Tyler C Kreipke, CSC

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5000 N Willamette Blvd	Office: (503)-943-7885	kreipke@up.edu
Portland, OR 97203	Cell: (317) 694-4341	tkreipke@holycrossusa.org

EDUCATION

2017 **PhD, Bioengineering**, University of Notre Dame, Notre Dame, IN
Concentration: Trabecular Bone Mechanobiology
Advisor: Glen L. Niebur, Ph.D.

2023 **MDiv,** University of Notre Dame, Notre Dame, IN

2011 **BS, Biomedical Engineering**, Rose-Hulman Institute of Technology, Terre Haute, IN
Concentration: Biomaterials
Minor: German

TEACHING POSITIONS

Assistant Professor, Shiley School of Engineering, 2025-Present
University of Portland, Portland, OR

- Engineering Fundamentals – EGR110
  - 25 students (Fall 2025)
- Materials Science – EGR221
  - 28 students (Fall 2025)
- Stress Visualization – ME305
  - 34 students (Fall2025)
- Machine Design – ME348
  - 33 students (Spring 2026)
- Mechanical Design Project – ME368
  - 32 students (Spring 2026)
- Engineering Computing with Applications – EGR111
  - 30 students (Spring 2026)

Adjunct Instructor, Shiley School of Engineering, 2023-2025
University of Portland, Portland, OR

- Introduction to Engineering – EGR110
  - 22 students (Fall 2023)
  - 23 students (Fall 2024)
- Machine Design – ME348
  - 10 students (Spring 2025)
  - 20 students (Spring 2024)
- Engineering Mechanics – Statics – EGR211
  - 10 students (Spring 2025)
  - 23 students (Fall 2024)
- Engineering Graphics – ME222
  - 15 students (Spring 2024)
- Mechanical Design Project – ME268
  - 13 students (Spring 2024)
- Atmospheric Sampler Research – EGR493
  - 1 student (Spring 2024)
- Senior Capstone Team Advisor
  - 6 students (Spring 2025)
  - 6 students (Fall 2024)
  - 8 students (Spring 2024)

- 4 students (Fall 2023)

Adjunct Instructor, Dept. of Aerospace and Mechanical Eng., 2021-2023
University of Notre Dame, Notre Dame, IN

- Design Tools I- AME21267 (undergraduate)
  - 33 students (Fall 2021)
  - 46 students (Spring 2022)
  - 9 students (Fall 2022)
  - 48 students (Spring 2023)

Instructor, First Year Engineering Program, 2020
University of Notre Dame, Notre Dame, IN

- Engineering Projects- EG10115 (undergraduate)
  - 34 students (Fall 2020)

Undergraduate Independent Projects Facilitator, Dept. of Aerospace and Mechanical Eng., 2020-2023

- Independent Projects- AME47560
  - 4 students (Spring 2021)
- Sustainability Minor Capstone
  - Erin Goldman (Fall 2022-Spring 2023)

Graduate Teaching Assistant, Dept. of Aerospace and Mechanical Eng., 2011-2017, 2019-2020
University of Notre Dame, Notre Dame, IN

- Course Instructor
  - Introduction to Engineering Systems II- EG10112 (undergraduate)
    - 46 students (Spring 2017)
  - Introduction to Engineering Systems I- EG10111 (undergraduate)
    - 42 students (Fall 2016)

- Recitation Instructor
  - Mechanics of Solids- AME20241 (undergraduate)

- Teaching Assistant
  - Mechanics of Solids- AME20241 (undergraduate)
  - Mechanics of Solids Laboratory (3 Semesters)- AME21241 (undergraduate)
  - Introduction to Finite Element Methods (3 Semesters)- AME50541 (undergraduate)
  - Differential Equations, Vibrations, and Control I- AME30314 (undergraduate)
  - Differential Equations II- AME30315 (undergraduate)
  - Computer Aided Design/Manufacturing- AME30361 (undergraduate)

Undergraduate Research Mentor, Tissue Mechanics Laboratory, 2012-2017
University of Notre Dame, Notre Dame, IN

- Nicole C. Rivera (Published paper co-author)
- M. Alyssa Varsanik (Conference abstract co-author)
- Josue Santana (Conference abstract co-author)
- Michael O'Connor
- Johanna Blake

UNIVERSITY SERVICES

University of Portland
Advisor, Electric Vehicle Club, 2025-Present
Member, Vice President for Financial Affairs Search Committee, 2026
Member, Shiley School of Engineering Dean Search Committee, 2025
Professionalism Code Task Force, ME Dept., 2025-2026
Member, Professional Development Mission Statement Committee, 2025
Chaplain, Men's Soccer, 2025-Present

Member, Presidential Advisory Council on Sustainability, 2024

University of Notre Dame
Member, Design Curriculum Task Force, Dept. of Aerospace and Mechanical Eng., 2021-2022

PROFESSIONAL SERVICES

Reviewer, Engineering Design & Graphics Journal, 2025-Present

RESEARCH EXPERIENCE/INTERNSHIPS

Research Scientist, Tissue Mechanics Laboratory, 2017
Dr. Glen Niebur, University of Notre Dame, Notre Dame, IN

Graduate Research Assistant, Dept. of Aerospace and Mechanical Eng., 2011- 2017
Dr. Glen Niebur, University of Notre Dame, Notre Dame, IN

New Product Development Intern, Suros Surgical Division, Hologic Inc., 2009

JOURNAL PUBLICATIONS

1. **T.C. Kreipke**, G.L. Niebur, Anisotropic Permeability of Trabecular Bone and its Relationship to Fabric and Architecture: A Computational Study. *Annals of Biomedical Engineering,* 2017. **45**(6) p. 1543-1554
2. **T.C. Kreipke**, J.G. Garrison, J.T. Easley, A.S. Turner, G.L. Niebur. The roles of architecture and estrogen depletion in microdamage risk in trabecular bone. *Journal of Biomechanics,* 2016. **49**(14): p. 3223-3229
3. Thomas A. Metzger, Stephen A. Schwaner, Anthony J. LaNeve, **Tyler C. Kreipke**, Glen L. Niebur, Pressure and Shear Stress in Trabecular Bone Marrow During Whole Bone Loading. *Journal of Biomechanics*, 2015. **48**(12): p. 3035-43
4. Birmingham E., **Kreipke T.**, Dolan E.B., Coughlin T.R., Owens P., McNamara L.M., Niebur G.L., McHugh P.E., Mechanical stimulation of bone marrow *in situ* induces bone formation in trabecular explants. *Annals of Biomedical Engineering*, 2015. **43**(4): p. 1036-50
5. Thomas A. Metzger, **Tyler C. Kreipke**, Ted J. Vaughan, Laoise M. McNamara, Glen L. Niebur, The *in situ* Mechanics of Trabecular Bone Marrow: The Potential for Mechanobiological Response. *Journal of Biomechanical Engineering*, 2014. **137**(1): p. 11006-1-7
6. **T.C. Kreipke**, N.C. Rivera, J.G. Garrison, J.T. Easley, A.S. Turner, G.L. Niebur, Alterations in Trabecular Bone Microarchitecture in the Ovine Spine and Distal Femur Following Ovariectomy. *Journal of Biomechanics*, 2014. **47**(8): p. 1918-21

CONFERENCES

Presentations

1. **T.C. Kreipke**, J. Gargac, C. Goehler, C.J. Hainley, L. Dudash, M. Foster, WIP – The Effects of Course Goals on Student Motivation in Computer-Aided Design Courses, *2025 ASEE Annual Conference*
2. **T.C. Kreipke,** K.L. Meyers, Development of Student Comfort with Various Fabrication Methods in Aerospace and Mechanical Engineering Design Curriculum, *2023 ASEE Annual Conference & Exposition*
3. K.J. Curtis, T. R. Coughlin, **T.C. Kreipke**, J.D. Boerckel, G.L. Niebur, Mechanical Stimulation of Bone Marrow Alters Kinase Signaling to Induce Bone Formation in Trabecular Bone *Orthopaedic Research Society Annual Meeting 2017*
4. **T.C. Kreipke**, K.J. Curtis, J. Santana, M.A. Varsanik, G.L. Niebur, The Effect of Marrow Shear Stress on Bone Formation and Anisotropy, *Orthopaedic Research Society Annual Meeting 2016*

Conference Proceedings

1. K.J. Curtis, T.R. Coughlin, **T.C. Kreipke**, J. Boerckel, G.L. Niebur, Mechanical Stimulation of Bone Marrow Alters Kinase Signaling to Induce Bone Formation in Trabecular Bone, *Orthopedic Research Society Annual Meeting 2017*
2. T.R. Coughlin, K.J. Curtis, **T.C. Kreipke**, G.L. Niebur, Sclerostin Expression by Osteocytes during Low Magnitude Mechanical Stimulation, *Orthopaedic Research Society Annual Meeting 2016*

3. J. Gargac, **T.C. Kreipke**, G.L. Niebur, The Characterization Of The Bone Marrow Mechanical Environment Using Poroelastic Finite Element Models, *Summer Biomechanics, Bioengineering and Biotransport Conference 2015*
4. T.R. Coughlin, **T.C. Kreipke**, G.L. Niebur, Osteocyte Mechanotransduction During Low Magnitude Mechanical Stimulation, *Summer Biomechanics, Bioengineering and Biotransport Conference 2015*
5. T.R. Coughlin, K.J. Curtis, **T.C. Kreipke**, G.L. Niebur, Osteocytes Do Not Change Sclerostin Expression during Low Magnitude Mechanical Stimulation, *4th Musculoskeletal Repair and Regeneration Symposium 2015*
6. J. Santana, **T.C. Kreipke**, K.J. Curtis, M.A. Varsanik, G.L. Niebur, Modeling the Mechanical Effects of Low Magnitude Mechanical Stimulation in Trabecular Bone, *Annual Biomedical Research Conference for Minority Students 2015*

PROFESSIONAL MEMBERSHIPS

- American Society for Engineering Education, 2022 - Present

PROFESSIONAL WORKSHOPS

- National Effective Teaching Institute, NETI-1 Course Design and Student Engagement, 2022

HONORS AND AWARDS

Richard and Peggy Notebaert Premier Fellowship, 2011
Kaneb Center for Teaching and Learning Outstanding Graduate Student Teacher Award, 2014

TECHNICAL SKILLS

- Mechanical- Mechanical Testing, Bioreactor Design
- Computational- SolidWorks, MATLAB, ADINA Finite Element Software, JMP Statistical Software, Python, UNIX/LINUX, Mathematica, Paraview, ImageJ, Kaleidagraph, Microsoft Office, Adobe Photoshop/Illustrator
- Biological- *In vitro* cell culture, *In situ*/Bioreactor cell culture, Tissue Harvesting, Biochemical Assays
- Imaging- Microscopy, Micro-Computed Tomography, Image Registration
- Other- Experimental Design, Technical Communication, Lab Management, Protocol Development

REFERENCES

- Dr. Glen Niebur, PhD – gniebur@nd.edu
- Dr. Kerry Meyers, PhD – kmeyers@nd.edu
- Rev. Charles McCoy, CSC, PhD – cmccoy@holycrossusa.org