

JOANY TISDALE, PHD

Visionary, engineer, researcher, philanthropist, leader, and educator

- Accomplished engineer with experience in aerospace, mechanical, chemical, civil, design and global engineering
- Impassioned engineer for sustainability and global engineering
- Engineer in renewable energy for 5+years
- 2022 Award recipient of GPTI Teaching Excellence and ASEE Engineering Educator Awards
- Engineering and science educator with 8+ years of experience
- MIT Presidential Provost Fellowship Award Recipient
- NASA Space Grant Scholar
- Bilingual: English and Spanish

EDUCATION

Doctor of Philosophy in Civil Systems Engineering	08.23
University of Colorado, Boulder, CO	
Masters of Science in Mechanical Engineering	09.04
Massachusetts Institute of Technology, Boston, MA	
Bachelor of Science in Aerospace Engineering (<i>minor: French</i>)	05.02
Auburn University, Auburn, AL	

WORK EXPERIENCE

University of Colorado, Boulder, CO

Teaching Assistant Professor

08.22-present

Graduate Instructor

08.20-05.22

Create and deliver student-centered, rigorous, and holistic engineering content in the following engineering courses: Thermodynamics, Engineering Tools & Analysis (mathematics applied in engineering labs), and General Engineering Projects (engineering design process and product design).

- Manage, lead and guide student teams through the engineering design process and projects.
- Deliver well-rounded and thorough curriculum with focus on academic rigor, intrigue, engagement, and active-learning.
- Nurture student learning by creating a learning environment inclusive of a variety of learning types and with genuine appreciation for neurodiversity.
- Infuse engineering curriculum with sustainability and holistic learning.
- Disseminate sustainability in engineering education through publications and conference presentations.
- Create a safe space for students to learn and grow with inclusive and compassionate teaching practices.

University of Denver, Denver, CO

2019, 2016, 2014

Adjunct Faculty

Delivered quality learning experiences in the following courses: Fluid Mechanics, Heat Transfer, and Introduction to Mechanical Systems. Taught technical content in both traditional and hands-on approaches. Empowered students by meeting students where they are with their unique interests and needs.

Valor Christian High School, Highlands Ranch, CO

08.14-05.23

Physics Instructor/Tutor/Substitute Teacher

Taught and tutored a variety of upper-level math and science courses with a primary focus on Advanced Placement Physics 1 and C. Worked toward student growth in problem solving and applications of mathematics to physics. Co-led service-based trips to Cuba, Honduras, and Guatemala.

National Renewable Energy Laboratory (NREL), Golden, CO

01.08-12.13

Process Engineer

Analyzed potential biofuels processes for both technical and economic feasibility. Provided analytical, technical, and project management support to NREL's thermochemical biofuels pilot plant.

- Co-authored biomass-to-gasoline technoeconomic analysis and publications.

References available upon request

- Pioneered and led multiple successful staff awards nominations.
- NREL Employee of the Month

MIT Research Laboratories

09.02 – 01.05

Research Assistant

In the Chemical Engineering Supercritical Fluids Laboratory, created computer models and simulations of biomass gasification processes using Aspen Plus software. Studied solids and condensation separations. In the Fuel Cell Laboratory, studied fuel cell capabilities and practicality for off grid applications.

- MIT Representative for Youth Encounter on Sustainability in Braunwald, Switzerland
- Presented MIT Fuel Cell Lab research to Professor Andrew Dicks (author of Fuel Cell Systems Explained) at the University of Queensland, Australia

HIGHLIGHTED PUBLICATIONS:

Tisdale, J. K., & Bielefeldt, A. R. (2024, October) *Exploring Sustainability Instruction Methods in Engineering Thermodynamics Courses: Insights from Scholarship of Teaching and Learning*. Sustainability, 16(19), 8637.

Bielefeldt, A. R., & Tisdale, J. (2024, June), *Mechanical Engineering Sustainability Curricular Content and Bachelor's Degrees Awarded to Women*. Paper presented at 2024 ASEE Annual Conference & Exposition, Portland, Oregon. 10.18260/1-2—47769.

Tisdale, J.K.; Bielefeldt, A.R. (2024, January) *Instructors' Perspectives on Enhancing Sustainability's Diffusion into Mechanical Engineering Courses*. Sustainability, <https://doi.org/10.3390/su16010053>.

Tisdale, J. K., & Bielefeldt, A. R. (2023) *Sustainability in Mechanical Engineering Undergraduate Courses at 100 Universities*. ASME Open Journal of Engineering, 2, <https://doi.org/10.1115/1.4063387>.

Tisdale, J.K. & Bielefeldt, A.R. (2023, June) *Sustainability Integration into Engineering Design Courses: A Literature Synthesis*. Paper presented at Engineering Education for Sustainable Development Conference, Fort Collins, CO.

Bielefeldt, A., & Godrick, D., & Tisdale, J., & Davis, M. (2023) *Approaching Math as a Tool for Engineering: A Bridge into College Engineering Paper presented at 2023 Rocky Mountain Section Conference , Golden, CO*. 10.18260/1-2-1112-44946.

Bielefeldt, A., & Tisdale, J., & Ramos, K., & Soltys, M. (2023) *Confidence, Identity, and Belonging Among Engineering and Engineering-Interested Students in a First-Year Engineering Design Course* Paper presented at 2023 Rocky Mountain Section Conference , Golden, CO. 10.18260/1-2-1113-44948.

Tisdale, J., & Bielefeldt, A., & MacDonald, L., & Salvinelli, C. (2022, August) *Sustainability Inclusion Efforts in Three Unique First-Year Engineering Courses* Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN. <https://peer.asee.org/41706>

Tisdale, J., Bielefeldt, A., Ramos, K., & Komarek, R. (2022, August) *Range of Practices of Sustainability Incorporation into First-Year General Engineering Design Course*. Paper presented at at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN.

Tisdale, J. K., & Bielefeldt, A. R. (2021, July) *Sustainability Incorporation in Courses in Mechanical, Civil and Environmental Engineering: Insights from AASHE STARS Data* Paper presented at 2021 ASEE Virtual Annual Conference Content Access, Virtual Conference. (pp 17). <https://peer.asee.org/37791>.

Ashworth, John; Heeter, Jenny; Milbrandt, Anelia; Moriarty, Kristi; Penev, Michael; Tarud, Joan; Vimmerstedt, Laura; Zhang, Yimin. Advanced Fuel Production Technology Market Assessment. Prepared for the California Energy Commission.

Phillips, S. D.; Tarud, J. K.; Bidy, M. J.; Dutta, A. (2011). Gasoline from Woody Biomass via Thermochemical Gasification, Methanol Synthesis, and Methanol-to-Gasoline Technologies: A Technoeconomic Analysis. *Industrial and Engineering Chemistry Research*. Vol. 50(20), 19 October 2011; pp. 11734-11745; NREL Report No. JA-5100-51608. <http://dx.doi.org/10.1021/ie2010675>

Tarud, J.; Phillips, S. (2011). Technoeconomic Comparison of Biofuels: Gasoline, Methanol, and Ethanol from Gasification of Woody Residues. Abstract No. FUEL-60. American Chemical Society. Abstracts of Papers of the 242nd ACS National Meeting, 28 August - 1 September 2011, Denver, Colorado. Washington, DC: American Chemical Society (ACS) 1 pg.; NREL Report No. AB-5100-53247.

*Previous last name: Tarud