F. Shroyer: PhD Biomechanics, 2009.
Current position: Post-doctoral study at NIOSH prior to leaving academia
Dissertation title: Influence of various thong style flip-flops on gait kinematics and lower leg electromyography.

Joanna E. Shroyer: PhD Biomechanics, 2010.
Current position: Mother
Dissertation title: Kinematic analysis of the collected and extended jog and lope of the stock breed western pleasure horse.

Andrea M. Sumner: PhD Biomechanics, 2012.
Current position: Physician Assistant Student, Methodist University, S.C.
Dissertation title: Influence of a marching snare drum system on joint kinematics, electromyography and contact pressure.

Jaynesh Patel: PhD Biomechanics- Anticipated Graduation Aug 2013.
Director of Research and Development Moores Center for Orthopedics.
Starts August 1, 2013
Dissertation title: Role of the lumbopelvic-hip complex in bipedal acceleration

Current Doctoral Students:

Braden Romer: PhD Biomechanics – Anticipated Graduation Dec 2013
Assistant Professor, Louisiana Tech University
Starts September 1, 2013
Dissertation: Influence of tactile feedback Trunk coordination and electromyography during walking

Jared Rehm: PhD Biomechanics
Director of Adaptive Sports Program, Auburn University
Starts August 1, 2013
Dissertation: Wheelchair Sports Classification System: A Different Approach

John Fox: PhD Biomechanics – Will propose dissertation early fall 2013

Adam Jagodinsky: PhD Biomechanics – 2nd year.

Doctoral Committee Member:

Michael Urbin, PhD Motor Control, 2012
Beibei Xu, PhD Nutrition and Food Science, 2011
Paul St. Onge, PhD Motor Control, 2007
Robert McAlister, PhD Motor Control, 2006
Sarah Wall, PhD Motor Development, 2005
Davana Lehman, PhD Motor Control, 2004
David Stodden, PhD Motor Control, 2002
Carola Adalbjornsson, PhD Motor Development, 2001

I have mentored 64 masters students since 2001.

Outreach

Outreach statement – I believe that outreach and service are critical components to the work of a faculty member at a land-grant university such as Auburn University. To address this role, I have provided my talents to the University and surrounding community, predominantly through providing movement analyses. These analyses not only serve the community, but are opportunities for my students to apply the knowledge gained in classroom and laboratory experiences.

Technical Assistance

School of Kinesiology Performance and Health Optimization Center (2013). I am an original member of the team that conceived and developed this center. The long range goal of this facility is to become a recognized leader in whole body/mind health and performance optimization. At this point, I contribute the movement analysis component and have already been working with several Opelika High School sports teams. In addition, we are working to become a United States Olympic Training site for Team Handball. We have our first try-outs scheduled for July 13, 2013.

Speed and Agility Camp (2013) - Developed and directed the first Speed and Agility Camp. This is the first in a series of camps that will ultimately be offered through the Performance and Health Optimization Center. This camp has already expanded our visibility and increased the interest in individual analyses and performance programing.

Biomechanics Consultant to the USA Swimming High Performance Network Site at Auburn University

Auburn University Swimming and Diving Team: I have been a biomechanics and martial art consultant for the Auburn University Men's and Women's Swimming Team since 2002. During this time the team has valued my contribution enough to award me with 3 National Championship Rings and 2 SEC Championship Rings.

AU Softball Team: I have been working with the softball team since 2007. The main focus of my contribution has been to hitting mechanics.

AU Track Team: I have been working with the track team since 2008. The main focus of my contribution has been to the sprinters and jumpers. I have provided high speed video analyses of several high performance athletes.

Movement Analyses – For Auburn University faculty, staff and surrounding community. These analyses require motion capture of the client. This motion capture is then reviewed and analyzed. The outcome of the analysis is then shared with the client and follow up meetings are conducted to ensure improvement.
Walking – 44
Running - 11
Golf swing- 14

Specific sport analyses for Olympic or professional athletes. For these analyses, the coach or athlete will contact me and I will perform a motion capture appropriate for the specific sport. Once the motion is uploaded to a computer, the motion is reviewed and analysis is shared with the athlete and/or coach. Follow up meetings are conducted as progression of improvement at the highest level often comes in small increments.
Kerron Stewart-sprinting
Mark Gangloff – swimming
Kevin Pompey - boxer
Frederick Bousquet - swimming
Lionel Moreau-swimming
Kirsty Coventry -swimming
César Cielo - swimming
Eileen Coparropa - swimming
Margaret Hoelzer - swimming
Matt Targett - swimming
George Bovell - swimming
Mark Burns - swimming
Levan Sands – triple jumper

I have provided movement analyses and strength/conditioning programs to Opelika high school boys and girls basketball and the boys and girls track teams.

I have assisted in developing of the Kenny Howard Fellowship: Rehabilitation shoulder exercises CD. This interactive video manual demonstrates how to perform the exercises and critical components of each exercise. It is designed to assist the physical therapist, the athletic trainer as well as the patient.

US Army:

Gait Improvement Mentoring Program: As a result of my reputation regarding movement analysis, particularly of gait, I was asked to develop of an interactive gait analysis program designed to train the trainer. Specifically, this project trains the Drill Sergeants to observe and evaluate the running gaits of incoming recruits. This project has been implemented on more than 30,000 recruits: January 2010 - Present

PRT Manual Instruction: As a result of my reputation regarding movement analysis, I was asked to develop an interactive video manual of the U.S. Army Physical Readiness Training handbook: January 2010 - Present

Grenade throwing: I was also asked to develop a grenade throwing interactive video manual. January 2010 - Present

Ranger Battle Plan Instruction: I was also asked to develop an interactive video manual of Ranger Battles Plans. January 2010 – Present

Fun Run – I provided running gait analyses for members of the U.S Army and their families involved in fun run day events: July 2010 – Present

Auburn City Schools – I developed and implemented an in-service for the Physical Education Teachers on Movement Analysis, with Ellen Martin. 2004.

SERVICE

University Service

Auburn University

Canine Detection Research Institute, (2009 - Present)
The Occupational Safety Ergonomics and Injury Prevention Program, (2007 - Present)
Phi Kappa Phi Scholarship Committee, (2006 - Present)
Research forum judge for the Auburn University Research Week, (2009 - 2010)
Invited Speaker - Women of the Academy (2012) –A group of female faculty members were asked to speak to graduate students about what it is like to be a woman higher education.
Guest Lecturer - (2011-present) to the Doctor of Audiology students enrolled in CMDS 8510 – Clinical Level IV. This lecture provides insight into the biomechanics and technology of postural control assessment.
Guest Lecturer – (2008) to the students of Industrial and Systems Engineering program on the IRB.
Provided research support for the Doctor of Audiology students during their capstone experience (2012-present).

Department

Faculty Search Committees (2002, 2008, 2009, 2010, 2011, 2013)
Distance Learning Committee, (2000 - Present)
SACS Assessment Coordinator for Exercise Science and Graduate Program, (2000-Present)
Co-author (1 of 3) Physical Conditioning and Performance degree plan, (2011)
Provided video and photos for the Department of Kinesiology's Physical Activity Portal (2010-present)
Assisted in the development of the Performance and Health Optimization Center (2009-present)

Professional Service

Board member, Kenny Howard Fellowship, Auburn, AL. (2004 - Present)
Consultant, Warrior Research Center/Athletic Training, Ft Benning, GA.
Reviewer:
Foot and Ankle Research (2013-Present)
Journal of Applied Biomechanics (2012-Present)
Sport Biomechanics (2012-Present)
Physical Education and Sport Pedagogy (2011 - Present)
Journal of Applied Biomechanics (2010 - Present)
Journal of Biomechanics. (2008 - Present)

Research in Sports Medicine: An International Journal. (2008 - Present)
Adapted Physical Education Quarterly. (2007 - Present)
Research in Swimming. (2006 - Present)
Physical Education and Sport Pedagogy (2011 - Present)

Abstract Reviewer, American Society of Biomechanics Annual Conference, (2013)
Abstract Reviewer, Southeast American College of Sports Medicine Annual Conference, (2011, 2013)
Session Chair, Southeast American College of Sports Medicine, Greenville, S.C. (2010).
Recruiter, Historically Black Colleges and Universities, Atlanta, GA. (2008 - Present)

Promotion Summary

Research

My primary area of study is lower extremity mechanics, with a focus on gait and footwear. Through research project funding, I was able obtain necessary equipment (force plates, EMG, Dartfish, and most recently motion capture system 2011). The acquisition our motion capture system has directly led to 6 peer reviewed article publications, 9 peer reviewed papers in conference proceedings and 11 abstracts in national/regional conferences. My work with my students has garnered the AU Office of Communications and Mass Marketing Award in 2009, for the most widely publicized research and the project brought the most positive publicity to Auburn University. Over 600,000,000 people around the world learned about my research related to footwear and injury prevention through major newspapers, radio and television interviews. I now have an AU colleague, as we hired a biomechanist in 2012 and are adding another in 2013. Last, I also have 5 provisional patents and 2 copyrighted products.

Teaching

I am the co-author of the 3rd most utilized Kinesiology text in the country. This text has brought considerable national and international visibility. During my tenure at Auburn University I have contributed to the development of our undergraduate and graduate curriculum in Kinesiology. I was one of the three faculty members who created a new undergraduate degree in Fitness, Conditioning and Performance. This involved creating the curriculum with specialized courses and completing the paperwork necessary for College, University and State curriculum committee approval. We were asked by the President of the University to get this degree option approved in less than a year. This goal was accomplished. We are in year 2 of the program and we now have over 75 students enrolled in this degree option and have expanded our faculty to meet the teaching needs. I also developed and offer a Skill Analysis Graduate Certificate program that is supported by 5 distance education classes. I developed a copyrighted applied anatomy methodology that is being implemented in 4 universities in the southeast. Over the past 13 years, I have been the major professor for 8 completed PhD students, I have been on the committee of 7 more completed PhD students and I have been the advisor for 64 non-thesis masters students.

Outreach

Military – I have developed a teaching module for the United States Army that instructs Drill Sergeants to analyze U.S. Army recruits' running gait. This module has been implemented with over 41,000 recruits since 2009 and is providing a useful approach to reducing injury among our soldiers in training.

Sport Analysis - I served as the technique specialist for the Auburn University Swim Teams during their reign as SEC and National Champions. I also have provided movement analyses for the Auburn University Track and Field Team and 12 Olympians.

Camps- I have developed a movement analysis methodology that has allowed us to work with swimmers attending the Auburn Swim Camps. This has allowed the laboratory to earn over $40,000 since we started 5 years ago.

These outreach activities are critical to the success of the laboratory, as this constitutes our lab's operational budget. In addition, the projects provide a teaching, research, and experience vehicle. Through these projects I am able to demonstrate the principles of biomechanics to my students in real world examples and improve the performance and reduce injuries.

Service-

In addition to serving on University and Departmental committees, I have been the SACS Assessment coordinator for Exercise Science since 2000. I have served as a consultant and support faculty for the Canine Detection Research Institute, the Occupational Safety Ergonomics and Injury Prevention Program and the Kenny Howard Fellowship. I have provided videos and photos for the School of Kinesiology's Physical Activity Portal and am one of the original faculty members who dreamt of, created and are currently implementing the Performance Optimization and Health Center. At this moment we are in the process of petitioning the Olympic Governing Body of U.S. Team handball to become the official training site for the team.