

B. AUDREY NGUYEN, PHD

Assistant Professor of Practice Biomedical Engineering

Experimental Techniques in Biomechanics Visiting Assistant Professor

Laboratory-based course for upperclassmen biomedical track students to apply principles of biomechanics
Developed new lecture content to review proper experimental design and statistical analysis of data using MatLab built-in functions
Collaborated with co-instructor to redesign course materials and content for purely online delivery
Successfully provided access to students to remotely perform laboratory experiments
Developed and introduced new mini-project to introduce students to COMSOL finite element modeling

Tools for Biomedical Engineering (Lecture and Lab) Visiting Assistant Professor

Fall 2020

Introductory course for incoming Biomedical Engineering majors, MatLab & SolidWorks intensive course
x Presented and prepared 2 weekly lectures with co-instructor
Supplemented new lecture content, developed novel assignments, developed assessments based on student learning outcomes
Co-taught lab portion in purely online format, assisted students with troubleshooting circuits, developing critical thinking skills in hands-on labs

Department of Biology & Biomedical Engineering
Rose-Hulman Institute of Technology, Terre Haute, IN
Systems Accounting and Modeling II – Visiting Assistant Professor

Spring 2020

Conservation of extensive properties, constitutive relations, constraints, and equilibrium modeling assumptions

Mentorship and development program that helps graduate students from any discipline discern whether they are interested in pursuing faculty careers in liberal arts colleges or small universities

Met with mentor to discuss advantages and challenges of faculty careers at liberal arts institutions

Attended multiple professional development workshops to continue advancement of teaching abilities

Ophthalmic Engineering Journal Club, The Ohio State University, Columbus, OH

2017-Present

President, Founding Member

Organized weekly meetings of biomedical engineering graduate students to present and discuss scientific literature relating to ophthalmology and ophthalmic engineering, practiced oral presentation skills, developed a network of peers

Exam Committee Lead, Engineering Education Innovation Center, The Ohio State University, Columbus, OH

Spring 2015

Led committee to create exam materials for Fundamentals of Engineering Course Sequence (14 sections)

Generated multiple choice, short answer, and extended response questions, and corresponding keys

Contributed to, and organized database of exam questions

PUBLICATIONS

Bussett, K., Goebel, K., Lee, V., Alumbaugh, L., Calhoun M., Nguyen, B., & Osmar, ETN hydrogels as a potential anti-inflammatory drug delivery system targeted to osteoarthritic knees. *Biomed Sci Instrum* (2021), (57)(2)

Pappa, C.S., Nguyen, B., Mahmoud, A.M., Agarwal, G., Roberts, C. Effect of penetration enhancer with novel corneal softening using recombinant human decoron in porcine eyes. *Experimental Eye Research* (2021), 206:108542

Nguyen, B.A., Roberts, C.J., & Reilly, M.A. Biomechanical contribution of the sclera to dynamic corneal response with induced deformation in human donor eyes. *Experimental Eye Research* (2019), 191:107904

Nguyen, B. A., Roberts, C. J., & Reilly, M. A. (2018). Biomechanical impact of the sclera on corneal deformation response to an air puff: a finite-element study. *Frontiers in Bioengineering and Biotechnology*

TEACHING PRESENTATIONS

Coordinated with regional LIONS Eye Bank to acquire donor tissues
 Assisted with new ophthalmic equipment training
 Orthopaedic Biomaterials Research Alan S. Litsky, M.D., D.Sc. 2013-15
 Student Research Assistant
 Developed novel functional prototype of system to measure grip force of otologic surgeons during
 bone milling to improve haptic feedback on surgical simulation system
 Aided in generating protocol for generating repeatable facial fractures in cadaveric specimens

RESEARCH PRESENTATIONS

A nonlinear viscoelastic model of corneal and whole eye motion under airpuff loading by a dynamic Scheimpflug analyzer, B. Audrey Nguyen, M.S., Matthew A. Reilly, Ph.D., Cynthia J. Roberts, Ph.D., Poster Presentation. ISER Biennial Meeting 2018
Preliminary study on biomechanical contribution of the sclera to dynamic corneal response in airpuff induced deformation, B. Audrey Nguyen, M.S., Matthew A. Reilly, Ph.D., Cynthia J. Roberts, Ph.D., Poster Presentation. ARVO Annual Meeting 2018
Biomechanical impact of the sclera on corneal deformation response to airpuff: a finite-element study, B. Audrey Nguyen, M.S., Mohammad Arif Hossain, M.S., Jun Liu, Ph.D., Cynthia J. Roberts, Ph.D., Poster Presentation. ARVO Annual Meeting. 2017
Measuring Hand Forces During Bone Milling to Improve Haptic Feedback of an Otologic Surgical Simulator, B. Audrey Nguyen, Alan S. Litsky, M.D., D.Sc., Poster Presentation. BMES Annual Meeting. 2014

AWARDS AND HONORS

2nd place, Graduate Research Presentations, Ophthalmology Research Day Symposium, The Ohio State University 2019
 2nd place, Engineering Oral Presentations, Edward F. Hayes Graduate Research Forum, The Ohio State University 2018
 Diane M. Hunn Service Award, Science Education Council of Ohio 2016

PROFESSIONAL SOCIETY MEMBERSHIPS

ARVO Association for Research in Vision and Ophthalmology
 BMES Biomedical Engineering Society
 ISER International Society for Eye Research