Brian C. Goess, Ph.D.

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Education

Postdoctoral Fellow; **Princeton University**, August 2004-May 2006.
Ph.D., Organic Chemistry; **Harvard University**, June 2004.
Bachelor of Science in Chemistry, Highest Honors; **University of Notre Dame**, June 1998.

Research Positions

Professor, **Furman University** (August 2019-present)
• Advisor to 6 current students.
• Published one new reaction methodology (silyl ether oxidation).

Visiting Scholar, **University of Washington, Seattle** (February 2019-June 2019, sabbatical)
• Determined the structure-reactivity relationship between NHC-copper hydrides and hydrosilanes.

Associate Professor, **Furman University** (August 2012-July 2019)
• Advisor to 31 new students, including two graduate students.
• Published two biological evaluations of small molecules (dispergo, hibiscone C).
• Published one new reaction methodology (beta protonation) and one new synthesis (hibiscone B).
• Published four education papers (Chem 120/220 sequence, flipped textbook).

Visiting Scholar, **Merck Pharmaceuticals** (January 2013-April 2013, sabbatical)
• Developed late-stage functionalizations of drug candidates in the medicinal chemistry division.
Visiting Scholar, **Northwestern University** (August 2012-December 2012, sabbatical)
• Developed two new chiral *N*-heterocyclic carbene catalysts for a published methodology study.

Assistant Professor, **Furman University** (June 2006-July 2012)
• Advisor to 34 students, including two graduate students and one visiting scholar.
• Published two total syntheses (grandisol, hibiscone C).
• Published two new methods (regioselective semihydrogenation, stilbene isomerization).
• Published one new advanced undergraduate multi-step synthesis lab (hibisdione).

Research Fellow, Advisor: Prof. Erik Sorensen; **Princeton University** (August 2004-May 2006)
• Pursued a total synthesis of the natural product terpendole E.

Graduate Research, Advisor: Prof. Matthew Shair; **Harvard University** (September 1998-May 2004)
• Designed and synthesized a 10,000-membered solid-phase library of molecules resembling carpanone.
• Developed a synthesis plan and initiated studies toward a synthesis of cephalostatin natural products.

Undergraduate Research, Advisor: Prof. Paul Helquist; **University of Notre Dame** (May 1996-July 1998)
• Synthesized an affinity-labeled derivative of the antibiotic natural product virginiamycin M1.

Teaching Experience

Furman University (June 2006-present)
• Chem 220 : Bio-organic Chemistry
• Chem 120 : Organic Chemistry
• Chem 240 : Techniques of Chemistry (majors laboratory course)
• Chem 420 : Advanced Organic Chemistry (half-course)
• Chem 101 : Chemistry and Global Awareness (non-majors course)
• Chem 255 : Technical Writing in Chemistry (MayX course)
• FYS: Engage the News (freshman writing seminar)

Princeton University (September 2004-June 2005)
• Chem 301X and 302X : Organic Chemistry without Lecture (flipped course)

Service

Current University Committees and Service Activities
• Research and Professional Growth Committee (2017-2021, Chair 2017-2021)
• Religious Activities Committee (2015-2018, 2021-present)
• Faculty Advisor to Furman Catholic Campus Ministry (2010-present)

Past University Committees and Service Activities

- Faculty advisor to American Chemical Society (ACS) Student Affiliates (2007-2018)
- Diversity and Inclusion Committee (2016-2018, Awards subcommittee Chair, 2017-2018)
- Faculty Development Committee (2015-2018)
- Strategic Vision Advisory Committee (2016-2018, Nominating subcommittee Chair, 2016)
- Fringe Benefits and Welfare Committee (2013-2016)
- New Faculty Mentor Group Leader (2007-2010, 2013-2017)
- Admissions Ambassador (2015-2017)
- Furman Instructional Sharing Initiative (2013-2014, 2016-2017)
- May Experience Committee (2008-2015)
- Student Life Advisory Committee (2008-2012)
- Presidential Task Force on the Student Experience (2010-2012)
- Presidential Search Committee (2009)
- Freshman Orientation Experience Group Leader (2009-present)
- Research and Professional Growth Committee (2008-2011, Chair 2010-2011)
- Paladin Club faculty liaison (2007-2008)

Current and Past National Service Activities

- Panelist at ACS "Postdoc-to-Faculty" workshop (2015-present, host at Furman 2016)
- Beckman Foundation Executive Committee Member (2013-present), Chair (2017,18,20,21)
- Beckman Foundation Advisory Panel Member (2010-2013, 2018-present)
- Grant Reviewer for: ACS Petroleum Research Fund, Research Corporation, Bank of America Jeffress Memorial Trust, NSF Graduate Research Fellowship Program, and MJ Murdoch Memorial Trust, Merck Women in Chemistry Travel Award
- Referee for: *Tetrahedron Letters and The Journal of Chemical Education*

Grants Funded

Independent Grants Funded

- Associated Colleges of the South (ACS) - Mellon Faculty Renewal Grant, $4,800 (2007)
- Research Corporation Cottrell College Science Grant, $42,618 (2007-2009)
- American Chemical Society Petroleum Research Fund Grant, $40,000 (2007-2010)
- Furman Advantage / Summer Scholars Research Fellowships, $56,000 (2006-present)
- Center for Teaching and Learning Faculty Development Grant, $3,600 (2007-2011)
- HHMI Summer Research Student Fellowships, $50,000 (2008-2012)
- SCICU Summer Research Student Fellowships, $9,367 (2011-2012)
- NIH-INBRE Summer Research Fellowship, $17,500 (2012)
- American Chemical Society Petroleum Research Fund Grant, $65,000 (2011-2014)
- NSF-RUI Research Grant, $200,000 (2012-2016)
- Associated Colleges of the South (ACS) - Faculty Development Grant, $9,000 (2016)
- Dreyfus Foundation Research Grant, $60,000 (2012-2018)

Collaborative Grants Funded

- Beckman Foundation Grant, $104,000 total, B. Goess (PI) (2021-2024)
- Beckman Foundation Grant, $325,000 total, $70,000 share, P. Wagenknecht (PI) (2006-2021)
- NSF-RII Track-1 Research Grant, $1.3M total, $10,000 share, J. Wheeler (PI) (2017-2019)
- National Science Foundation Research Experience for Undergraduates, $600,000 total, $30,000 share, K. Buchmueller (PI) and T. Hanks (prior co-PI) (2012-2022)

Awards and Honors

Furman University

- Innovision Award for Use of Technology in Education : Bio-organic Wiki Textbook (2008)
- Dreyfus Foundation Teacher-Scholar Award (2012)
- American Chemical Society Petroleum Research Fund Featured Project Award (2014)
- Innovision "Hall of Fame" Award Technology in Education : Flipped Classroom Project (2014)
- Arnold and Mable Beckman Foundation Service Award (2017) and Leadership Award (2018)
- 1st place Student Presentation Award, South Carolina NSF-EPSCoR Conference (2018)
- 1st place Student Poster Award, American Chemical Society Regional Meeting (2018)

Peer-Reviewed Research Publications at Furman (Furman student co-authors underlined)

Weinhofer, A. M.; Cole, H. D.; Mitchell, B. A.; Ritz, A.; Vogt, D.; Rabinovitch, J.; Goess, B. C.; Goforth, S. K. "Ruthenium-Catalyzed Oxidation of Silyl Ethers to Silyl Esters", *Tetrahedron Letters* **2019**, *60*, 1769–1722.

Roth, P. W.; Armaly, A. M.; McCraw, I.; Tryon, J. H.; Rudd, H. M.; Goess, B. C. "Total synthesis of (±)-hibiscone B and (±)-acyl hibiscone B" *Tetrahedron Letters* **2018**, *59*, 3586–3588.

Kearney, S. E.; Kahlami, G. Z.; Goess, B. C.; Guha, R.; Rohde, J. M.; et al. "Canvass: a crowd-sourced, natural product screening library for exploring biological space" *ACS Central Science* **2018**, *4*, 1727–1741.

Besley, C.; Rhinehart, D. P.; Ammons, T.; Goess, B. C.; Rawlings, J. S. "Inhibition of Phosphatidylinositol-3-kinase by the Furanosteroid Hibiscone C" *Bioorganic and Medicinal Chemistry Letters* **2017**, *27*, 3087–3091.

Wang, M. H.; Barsoum, D.; Schwamb, B.; Cohen, D. T.; Goess, B. C.; Riedrich, M.; Chan, A.; Maki, B. E.; Mishra, R. K.; Scheidt, K. A. "Catalytic, Enantioselective Beta-Protonation through a Cooperative Activation Strategy" *The Journal of Organic Chemistry* **2017**, *82*, 4689–4702.

Lu, L.; Hannoush, R. N.; Goess, B. C.; Varadarajan, S.; Shair, M.D.; Kirchhausen, T. "The Small Molecule Dispergo Tubulates the Endoplasmic Reticulum and Inhibits Export" *Molecular Biology of the Cell* **2013**, *24*, 1020–1029.

Gray, E. E.; Rabenold, L. E.; Goess, B. C. "E-Selective Isomerization of Stilbenes and Stilbenoids Through Reversible Hydroboration" *Tetrahedron Letters* **2011**, *52*, 6177–6179.

Graham, T. J. A.; Poole, T.; Reese, C. A.; Goess, B. C. "Regioselective Semihydrogenation of Dienes" *The Journal of Organic Chemistry* **2011**, *76*, 4132–4138.

Ungureanu, A.; Meadows, M.; Smith, J.; Duff, D.; Burgess, J. M.; Goess, B. C. "Total Synthesis of (±)-Hibiscone C" *Tetrahedron Letters* **2011**, *52*, 1509–1511.

Graham, T. J. A.; Burgess, J. M.; Gray, E. E.; Goess, B. C. "An Efficient Synthesis of (±)-Grandisol Featuring 1,5-Enyne Metathesis" *The Journal of Organic Chemistry* **2010**, *75*, 226–228.

Peer-Reviewed Education Research Publications at Furman (Furman student co-authors underlined)

Tartaro, A.; Goess, B. C. "Flipped Textbooks: Student-created Online Wiki Textbooks for Intermediate and Advanced Chemistry Classes" In *Online Approaches to Chemical Education*; Sorensen, P., Ed.; *ACS Symposium Series 1261*; ACS Publications: New York, **2017**, 131–142.

Tartaro, A.; Goess, B. C.; Miller, J.; Bui, J. "Learning Outcomes From a Student-generated 'Flipped' Wiki Textbook" *Proceedings of the ACM SIGCHI Conference Supporting Group Work* **2016**, 449–452.

Tartaro, A.; Goess, B. C.; Winiski, M. "Creative Language in a Student-generated Bioorganic Chemistry Wiki Textbook" *Proceedings of the ACM SIGCHI Conference on Creativity and Cognition* **2015**, 221–224.

Goess, B. C. "Development and Implementation of a Two-Semester Introductory Organic-Bioorganic Chemistry Sequence: Conclusions from the First Six Years" *The Journal of Chemical Education* **2014**, *91*, 1169–1173.

Duff, D.; Abbe, T. G.; Goess, B. C. "A Multi-step Synthesis Featuring Classic Carbonyl Chemistry for the Advanced Organic Chemistry Laboratory" *The Journal of Chemical Education* **2012**, *89*, 406–408.