Brandon Bakka (He/They)

107 W. Dean Keeton St, Austin TX 78712
bbakka@utexas.edu
512-294-8452

EDUCATION

The University of Texas at Austin (UT Austin), Austin, TX — Expected: Aug 2024
Doctor of Philosophy Candidate
Biomedical Engineering
Certificate in Engineering Education
GPA: 4.00/4.00

Colorado School of Mines, Golden, CO — Aug 2019
B.S. in Chemical and Biological Engineering
Minor in Chemistry
GPA: 3.94/4.00; Graduated Summa Cum Laude

RESEARCH EXPERIENCE

Graduate Research Assistant — Aug 2019 - Present
The University of Texas at Austin
Projects:

Developing thermosensitive liposomes for treating Neurofibromatosis Type 2 (NF2) — Aug 2021-Mar 2024
In the Diverse Engineering Applications Lab supervised by Dr. Tyrone Porter

- Assisted in lab startup, including ordering and set up of instruments in the lab space
- Conducted research on liposomal drug delivery of the tyrosine kinase inhibitor afatinib for the treatment of NF2
    - Developed a liposome particle synthesis protocol and studied different formulations for thermosensitive properties
- Skills: Thin Film hydration liposome synthesis, Reverse Phase Evaporation (REV) liposome synthesis, mammalian cell culture (HEK298, B16F0 Melanoma, Mesenchymal STEM cells), Exosome isolation and purification, confocal microscopy, Therapeutic loading and release studies

Experiences of LGBTQ+ Engineering Students — Mar 2020 – present
In the Center for Engineering Education supervised by Dr. Maura Borrego

- Studying the climate experiences of LGBTQ+ identifying engineering undergraduate and graduate students
    - Focused on understanding how students respond to and resist heteronormative expectations in engineering
- Conducting qualitative research on the experience of LGBTQ+ students in engineering
- Mentoring a group of undergraduate students on qualitative research procedures
- Skills: Qualitative data collection and analysis, facilitating interviews and focus groups, quantitative survey methods and data analysis, Applying critical theories, queer theory, and resistance theories

Using phase separated proteins for drug delivery Aug 2019- May 2021

In the Stachowiak Lab supervised by Dr. Jeanne C. Stachowiak

- Conducted research on the use of liquid-liquid phase separating proteins as a therapeutic biomaterial
    - Tested the intrinsically disordered domain of fused in sarcoma (FUS) for therapeutic loading properties, and attempted to coat protein droplets with a lipid bilayer
- Formally presented research findings to other graduate students and professors in the department
- Skills: Confocal Microscopy, TIRF microscopy, Fluorescence Recovery After Photobleaching (FRAP), Cloning, Protein Purification, Liposome production, GUV Electroformation, Drug Loading and Efficiency measurements, HeLa Cell Culture

TEACHING EXPERIENCE

Instructor of Record, Course Developer, and Teaching Assistant Jan 2022 – present

ME 379M: LGBTQ+ Experiences in Engineering

The University of Texas at Austin

Supervised by Dr. Maura Borrego

- Worked with Dr. Maura Borrego on creating a class discussing education literature on LGBTQ+ engineering students.
- Served as TA 2022, 2023 and as the instructor of record for Spring 2024
- Developed the overall curriculum including the reading list, grading policy, and student assessments
- Facilitated the class discussions and organized student presentations and assignments
- Applied for an obtained a cultural diversity flag for the course offering

Teaching Assistant May 2021- Jul 2021

BME 245L: Experimental Principles of BME Design

The University of Texas at Austin

Supervised by Dr. Daniel Puperi

- Demonstrated proper laboratory procedures, particularly around mammalian cell culture and sterile technique
- Guided students through experimental technique and interpretation of collected data
- Graded and assessed of lab reports and student reflections

Teaching Assistant for Course Development Aug 2020 – Dec 2020

BME 385J/377T: Imaging Clinical Immersion

The University of Texas at Austin

Supervised by Dr. Mia Markey and Dr. Grady Rylander

- Conducted research on clinical immersion programs at other universities to determine best practices for the course
- Responsible for communicating with external administrators to plan the logistics of getting students in a clinical environment
- Helped plan course structure and student deliverables

Teaching Assistant Aug 2016 – May 2018

PHGN 100: Physics I: Mechanics

Colorado School of Mines

Supervised by Dr. Kristine Callan and Dr. Alex Flournoy

- Helped students complete lab activities, hosted office hours, graded student work, and proctored exams

OTHER RELEVANT EXPERIENCE

Process Engineering Intern May 2018 – Aug 2018

Texas Instruments, Dallas, TX

- Developed and tested new process conditions to reduce chemical costs and increase overall process efficiency

Hall Director and Resident Assistant Aug 2016 – May 2019

Colorado School of Mines, Golden, CO

- Supervised a staff of resident assistants and provided support and mentorship to undergraduate students

FELLOWSHIPS/GRANTS

Broadening Participation in Engineering Seed Grant

Primary Grant Writer

Awarded 2023-2024 for the Development of a graduate student mentorship program

Amount: $4,222

Funding is a part of a larger grant: EEC-2217741

STUDENTS MENTORED

Aspen Davis (2023 - present)

Flora Makowka (2023 – present)

Keziah Myers (2023 - present)

Tavis Bouchard (2022 - present)

Kaitlin Brandstetter (2022 - 2023)

Daniela DeNobrega (REU Student 2022)

ACADEMIC INVOLVEMENT AND SERVICE

LGBTQ+ Graduate Student Mentorship Program Leader Oct 2023 – May 2024

Under the Broadening Participation in Engineering Seed Grant Program

- Developed a mentorship program for LGBTQ+ identifying masters and first year PhD students
- Wrote a grant proposal to secure funding for the program, and conducted a program evaluation
- Facilitated the mentorship program with monthly socials, a mentorship training, and a professional development retreat

Graduate Student Mentor, REU Program May 2022 – Aug 2022

Nanomanufacturing Systems Center (NASCENT), UT Austin

- Mentored a first-year undergraduate student in laboratory techniques, cell culture, and though the research process and data analysis
- Led a project on creating exosome/liposome hybrid nanoparticles using the freeze-thaw fracture method
- Facilitated poster presentation at BMES 2022

Diversity, Equity, and Inclusion Program Facilitator for REU Program May 2021 – Aug 2021
UT Austin Department of Biomedical Engineering

- Developed a six-week DEI curriculum with the other graduate student leaders
- Facilitated workshops for students to discuss and learn about various DEI issues
- Provided REU students with resources and training around LGBTQ+ issues and bystander intervention

oSTEM Founding Member and Mentorship Chair (2020-2021) May 2020 - Present
UT Austin Chapter

- Helped rewrite and develop the constitution and mission statement of the organization
- Serve as chair of the mentorship program, creating mentor-mentee pairs and facilitating personal development activities during the group meetings
- Work with other organizations and community partners on collaborations with the organization

LGBTQ+ Advocacy and Outreach Aug 2019 - Present

- Conducted analysis of the 2020 climate survey data specifically around the experiences on LGBTQ+ students and staff.
- Created and presented an LGBTQ+ ally and advocacy training at every department meeting in the Cockrell School of Engineering.
    - Created a comprehensive resource packet to empower individuals to be better allies
- Developed and lead a workshop around LGBTQ+ student experiences at the ASEE 2021 Meeting and to the ASEE Committee on Diversity, Equity, and Inclusion.

HONORS AND AWARDS

Contributions to Equity in Engineering Award - Nominee May 2023
Cockrell School of Engineering, UT Austin

NSF GRFP Honorable Mention Apr 2021
National Science Foundation

Cockrell School of Engineering Fellowship Aug 2019
University of Texas at Austin

Selim Memorial Scholarship May 2019
CBE Department, Colorado School of Mines

Presidents Scholarship Aug 2015 – May 2019
Colorado School of Mines

PUBLICATIONS

Journal Articles:

Sugerman, G. P., Chasen, A., Kalkunte, N., **Bakka, B.**, Borrego, M., Suggs, L. J., & Markey, M. K. (2023). Engaging Undergraduates in an REU Site in Conversations About Diversity, Equity, and Inclusion. Biomedical Engineering Education. https://doi.org/10.1007/s43683-023-00113-7

Yuan, F., Alimohamadi, H., **Bakka, B.**, Trementozzi, A. N., Day, K. J., Fawzi, N. L., Rangamani, P., & Stachowiak, J. C. (2021). Membrane bending by protein phase separation. *Proceedings of the National Academy of Sciences of the United States of America*, *118*(11), e2017435118. https://doi.org/10.1073/pnas.2017435118

Book Chapters:

Bakka, B., Jennings, M., & Yang, J. A. (2022). Today's Grad Students, Tomorrow's Faculty: LGBTQIA+ Graduate Student Experiences Navigating the Insider/Outsider Paradox in Engineering. In Queerness as Doing in Higher Education. Routledge.

Conference Papers:

Bakka, B., Bouchard, T., Chou, V. X., & Borrego, M. (2023, June 25). *Modeled Professionalism, Identity Concealment, and Silence: The Role of Heteronormativity in Shaping Climate for LGBTQ+ Engineering Undergraduates*. 2023 ASEE Annual Conference & Exposition. https://peer.asee.org/modeled-professionalism-identity-concealment-and-silence-the-role-of-heteronormativity-in-shaping-climate-for-lgbtq-engineering-undergraduates

V. X.-W. Chou, J. A. Yang, **B. Bakka**, M. J. Borrego, and P. Clayton, "Transformational Resistance and Identity Development: A Case Study of an Asexual Woman Engineer," presented at the 2022 CoNECD (Collaborative Network for Engineering & Computing Diversity), Feb. 2022. Accessed: Nov. 28, 2022. [Online]. Available: https://peer.asee.org/transformational-resistance-and-identity-development-a-case-study-of-an-asexual-woman-engineer

Lynch, V., **Bakka, B**., & Markey, M. K. (2022, March 16). Reporting Student Gender Identity in Papers Presented at the ASEE Gulf-Southwest Conference. 2022 ASEE Gulf Southwest Annual Conference. https://peer.asee.org/reporting-student-gender-identity-in-papers-presented-at-the-asee-gulf-southwest-conference

B. Bakka et al., "Queering Engineering Through a Student Driven LGBTQIA+ Reading Group (Experience)," ASEE annual conference exposition, Jul. 2021, Accessed: Nov. 28, 2022. [Online]. Available: https://par.nsf.gov/biblio/10329790-queering-engineering-through-student-driven-lgbtqia+-reading-group-experience

B. Bakka, H. G. Rylander, M. K. Markey, and J. N. Savoy, "Towards scalable clinical immersion experiences for engineering students," presented at the ASEE 2021 Gulf-Southwest Annual Conference, Mar. 2021. Accessed: Nov. 28, 2022. [Online]. Available: https://peer.asee.org/towards-scalable-clinical-immersion-experiences-for-engineering-students

Presentations:

Student Panel: Understanding Queer Experiences in Engineering
American Society for Engineering Education, May 2021 and July 2021
B. Bakka, M. Jennings, H. Rodrigues, S. Clancy, A. Pasek, and J. A. Yang, "Student Panel: Understanding Queer Experiences in Engineering." Accessed: Nov. 28, 2022. [Online]. Available: https://diversity.asee.org/deicommittee/2021/04/29/student-panel-understanding-queer-experiences-in-engineering/

Personalizing the Queer Engineering Student Experience
Developed May 2018, presented to various organizations
B. Bakka "Personalizing the Queer Engineering Student Experience", 2018-Present

Other publications:

B. Bakka, N. Kalkunte, and M. Borrego, “LGBTQ+ Experiences in the Cockrell School,” Cockrell School of Engineering, Climate Survey, Jun. 2023. [Online]. Available: https://cockrell.utexas.edu/images/LGBTQ_Climate-Report-Final-Author-Credits.pdf