Scott T. Wood, Ph.D.

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www.linkedin.com/in/ScottTWood

RESEARCH AREAS

My major research focus is to better understand, quantify, and predict the behavior of cells in response to physical stimuli. I am primarily focused on the mechanobiology of articular chondrocytes, with the goal of developing disease-modifying therapies for the treatment or prevention of osteoarthritis.

EDUCATION

Doctor of Philosophy in Bioengineering, Clemson University (Clemson, SC) Dec 2011
"Computational Approaches to Understand Phenotypic Structure and Constitutive Mechanics Relationships of Single Cells"

Certificate in Technology Entrepreneurship, Clemson University MBA Program (Greenville, SC) May 2011

Master of Science in Bioengineering, Clemson University (Clemson, SC) Aug 2010
M.S. *en route* to Ph.D.

Bachelor of Science in Mechanical Engineering, Texas Tech University (Lubbock, TX) May 2005
Graduate of Texas Tech University Honors College

ACADEMIC & PROFESSIONAL EXPERIENCE

Assistant Professor, Nano Science & Engineering Aug 2016 – present
South Dakota School of Mines and Technology (Rapid City, SD)

- Established the Nano BioMechanics and MechanoBiology Laboratory within the Nanoscience & Nanoengineering program
- Developed and taught graduate and undergraduate courses across three departments
  - NANO 706: Nano-Biotechnology I
  - NANO 713: Nano-Biotechnology II
  - NANO 718: Nanomechanics
  - BME 303: Intro to Biomechanics
  - ME 316: Solid Mechanics
- Served on multiple university committees
  - Biomedical Engineering Program
    - Steering Committee Aug 2018 – current
    - Undergraduate Curriculum Committee Oct 2016 – Aug 2018
  - Institutional Biosafety Committee, Inaugural Chair Nov 2016 – current
    - Oversaw the addition of two semi-retired physicians as members to represent the community
    - Initiated the availability of Hepatitis B vaccines to SDSMT researchers working with potential bloodborne pathogens and implementation of the associated documentation
    - Implemented multiple revisions of the IBC Protocol and annual renewal forms, increasing the response rate from 17% to 100% in two years
  - Nanoscience and Nanoengineering Program
    - Steering Committee Aug 2016 – current
    - Faculty Search Committee Oct 2017 – Mar 2018
- Established relationships with local tissue sources
  - For normal bovine tissue, secured arrangements for tissue with local butchers: Cutting Edge (Piedmont & Rapid City, SD)

- For normal human tissue, established a working relationship with Dakota Lions Sight & Health tissue bank (Rapid City & Sioux Falls, SD)
- For human OA tissue, established a relationship with, and received IRB approval from Regional Health (Rapid City, SD)

Technology Development Officer Apr 2016 – Aug 2016
Affinergy, LLC (Research Triangle Park, NC)

- Conceptualized and wrote Phase I and Phase II Small Business Innovation Research (SBIR) grant proposals for the development and commercialization of new medical devices and healthcare technologies
- Conducted market research, competitive landscape analysis and literature reviews for product commercialization
- Worked directly with internal research and product development teams for grant proposal content. Obtained product feedback by developing and maintaining relationships with clinicians and key opinion leaders
- Assisted in the administration of multiple phases of the life cycle of grants (drafting, progress reports, etc.)

Independent Scientific Editor Dec 2015 – Aug 2016
American Journal Experts, LLC (Durham, NC)
BioScience Writers, LLC (Houston, TX)
Improved grammatical quality of English language manuscripts by editing scientific publications written by non-native-English-speaking authors according to confidentiality and non-disclosure agreements

Postdoctoral Research Associate Aug 2012 – Apr 2016
Richard Loeser, M.D. Lab, Thurston Arthritis Research Center, University of North Carolina-Chapel Hill (Chapel Hill, NC)
Richard Loeser, M.D. Lab, Department of Internal Medicine-Section on Molecular Medicine, Wake Forest School of Medicine (Winston-Salem, NC)
Position held in two locations due to recruitment of postdoctoral mentor to UNC

- Established the role of a novel oxidative signaling mechanism in the development of osteoarthritis (OA), which has implications for development of pharmacological agents to treat or prevent OA
  - Utilized biosensor FRET and other fluorescent imaging techniques
  - Leveraged project to collaborate with the Klaus Hahn lab at UNC that established a novel cell-permeable application for merocyanine dyes
- Initiated and coordinated working relationships with five teams at three institutions resulting in two new collaboration projects and $130,500 of grant funding
- Developed automated image analysis protocols that resulted in one first author and two collaborative publications
- Characterized spatiotemporal effects of extracellular matrix degradation products on the actin cytoskeletal network of primary human articular chondrocytes using 3D and 4D super-resolution imaging techniques (Zeiss Airyscan, GE OMX 3D SIM)

Graduate/Postdoctoral Research Assistant Aug 2007 – Aug 2012
Delphine Dean, Ph.D. Lab, Bioengineering Department, Clemson University (Clemson, SC)

- Developed, automated, and validated the world's first structurally representative finite element analysis (FEA) model of nonlinear single cell biomechanics, which has applications in tissue engineering and drug development
  - Built and validated model using correlative atomic force microscope (AFM) and fluorescent confocal microscopy data
- Established and automated a new image analysis algorithm for conversion of fluorescence microscopy images into meshed 3D CAD geometries appropriate for finite element analysis (FEA)
- Produced the two highest-impact studies published by the lab since its founding in 2007

Tissue Recovery Tech Jun 2006 – Aug 2007
Musculoskeletal Transplant Foundation (MTF; Madison, WI)

- Responsible for rapid recovery of human tissue from cadaveric tissue donors for transplantation for one of the largest tissue banks in the United States
- Actively engaged hospital nursing staff to ensure rapid, proper recovery protocol which resulted in decreasing average case time from 8 hours to 6 hours
- Recovered tissues from over 50 donors, which improved the quality of life of as many as 2,500 people

Temporary Employee Sept 2005 – Aug 2007
BouMatic, LLC (Madison, WI)

- As Quality Control Lab Technician, created efficient protocols for FDA-mandated chemical testing and archival of results while establishing a new chemical quality control lab for one of the largest dairy equipment manufacturers in the United States
- As Human Resources Temp, entered confidential hiring information of over 300 new employees into HR database
- Set up and organized a new warehouse for industrial chemicals and dairy barn parts for operational efficiency

Independent Study 2004
Department of Mechanical Engineering, Texas Tech University (Lubbock, TX)
"A Study of Fixation and Stability of Pubic Symphysis Disruption Using a Dynamic Compression Plate"
Showed that the failure rate of stainless steel dynamic compression plate fixation to repair injuries of the pubic symphysis is partially due to the resulting unnatural stresses that are applied to the pubic symphysis under static load

Summer Research Assistant 2002 & 2003
Jeff Allen, Ph.D. Lab, NASA Glenn Research Center (Cleveland, OH)
Increased NASA's fuel cell capabilities by establishing the use of a novel non-invasive pressure monitoring technique at a NASA research lab

Undergraduate Research Assistant 2001 – 2003
Darryl Bornhop, Ph.D. Lab, Department of Chemistry, Texas Tech University (Lubbock, TX)
Helped establish a new volumetric flow analysis technique using on-chip interferometric backscatter detection with direct implications for newly emerging organ-on-a-chip technologies

PUBLICATIONS

Peer-reviewed Articles

1. Saraswat R*, Ratnayake I*, Perez EC†, Schutz, WM†, Zhu Z, Ahrenkiel SP, **Wood ST**. *CellWell: A micropatterned biphasic nanocomposite platform for culturing chondrocytes*. bioRxiv: **2019**. doi:10.1101/790030.
2. Collins JA, **Wood ST**, Bolduc JA, Nurmalasari NPD*, Chubinskaya S, Poole LB, Furdui CM, Nelson KJ, Loeser RF. *Differential Peroxiredoxin Hyperoxidation Regulates MAP Kinase Signaling in Human Articular Chondrocytes*. Free Radical Biology and Medicine: **2019**; 134:139-152. doi:10.1016/j.freeradbiomed.2019.01.005.
3. Nelson KJ, Bolduc J, Wu H, Collins JA, Burke EA, Reisz JA, Klomsiri C, **Wood ST**, Yammani RR, Poole LB, Furdui CM, Loeser RF. *H_2O_2 oxidation of cysteine residues in c-Jun N-terminal kinase 2 (JNK2) contributes to redox regulation in human articular chondrocytes*. The Journal of Biological Chemistry: **2018.** 19;293(42):16376-16389. doi:10.1074/jbc.RA118.004613.
4. Meyerink J, Kota D*, **Wood ST**, Crawford GA. *Transparent Titanium Dioxide Nanotubes: Processing, Characterization, and Application in Establishing Cellular Response Mechanisms.* Acta Biomaterialia: **2018**. 79:364-374. doi:10.1016/j.actbio.2018.08.039.
5. Collins JA, **Wood ST**, Nelson KJ, Rowe MA, Carlson CS, Chubinskaya S, Poole LB, Furdui CM, Loeser RF. *Mitochondrial Oxidative Stress Promotes Peroxiredoxin Hyperoxidation and Attenuates Pro-Survival Signaling in Aging Chondrocytes*. The Journal of Biological Chemistry: **2016**. 291(13):6641-54. doi:10.1074/jbc.M115.693523.

6. **Wood ST**, Long DL, Reisz JA, Yammani RR, Burke EA, Klomsiri C, Poole LB, Furdui CM, Loeser RF. *Cysteine-Mediated Redox Regulation of Cell Signaling in Chondrocytes Stimulated with Fibronectin Fragments*. Arthritis & Rheumatology: **2016**. 68(1):117. doi:10.1002/art.39326. **Featured article**.
7. Patel AL, Chen X, **Wood ST**, Stuart ES, Arcaro KF, Molina DP, Petrovic S, Furdui CM, Tsang AW. *Activation of Epidermal Growth Factor Receptor Is Required for Chlamydia Trachomatis Development*. *BMC Microbiology*: **2014**. 14(1):277. doi:10.1186/s12866-014-0277-4.
8. **Wood ST**, Dean BC, Dean D. *A Computational Approach to Understand Phenotypic Structure and Constitutive Mechanics Relationships of Single Cells*. Annals of Biomedical Engineering: **2013**. 41(3):630. doi:10.1007/s10439-012-0690-5. **Cover article.**
9. **Wood ST**, Dean BC, Dean D. *A linear programming approach to reconstructing subcellular structures from confocal images for automated generation of representative 3D cellular models*. Medical Image Analysis: **2013**. 17(3):337. doi:10.1016/j.media.2012.12.002.
10. Owczarczak AB, Shuford SO, **Wood ST**, Deitch S, Dean D. *Creating Transient Cell Membrane Pores Using a Standard Inkjet Printer*. Journal of Visualized Experiments: **2012**. (61):3681. doi:10.3791/3681. **Named to "JoVE's Top-10" most viewed articles.**
11. Hemmer JD, Nagatomi J, **Wood ST**, Vertegel AA, Dean D, LaBerge M. *Role of Cytoskeletal Components in Stress Relaxation Behavior of Adherent Vascular Smooth Muscle Cells*. Journal of Biomechanical Engineering. Transactions of the ASME: **2009**. 131(4):041001. doi:10.1115/1.3049860.
12. Markov DA, Dotson S, **Wood S**, Bornhop DJ. *Non-Invasive Fluid Flow Measurements in Microfluidic Channels with Backscatter Interferometry*. Electrophoresis: **2004**. 25(21-22):3805. doi:10.1002/elps.200406139.

*Directly Supervised Graduate Student

†Directly Supervised Undergraduate Student

Invited Non-Reviewed Articles

Wood, S. *Ground breaking cellular research: Intriguing study on cellular mechanic properties*. Simulating Reality magazine: Winter **2012**. MSC Software Corporation: Santa Ana, CA. p. 38.

INTELLECTUAL PROPERTY

Pending Patent Applications

Wood, S. inventor; South Dakota Board of Regents, assignee. *Micropatterned Hydrogel for Cell Cultures*. United States Provisional Patent Application No. 62828857. **2019**, Apr 3. (Disclosed 2019, Jan 31.)

HONORS AND AWARDS

Peer Review

Experimental Biology and Medicine (EBM) Outstanding Reviewer Award: Oct 2019

Scientific Oral Communication

1. National MSC.Software Users Conference Best Presentation and Technical Paper in the "University and Research" track: Jan 2011
2. Clemson University Department of Bioengineering graduate student seminar series Departmental Presentation Award for outstanding performance in scientific oral communication: May 2010

Current Grant Support

South Dakota School of Mines & Technology Foundation Nelson Grant: "Validation of the CellWell™ Articular Cartilage Model." PI; $5,000, 2019-2020.

South Dakota Board of Regents Research & Development Collaboration Grant: "Imaging, Materials, and Genetic Engineering (IMAGEN): Biomaterials research in South Dakota." Co-PI; $900,000, 2019-2022.

Completed Grant Support

1. Startup funding provided by NSF EPSCoR RII, SD RIC: "Building a bio-economy in South Dakota." $31,900,000 (total), $3,900,000 (SDSMT), 2013 – 2019 (participated 2016 – 2019).
2. NIH NIAMS Building Interdisciplinary Research Team (BIRT) Revision Awards (R01): "Integrin Function in Cartilage." Postdoctoral fellow and contributor to the writing of the grant; $100,000, 2015 – 2016.

3. Wake Forest University (Collaborative Pilot Grant): “Mechanotransduction in Cartilage.” Postdoctoral fellow and major contributor to the writing of the grant (NIH format); $18,000, 2013 – 2014.
4. Wake Forest University (Center for Molecular Communication and Signaling [CMCS] Pilot Grant): “Mechanotransduction in Cartilage.” Postdoctoral fellow and major contributor to the writing of the grant (NIH format); $12,500, 2013 – 2014.

SCIENTIFIC PRESENTATIONS

Invited Talks

External Talks

1. **Wood S.** *Investigating the Cellular Mechanobiology of Osteoarthritis.* Seminar for Biophysics REU, Clemson University, **2019**, Clemson, SC.
2. **Wood S.** *Cellular Mechanobiological Regulation of the Pathogenesis of Osteoarthritis.* Seminar for Biomedical Engineering graduate students, University of South Dakota, **2018**, teleconferenced from Rapid City, SD.
3. **Wood S.** *Imaging Fluorescent Reporters of Mechanotransduction, Cell Mechanics and Signaling Pathways in Human Chondrocytes.* Visualizing Genetically Modified Organisms with Sub-cellular Resolution, Dynamically, and in 3D Symposium, SD BRIN and SD EPSCoR Research Faculty Meeting & Student Research Symposium, **2018**, Pierre, SD.
4. Bhatnagar P, Bryant S, Hoppe A, Tanmay L, **Wood S**. *Healthcare Panel Discussion*. Biomaterials Day, University of South Dakota, **2017,** Sioux Falls, SD.

Internal Talks

1. **Wood S.** *Micropatterned System for Culture of Individually Isolated Cells*. SD Mines Regional Investor Forum, South Dakota School of Mines and Technology, **2019**, Rapid City, SD.
2. **Wood S.** *Investigating the Cellular Mechanisms of Osteoarthritis.* Seminar for Nano Science and Engineering PhD Program, South Dakota School of Mines and Technology, **2019**, Rapid City, SD.
3. **Wood S.** *Investigating the Cellular Mechanisms of Osteoarthritis.* STEAM Café, Hay Camp Brewing Company, **2018**, Rapid City, SD.
4. **Wood S.** *Biomechanics and Mechanobiology of Nanoscale Structural Proteins.* Seminar for Nano Science and Engineering PhD Program, South Dakota School of Mines and Technology, **2018**, Rapid City, SD.
5. **Wood S.** *Modeling and Characterization of Integrin-Mediated Cellular Responses.* Seminar for Nano Science and Engineering PhD Program, South Dakota School of Mines and Technology, **2017**, Rapid City, SD.
6. **Wood S**. *Fluorescent Detection of Redox Mediated Signaling in Chondrocytes*. Seminar for imaging subgroup of the Center for Molecular Communication and Signaling (CMCS), Wake Forest University, **2013**, Winston-Salem, NC.
7. **Wood S**. *Detection of Redox Mediated Signaling in Chondrocytes Stimulated with Fibronectin Fragments*. Seminar for Molecular Medicine and Translational Science (MMTS) graduate students, Wake Forest School of Medicine, **2013**, Winston-Salem, NC.
8. **Wood S**. *Computational Approaches to Understand Phenotypic Structure and Constitutive Mechanics Relationships of Single Cells*. Seminar for Postdoctoral Training Program in Translational Radiation Oncology (TRADONC) fellows, Wake Forest School of Medicine, **2012**, Winston-Salem, NC.

Annual Meeting Podium Presentations

1. Meyerink J, **Wood S**, Mercuri J, Anderson R, Scott B, Crawford G. *Application of Titanium Dioxide Nanotubes and Lattice Light-Sheet Microscopy in Establishing Early-Stage Cellular Response Mechanisms*. The Minerals, Metals & Materials Society (TMS), **2020** Annual Meeting, San Diego, CA.
2. Meyerink J, Kota D, Scott B, Anderson R, **Wood S**, Crawford G. *Transparent Titanium Dioxide Nanotubes: Processing, Characterization, and Application in Establishing Cellular Response Mechanisms.* The Minerals, Metals & Materials Society (TMS), **2019** Annual Meeting, San Antonio, TX.
3. Meyerink J, Kota D, **Wood S**, Crawford G. *Transparent Titanium Dioxide Nanotubes: Processing, Characterization, and Application in Establishing Cellular Response Mechanisms.* The Minerals, Metals & Materials Society (TMS), **2018** Annual Meeting, Phoenix, AZ.

4. **Wood S**, Long D, Reisz J, Yammani R, Burke E, Klomsiri K, Poole L, Furdui C, Loeser R. *Cysteine-Mediated Redox Regulation of Cell Signaling in Chondrocytes Stimulated with Fibronectin Fragments*. Osteoarthritis Research Society International (OARSI), **2015** Annual Meeting, Seattle, WA.
5. **Wood S**, Long D, Klomsiri C, Poole L, Furdui C, Loeser F., *Redox Regulation of Cell Signaling in Chondrocytes Stimulated with Fibronectin Fragments*. North Carolina Cartilage-Arthritis Research Alliance **2013** Annual Meeting, Winston-Salem, NC.
6. **Wood S**, Dean B, Kanetkar S, Dean D. *Structural Modeling of Vascular Smooth Muscle Cell Mechanics Using Marc*. MSC.Software, MSC Software **2011** Users Conference, Costa Mesa, CA.
7. **Wood S**, Deitch S, Dean D. *Concurrent Visualization and Characterization of Single Cell Mechanical Properties*. Society for Biomaterials (SFB), **2011** Annual Meeting, Orlando, FL.
8. **Wood S**, Hemmer J, Dean B, Dean D. *Structural Modeling of Vascular Smooth Muscle Cell Mechanics*. Biomedical Engineering Society (BMES), **2009** Annual Meeting, Pittsburgh, PA.

Additional Abstracts

1. Haugen A*, Loyd Y, Kota D, **Wood S**. *Quantification of Actin Motion in Chondrocytes Using Lattice Light-Sheet Microscopy*. Biomedical Engineering Society (BMES), **2019** Annual Meeting, Philadelphia, PA.
2. Perez EC*, Saraswat R, Ratnayake I, Ahrenkiel SP, **Wood S**. *Characterization and Optimization of Embedded Electrospun Nanofibers for the CellWell™*. **2019** South Dakota Undergraduate Summer Research Symposium, Sioux Falls, SD.
3. Haugen A*, Loyd Y, Kota D, **Wood S**. *Quantification of Actin Motion in Chondrocytes Using Lattice Light-Sheet Microscopy*. **2019** South Dakota Undergraduate Summer Research Symposium, Sioux Falls, SD.
4. Saraswat R, Schutz W*, Ratnayake I, Zhu Z, Ahrenkiel SP, **Wood S**. *Development of the CellWell™ - a novel micropatterned biphasic nanocomposite platform for chondrocyte cell culture*. Society for Biomaterials (SFB), **2019** Annual Meeting, Seattle, WA. Poster presentation; winner of Engineering Cells and Their Microenvironments **Student Poster Award**.
5. Diaz D*, Meyerink J, Scott B, Anderson R, **Wood S**, Crawford G. *Lattice Light Sheet Microscopy Imaging of Cell Adhesion Proteins on Transparent Titanium Dioxide Nanotubes*. Biomedical Engineering Society (BMES), **2018** Annual Meeting, Atlanta, GA. Undergraduate Research & Design Track.
6. Saraswat R, Schutz W*, Zhu Z, Ahrenkiel SP, **Wood S**. *Development of the CellWell™ - a novel micropatterned platform for cell culture and imaging.* **2018** South Dakota Biotech Summit, Sioux Falls, SD. **Invited poster** due to noted commercialization potential of USD Biomaterials Day poster below.
7. Saraswat R, Schutz W*, Zhu Z, Ahrenkiel SP, **Wood S**. *Development of the CellWell™ - a novel micropatterned platform for cell culture and imaging.* University of South Dakota, **2018** Biomaterials Day, Sioux Falls, SD. **First Place in student poster competition**.
8. Feiner J*, Kota D, **Wood S.** *Application of Mechanical Force to Chondrocytes*. **2018** South Dakota Undergraduate Summer Research Symposium, Pierre, SD.
9. Schutz W*, Saraswat R, Ahrenkiel SP, **Wood S.** *Synthesis of a Biphasic Micropatterned Well Array.* **2018** South Dakota Undergraduate Summer Research Symposium, Pierre, SD.
10. Diaz D*, Meyerink J, Scott B, Anderson R, **Wood S**, Crawford G. *Lattice Light Sheet Microscopy Imaging of Cell Adhesion Proteins on Transparent Titanium Dioxide Nanotubes*. **2018** South Dakota Undergraduate Summer Research Symposium, Pierre, SD.
11. Saraswat R, Ryther T, Zhu Z, **Wood S.** *Toward Development of the CellWell™ - A Novel Micropatterned Semi-3D Cell Culture Scaffold*. Society for Biomaterials (SFB), **2018** Annual Meeting, Atlanta, GA.
12. Saraswat R, Ryther T, Zhu Z, **Wood S.** *Characterization of Hydrogel Material Properties for the Development of the CellWell™ 2.5D Cell Culture and Imaging Platform*. South Dakota School of Mines and Technology **2018** Nano Expo, Rapid City, SD.
13. Ryther T, Saraswat R, Zhu Z, **Wood S.** *Toward development of the CellWell™ - Micropatterning Techniques for Shaping Hydrogels*. South Dakota School of Mines and Technology **2018** Nano Expo, Rapid City, SD.
14. Saraswat R, Ryther T, **Wood S**. *Characterization of hydrogel material properties for the development of the CellWell™ 2.5D cell culture and imaging platform*. South Dakota School of Mines and Technology **2018** Student Research Symposium, Rapid City, SD.
15. Collins J, DeFoor M, Diekman B, **Wood S**, Bolduc J, Nelson K, Chubinskaya S, Poole L, Furdui C, Loeser R. *Oxidative Stress-Induced Sulfenylation of Sirt6 is Associated with Enhanced NF-κB Signaling in Human Chondrocytes*. Orthopaedic Research Society (ORS), **2018** Annual Meeting, New Orleans, LA.
16. Meyerink J, Kota D, **Wood S**, Crawford G. *Transparent Titanium Dioxide Nanotubes: Processing, Characterization, and Application in Establishing Cellular Response Mechanisms.* **2017** SD EPSCoR All Investigators Meeting, Oacoma, SD.

17. Meyerink J, Kota D, **Wood S**, Crawford G. *Transparent Titanium Dioxide Nanotubes: Processing, Characterization, and Application in Establishing Cellular Response Mechanisms.* University of South Dakota, **2017** Biomaterials Day, Sioux Falls, SD.
18. Brett J*, Smith S, **Wood S**. *Application of Mechanical Force to Chondrocytes via Magnetic Gradients*. **2017** South Dakota Undergraduate Summer Research Symposium, Pierre, SD.
19. Dekle R*, Yang H, Ahrenkiel SP, **Wood S.** *Toward the Development of the CellWell™ Semi-3D Cell Culture Platform*. **2017** South Dakota Undergraduate Summer Research Symposium, Pierre, SD.
20. Collins J, **Wood S**, Poole L, Furdui C, Nelson K, Loeser R. *Differential Peroxiredoxin Hyperoxidation Regulates Map Kinase Signaling in Human Articular Chondrocytes*. Osteoarthritis Research Society International (OARSI), **2017** Annual Meeting, Las Vegas, NV.
21. Loeser R, Collins J, Nelson K, **Wood S**, Bolduc J, Poole L, Furdui C. *Redox Regulation of c-jun N-terminal Kinase (JNK) Signaling in Articular Chondrocytes*. Orthopaedic Research Society (ORS), **2017** Annual Meeting, San Diego, CA.
22. Collins J, **Wood S**, Poole L, Furdui C, Nelson K, Loeser R. *The Level of Reactive Oxygen Species Differentially Regulates Peroxiredoxin Oxidation and Mitogen-Activated Protein Kinase Signaling In Human Chondrocytes*. Osteoarthritis Research Society International (OARSI), **2016** Annual Meeting, Amsterdam, Kingdom of the Netherlands.
23. **Wood S**, Collins J, Long D, Reisz J, Poole L, Furdui C, Loeser R. *Cysteine-Mediated Redox Regulation of Cell Signaling in Chondrocytes: Potential Role in Osteoarthritis*. Gordon Research Conference, **2015** Redox Biology of Age-Related Diseases, Ventura, CA (Non-Presenting Author).
24. Loeser R, **Wood S**, Reisz J, Yammani R, Klomsiri K, Poole L, Furdui C. *Redox Regulation of Cell Signaling in Chondrocytes Stimulated with Fibronectin Fragments*. Orthopaedic Research Society (ORS), **2014** Annual Meeting, New Orleans, LA.
25. **Wood S**, Dean B, Dean D. *Computational Approaches to Understand Phenotypic Structure and Constitutive Mechanics Relationships of Single Cells*. Life Sciences SCBIO-SCMedTech **2011** Annual Meeting, Charleston, SC.
26. **Wood S**, Dean B, Kanetkar S, Dean D. *Structural Modeling of Vascular Smooth Muscle Cell Mechanics Using MSC Marc*. Society for Biomaterials (SFB), **2011** Clemson University Biomaterials Day, Clemson, SC.
27. Shuford S, Owczarczak A, **Wood S**, Dean D. *Incorporation of Fluorescent Actin Monomers in Living Cells using Inkjet Printing for Cellular Biomechanics Studies.* Biomedical Engineering Society (BMES), **2011** Annual Meeting, Hartford, CT.
28. **Wood S**, Dean B, Dean D. *Toward a Representative Phenotypic Representation of Structural Components of Vascular Smooth Muscle Cells*. INBRE, **2011** Southeast Regional IDeA Meeting, New Orleans, LA.
29. **Wood S**, Dean B, Dean D. *Toward a Representative Phenotypic Representation of Vascular Smooth Muscle Cells in Finite Element Analysis*. Biomedical Engineering Society (BMES), **2010** Annual Meeting, Austin, TX.
30. **Wood S**, Dean B, Dean D. *Toward a Representative Phenotypic Representation of Structural Components of Vascular Smooth Muscle Cells*. Society for Biomaterials (SFB), **2010** Annual Meeting, Seattle, WA.
31. **Wood S**, Hemmer J, Dean D. *Hertzian Modeling of Vascular Smooth Muscle Cell Mechanics: A Simplified Preliminary Study of Contractile and Synthetic Phenotypes*. SC Bioengineering Symposium, **2009** Annual Meeting, Columbia, SC.
32. Hemmer J, **Wood S**, Nagatomi J, Dean D, Wright-Walker C, LaBerge M. *Effects of OxLDL on the Viscoelastic Properties of Vascular Smooth Muscle Cells*. Society for Biomaterials (SFB), **2009** Annual Meeting, San Antonio, TX.
33. **Wood S**, Hemmer J, Dean B, Dean D. *Quantifying Vascular Smooth Muscle Cell Cytoskeletal Structure*. Biomedical Engineering Society (BMES), **2008** Annual Meeting, St. Louis, MO.
34. **Wood S**, Hemmer J, Dean D. *Modeling of Vascular Smooth Muscle Cell Mechanics*. Materials Research Society (MRS), **2008** Annual Meeting, San Francisco, CA.

*Undergraduate Student

TEACHING, MENTORING, TRAINING, AND COACHING PROVIDED

- Advised 1 undergraduate BME student (2019 – present)
- Taught graduate and undergraduate courses

- ME 316 – Solid Mechanics II, Spring 2018, SDSMT
- NANO 706 – Nano Biotechnology, Fall 2018, SDSMT
- NANO 718 – Nanomechanics, Spring 2019, SDSMT
- NANO 713 – Nano Biotechnology II, Fall 2019, SDSMT
- BME 303 – Intro to Biomechanics, Fall 2019, SDSMT

- Supported and mentored one Ph.D. student; co-mentored two Ph.D. students (2017 – present)
- Mentored three undergraduate REU students, co-mentored one other for summer research (2017 – present)
- Assisted with SDSMT CAMP Composite Guitar project as an ad hoc faculty advisor (2016 – 2017)
- Mentored three graduate students, eight undergraduates, and five high school students as a graduate student and postdoc (2007 – 2016)
- Taught one medical resident, three postdoctoral colleagues, and 14 mentored students multiple techniques in both hard and soft skills as a graduate student and postdoc (2007 – 2016)

PROFESSIONAL ACTIVITIES

Funding Proposal Reviewer

- National Science Foundation (NSF)
  - Panelist
    - CMMI – Biomechanics and Mechanobiology (BMMB), 2019
    - CBET – Engineering of Biomedical Systems (EBMS), 2019
  - Ad hoc
    - DMR – Biomaterials (BMAT), 2019

Journal Reviewer

- Experimental Biology and Medicine
  - 2019-10-16
- Biomolecules
  - 2019-08-05
- Journal of Biological Engineering
  - 2019-07-26
  - 2019-07-25
  - 2019-05-31
- Antioxidants
  - 2019-04-22
  - 2018-11-07
- International Journal of Molecular Sciences
  - 2019-02-25
- Molecules
  - 2019-01-24
- Cytometry Part A
  - 2013-12-04
  - 2013-07-29
  - 2013-07-26
- Springer Plus
  - 2013-02-04

National Organization Service

Society for Biomaterials (SFB)

Moderator, Engineering Cells and Their Microenvironments Session

2019 Annual Meeting: Seattle, WA

2018 Annual Meeting: Atlanta, GA

Abstract Reviewer

2019 Annual Meeting: Seattle, WA

2018 Annual Meeting: Atlanta, GA

Program Chair, Engineering Cells and Their Microenvironments (ECTM) Special Interest Group
May 2017 – May 2019
Proposed and organized Engineering Cells and Their Microenvironments Sessions for 2018, 2019 annual meetings

Forum Reporter, Engineering Cells and Their Microenvironments (ECTM) Special Interest Group
May 2019 – Present

Web Representative, Biomaterials Education Special Interest Group
May 2019 – Present

Summer Biomechanics, Bioengineering, and Biotransport Conference (SB^3C)
Abstract Reviewer
2019 Annual Meeting: Seven Springs, PA

Biomedical Engineering Society (BMES)
Abstract Reviewer
2019 Annual Meeting: Philadelphia, PA