Grace Yin Stokes

Appointments

Associate Professor 2020-present

Santa Clara University office: (408) 554-5389
Department of Chemistry & Biochemistry email: gstokes@scu.edu
500 El Camino Real https://www.gystokes.com/

Santa Clara, CA 95053

Clare Boothe Luce Assistant Professor 2014-2020

Santa Clara University

Department of Chemistry and Biochemistry

Education and Training

University of Utah Postdoctoral Fellow 2011-2014

Mentor: Professor John C. Conboy

Johns Hopkins University Postdoctoral Fellow 2009-2011

Mentors: Professor Alan T. Stone and Professor Justine P. Roth

Northwestern University Ph. D. Physical Chemistry 2004-2009

Thesis advisor: Professor Franz M. Geiger

Stanford University B. S. Chemistry 1998-2002

External Grants

Sole PI awards

- Henry Dreyfus Teacher-Scholar Award "Quantification of Heavy Metal Ion Transport Across Bacterial Membranes" Dreyfus Foundation (2021-2026) \$75,000
- Cottrell Postbaccalaureate Award for Elliott Anderson, Research Corporation for Scientific Advancement (2022-2023) \$50,000
- "CAREER: Quantifying How Peptoids Interact with Lipid Membranes" National Science Foundation (NSF CHE-1848583) (2019-2024, no cost extension through 6/30/2025) \$475,000
- "Thermodynamic Studies of Peptoid–Lipid Interactions" Cottrell Scholar Award, Research Corporation for Scientific Advancement (RCSA) (2018-2021) \$100,000

Multi-PI awards

- "CottreLLM: Leveraging artificial intelligence to enhance student learning in computational science courses" (2024-2026) \$25,000 (co-PI)
- Beckman Scholars Program (2024-2028) \$156,000 (contributing PI)
- Cottrell Scholar Regional Meeting Award for "Enhancing Science Courses by Integrating Python (ESCIP) workshop" RCSA (2023) \$5000 (lead PI)
- "Infusing Computational Science Concepts into STEM Courses through Multidisciplinary Instructor Collaborative Networks" RCSA (2022-2024) \$25,000 (co-PI)
- "Lowering Activation Barriers to Success in Physical Chemistry (LABSIP)," RCSA (2022-2024) \$25,000 (co-PI)

- "Development of the 'Enhancing Science Courses by Integrating Python (ESCIP) Network" RCSA (2019-2021) \$25,000 (lead PI)
- "Cottrell Emerging Scholars Program: Enhancing the Successful Transition of Underrepresented Postdoctoral Scholars into the Professoriate" RCSA (2019-2021) \$25,000 (co-PI)
- Beckman Scholars Program \$104,000 2019-2021 (contributing PI)
- Jean Dreyfus Lectureship Award for Undergraduate Institutions (2017-2020) \$18,500 (lead PI)

Internal Grants

- "Integrating Interactive Python Coding Labs into General Chemistry" Enhancing Teaching with Technology Innovation Grant (Awarded June 2021) \$13,000 (lead PI)
- "Thermodynamic Studies of Peptoid–Membrane Interactions" DeNardo Research Grant Supplemental Award (Awarded January 2018) \$8000 (sole PI)
- "Quantifying the thermodynamic forces which drive adsorption of water-soluble peptoids to lipid bilayers" University Research Grant (Awarded May 2017) \$5000 (sole PI)
- "High-Throughput Study of Organic Molecules Adsorbed to Peptoid Coatings" STEM Convergence Grant from SCU Provost's Office (Awarded May 2016) \$15,000 (lead PI)
- "Characterization of Peptoid Coatings on Silica Surfaces." University Research Grant (Awarded May 2016) \$5000 (sole PI)
- "Adsorption of indomethacin to lipid bilayers containing cyclooxygenase-2" Faculty-Student Research Assistant Program (FSRAP) (Awarded May 2016) \$1000 (sole PI)
- "Summer Stipend for Researching How Chiral Anesthetic Drugs Interact with Model Cell Membranes" Faculty Summer Stipend (Awarded May 2015) \$6000 (sole PI)

Publications from Santa Clara University (* denotes undergraduate research student)

- Gadbois, G. E.*; Read, C. A.*; Kris, A.V.*; Figueredo, E. M.*; Xiang, W.*; Ottoes, Z. S.*; Stokes, G. Y. "Thermodynamics of Clozapine Adsorption to Phospholipid Membranes," invited article *J. Chem. Phys.*, submitted. Special Issue: Festschrift in honor of Yuen-Ron Shen
- 2. Vizcarra, C. L.; Trainor, R.; Ringer McDonald, A.; Richardson, C.; Potoyan, D.; Nash, J. A.; Lundgren, B.; Luchko, T.; Hocky, G. M.; Foley, J. J. IV; Atherton, T. J.; **Stokes, G. Y.** *Nature Comput. Sci.*, "An interdisciplinary effort to integrate coding into science courses," *in revision.*
- 3. Baiz, C. R.; Berger, R. F.; Donald, K. J.; De Paula, J. C.; Fried, S. D.; Rubenstein, B.; **Stokes, G. Y.**; Takematsu, K.; Londergan, C. "Lowering Activation Barriers to Success in Physical Chemistry (LABSIP): A Community Project," *J. Phys. Chem. A* 2024, *128* (1), 3–9. DOI: <u>10.1021/acs.jpca.3c07015.</u>
- 4. **Stokes, G. Y.** "How faculty with minimal programming experience implemented Jupyter Notebooks in physical and general chemistry courses," In *Teaching Programming across the Chemistry Curriculum*; ACS Symposium Series; 2021; Vol 1387 pp 13-27. 10.1021/bk-2021-1387.ch002
- Rowe, Penny M.; Fortmann, L.; Guasco, T. L.; Wright, A.*; Ryken, A.; Sevier, E.*; Stokes, G. Y.; Mifflin, A. L.; Wade, R.; Cheng, H.; Pfalzgraff, W.; Beaudoin, J.; Rajbhandari, I.; Fox-Dobbs, K.; Neshyba, S. "Integrating polar research into undergraduate curricula using computational guided inquiry," *Journal of Geoscience Education* 2020, DOI: 10.1080/10899995.2020.1768004.
- 6. Landry, M. R.*; Rangel, J. L.*; Dao, V. P.*; MacKenzie, M. A.*; Gutierrez, F. L.*; Dowell, K. M.*; Calkins, A. L.*; Fuller, A. A.; **Stokes, G. Y.** "Length Impacts Adsorption of Water-Soluble Grace Stokes

- Peptoids to Phospholipid Membranes," *J. Phys. Chem. B* 2019, 123, 5822-5831. 10.1021/acs.jpcb.9b04641 Special Issue: *Pacific Conference on Spectroscopy and Dynamics*
- 7. Jimenez, C. J.*; Tan, J.*; Dowell, K. M.*; Gadbois, G. E.*; Read, C. A.*; Burgess, N.*; Cervantes, J. E.*; Chan, S.*; Jandaur, A.*; Karanik, T.*; Lee, J. J.*; Ley, M. C.*; McGeehan, M.*; McMonigal, A.*; Palazzo, K. L.*; Parker, S. A.*; Payman, A.*; Soria, M.*; Verheyden, L.*; Vo, V. T.*; Yin, J.*; Calkins, A. L.*; Fuller, A. A.; **Stokes, G. Y.** "Peptoids advance multidisciplinary research and undergraduate education in parallel: Sequence effects on conformation and lipid interactions," *Biopolymers* 2019, 323256. 10.1002/bip.23256 Special issue: *Peptoids*
- 8. **Stokes, G. Y.**; DiCicco, E. N.*; Moore, T. J.*; Cheng, V. C.; Wheeler, K. Y.; Soghigian, J.; Barber, R. P.; Edgerly, J. S. "Structural and Wetting Properties of Nature's Finest Silks (Order Embioptera)," *Royal Soc. Open Sci.* 2018, 5: 180893. 10.1098/rsos.180893
- 9. Fearon, A. D.*; **Stokes, G. Y.** "Thermodynamics of Indomethacin Adsorption to Phospholipid Membranes," *J. Phys. Chem. B* 2017, 121,10508-10518. <u>10.1021/acs.jpcb.7b08359</u> Special issue: *Physical Chemistry Research at Undergraduate Institutions*
- 10. Calkins, A. L.*; Yin, J.*; Rangel, J. L.*; Landry, M. R.*; Fuller, A. A.; **Stokes, G. Y.** "A Thermodynamic Description of the Adsorption of Simple Water-Soluble Peptoids to Silica," *Langmuir* 2016, 32, 11690-11697. 10.1021/acs.langmuir.6b02804
- 11. Osborn Popp, T. M.*; Addison, J. B.; Jordan, J. S.; Damle, V. G.; Rykaczewski, K.; Chang, S. L. Y.; **Stokes, G. Y.;** Edgerly, J. S.; Yarger, J. L. "Surface and Wetting Properties of Embiopteran (Webspinner) Nanofiber Silk," *Langmuir* 2016, 32, 4681-4687. 10.1021/acs.langmuir.6b00762

Publications from graduate and postdoctoral training

- 12. **Stokes, G. Y.**; Conboy, J. C. "Measuring Selective Estrogen Receptor Modulator (SERM)-Membrane Interactions with Second Harmonic Generation" *J. Am. Chem. Soc.* 2014, 136, 1409-1417.
- 13. Buchbinder, A. M.; Gibbs-Davis, J. M.; **Stokes, G. Y.**; Peterson, M. D.; Weitz, E.; Geiger, F. M. "Method for Evaluating Vibrational Mode Assignments in Surface-Bound Cyclic Hydrocarbons Using Sum-Frequency Generation," *J. Phys. Chem. C*, 2011, *115*, 18284-18294.
- 14. **Stokes, G. Y.**; Chen, E. H.; Buchbinder, A. M.; Paxton, W. F.; Keeley, A.; Geiger, F. M. "Atmospheric Heterogeneous Stereochemistry" *J. Am. Chem. Soc.*, 2009, *131*, 13733-13737.
- 15. **Stokes, G. Y.**; Chen, E. H.; Walter, S. R.; Geiger, F. M. "Two reactivity modes in the heterogeneous cyclohexene ozonolysis under tropospherically relevant ozone-rich and ozone-limited conditions," *J. Phys. Chem. A*, 2009, *113*, 8985-8993.
- Hellar, J. A.; Lin, J-C.; Kim, J-H.; Yoder, N. L.; Bevan, K. H.; Stokes, G. Y.; Geiger, F. M.; Nguyen, S. T.; Bedzyk, M. J.; Hersam, M. C. "Probing Surface-Adlayer Conjugation on Organic-Modified Si(111) Surfaces with Microscopy, Scattering, Spectroscopy and Density Functional Theory," *J Phys. Chem. C.* 2009, *113*, 2919-2927.
- 17. **Stokes, G. Y.;** Buchbinder, A. M.; Gibbs-Davis, J. M.; Scheidt, K. A.; Geiger, F. M. "Chemically Diverse Environmental Interfaces and Their Reactions with Ozone Studied by Sum Frequency Generation," *Vib. Spectros.* 2009, *50*, 86-98.
- 18. **Stokes, G. Y.**; Buchbinder, A. M.; Gibbs-Davis, J. M.; Scheidt, K. A.; Geiger, F. M "Heterogeneous Ozone Oxidation Reactions of 1-Pentene, Cyclopentene, Cyclohexene,

- and a Menthenol Derivative Studied by Sum Frequency Generation," J. Phys. Chem. A. 2008, 112, 46, 11688-11698.
- 19. **Stokes, G. Y.**; Gibbs-Davis, J. M.; Boman, F. C.; Stepp, B. R.; Condie, A.; Nguyen, S. T.; Geiger, F. M. "Making 'Sense' of DNA," *J. Am. Chem. Soc.* 2007, *129*, 7492-7493.
- Voges, A. B.; Stokes, G. Y.; Gibbs-Davis, J. M.; Lettan, R. B., II; Bertin, P. A.; Pike, R. C.; Nguyen, S. T.; Scheidt, K. A.; Geiger, F. M. "Insights into Heterogeneous Atmospheric Oxidation Chemistry: Development of a Tailor-Made Synthetic Model for Studying Tropospheric Surface Chemistry," J. Phys. Chem. C. (Feature Article), 2007, 111, 1567-1578.
- 21. Konek, C. T.; Illg, K. D.; Al-Abadleh, H. A.; Voges, A. B.; **Yin, G.**; Musorrafiti, M. J.; Schmidt, C. M.; Geiger, F. M. "Nonlinear Optical Studies of the Agricultural Antibiotic Morantel Interacting with Silica/Water Interfaces," *J. Am. Chem. Soc.* 2005, *127*, 15771-15777.

Selected Conference Presentations

- Vibrational Spectroscopy Gordon Research Conference, Bryant University, RI, August 2024,
 "Peptoid Structure and Adsorption at Aqueous Interfaces," invited oral presentation
- ACS National Meeting, Indianapolis, IN, March 2023, "Successes and challenges with guided-inquiry approaches in the physical chemistry classroom" in the Innovative Teaching in Physical Chemistry symposium (PHYS)
- Biennial Conference on Chemical Education (BCCE 955), Purdue, Indiana "Integrating Interactive Python Coding Exercises Across Physical and General Chemistry Courses" in the Symposium "Teaching Programming in the Chemistry Curriculum: Approaches, Challenges, and Best Practices," invited keynote speaker
- Pacifichem online, December 2021, "Thermodynamics of peptoid-lipid interactions studied by nonlinear optical methods" in the Molecular Adsorption and Reactivity at Environmental and Biological Interfaces Symposium
- Hybrid ACS National Meeting, Atlanta, GA, August 2021, "Using second harmonic generation to monitor adsorption of water-soluble peptoids to phospholipid membranes" in the Physical Chemistry Research at Undergraduate Institutions Session (PHYS), invited oral presentation
- Virtual ACS National Meeting, April 2021, "Quantifying adsorption of antipsychotic drugs to lipid membranes using second harmonic generation" in the ACS Award for Research at an Undergraduate Institution 2020 Symposium in honor of Kerry Karukstis (COLL), invited oral presentation
- 258th ACS National Meeting, San Diego, CA, August 2019, "Quantifying drug adsorption to lipid membranes using second harmonic generation" (COLL 484) and "Implementing pythonbased computational guided inquiry exercises in thermodynamics and quantum chemistry courses" (CHED 97)
- 257th ACS National Meeting, Orlando, CA, March 2019, "Second harmonic generation studies of water-soluble peptoids adsorbed to phospholipid membranes" (COLL 61)
- Pacific Conference on Spectroscopy and Dynamics, San Diego, CA, January 2019, "Peptoids adsorbed to phospholipid membranes reveal drug design principles," invited oral presentation
- 10th Peptoid Summit, Berkeley, CA, August 2017, "Peptoids at the silica-aqueous interface"
- 253rd ACS National Meeting, San Francisco, CA, April 2017, "Second harmonic generation studies of water-soluble peptoids adsorbed to phospholipid membranes" (COLL 3)
- 251st ACS National Meeting, San Diego, CA, March 2016, "Interactions between water-soluble peptoids and silica surfaces studied by second harmonic generation" (COLL 121)

- 246th ACS National Meeting, Indianapolis, IN, September 2013, "Characterizing the interactions between planar supported lipid bilayers and selective estrogen receptor modulators (SERMs) using second harmonic generation spectroscopy" (COLL 412)
- Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS), Brookhaven National Lab, NY, August 2009, "Heterogeneous ozonolysis of chiral and achiral olefins studied by sum frequency generation"
- 238th ACS National Meeting, Washington, DC, August 2009, "DNA hybridization studied by SHG and SFG" (ANYL 365)
- American Physical Society (APS) March Meeting, New Orleans, LA, March 2008, "Heterogeneous oxidation reactions relevant to atmospheric aerosol chemistry studied by sum frequency generation"
- 234th ACS National Meeting, Boston, MA, August 2007, "Tropospheric aerosol surface oxidation reactions studied by sum frequency generation" (ENVR 8)
- 62nd International Symposium on Molecular Spectroscopy, Ohio State University, June 2007, "DNA functionalized surfaces studied by nonlinear optical spectroscopy"
- 232nd ACS National Meeting, San Francisco, CA, September 2006, "Probing chirality of DNA at interfaces using sum frequency generation"

Invited seminars

- Academic career panel discussion, Stanford University Dept of Chemistry, September 2024
- UC Irvine, Department of Chemistry, April 2023
- Chico State University, Department of Chemistry, December 2022
- Carleton College Department of Chemistry, October 2022
- Fordham University, Department of Chemistry, March 2022
- Western Washington University Department of Chemistry, January 2020
- Keck Science Department, Claremont Colleges, November 2019
- University of Wisconsin Eau Claire, Department of Chemistry, November 2019
- Louisiana State University, Macromolecular Chemistry Seminar, September 2019
- University of the Pacific, Stockton, CA, Department of Chemistry, September 2019
- Cal Poly San Luis Obispo, San Luis Obispo, CA Department of Chemistry, May 2019
- UC Berkeley, Graduate Women in Engineering Speaker Series, March 2019
- Macalester College, St. Paul, MN, Department of Chemistry, November 2018
- UC Merced, Department of Chemistry and Chemical Biology, August 2018
- The Hockaday School, "The Hungry Scientist" seminar for women in STEM, April 2018
- Sonoma State University, Department of Chemistry and Biochemistry, April 2018
- Berkeley Science Leadership and Management (SLAM), UC Berkeley, November 2017
- Aguinas High School, AP chemistry and biology classes, La Crosse, WI, November 2017
- University of Wisconsin—La Crosse, Dept of Chemistry, La Crosse, WI, November 2017
- San Francisco State University, Department of Chemistry and Biochemistry, October 2017
- San Jose State University, Department of Chemistry, October 2017
- Lawrence Livermore National Lab, Biosciences & Biotechnology Division, September 2017
- Academic career panel discussion, Stanford University School of Medicine, May 2016

Professional Service

- Advisory board member for Molecular Sciences Software Institute (MolSSI) NSF grant: "Accelerating Curricular Transformation in the Computational Molecular Sciences" (https://act-cms.molssi.org/) 2024 - 2026
- Poster judge at Vibrational Spectroscopy Gordon Research Conference, Bryant University, RI, August 2024
- Co-organizer of ACS San Francisco COLL Symposium "Mentoring Undergraduate Surface Science Research" in August 2023
- Facilitator at the Cottrell Scholar Conference on "Incentivizing Cultural Change" in July 2023, sponsored by Research Corporation for Science Advancement (RCSA)
- Co-organizer of Lowering Activation Barriers for Success in Physical Chemistry (LABSIP) workshop in July 2023, sponsored by RCSA
- Co-organizer of ACS Indianapolis PHYS Symposium "Innovative Teaching in Physical Chemistry" in March 2023
- Organized "Enhancing Science Courses by Integrating Python (ESCIP)" workshops in June 2020, July 2022, and January 2023 on behalf of RCSA
- Reviewer for manuscripts submitted to ACS journals: Journal of the American Chemical Society, Langmuir, Journal of Chemical Physics, Journal of Physical Chemistry, Physical Chemistry and Chemical Physics (PCCP), Environmental Science and Technology, Journal of Chemical Education, Pharmaceutical Research (Springer), and The Biophysicist (Biophysical Society)
- Panel participant for proposal review, National Science Foundation, 2019 present (4 panels to date)
- Ad hoc reviewer for proposals submitted to American Chemical Society Petroleum Research Fund (PRF), National Science Foundation, Research Corporation for Scientific Advancement Cottrell Scholar (CS) award

Department and University Service

- Presented Chemistry Elective during LEAD Week to help first-generation college students prepare for their first college-level science course in Fall 2018, 2019, 2021, 2023, 2024
- SCU College of Arts and Sciences Rank and Tenure committee member (2021 2024)
- Participated in Fletcher Jones Foundation Site Visit organized by Matthew Hendricks from the SCU Strategic Partnerships Office (January 2023)
- Participated in the Ciocca Center's Scientific Mindset summer lunch series in 2022 and 2024
- Gave presentation as part of the "Imagining Tomorrow at SCDI" Facebook Live Virtual Tour of the Sobrato Campus for Discovery and Innovation on February 26, 2021
- SCU Diversity and Inclusion in Science and Engineering (DISE) committee member (2019 2020)
- Member of Santa Clara University's delegation to the Teaching to Increase Diversity and Equity in STEM (TIDES) Institute in Los Angeles, CA (June 2019)
- Organized Jean Dreyfus Lectureship in October 2019 for Dr. Christy Haynes and all associated activities (including selecting undergraduate summer research fellows funded by this grant)
- Beckman Scholar Program, designated mentor and selection committee member (2019-2021, 2024-2026)
- Reviewer for departmental awards: Physical Chemistry Award, Sweeney Award, Bastiani Summer Research Awards (2015-2024)

- Reviewer for undergraduate research awards: SPUR, SAURO, Goldwater Scholarships, Clare Boothe Luce fellowships (2015-2024)
- Chemistry & Biochemistry department liaison to the Coding Working Group (2018 2020)
- General chemistry curriculum revision committee member (2018 present)
- Organized tours of my research lab and gave demonstrations to support and recruit female high school students from Villanova Prep, a Clare Boothe Luce designated institution (February 5, 2018)
- Gave presentations and answered questions for prospective students and parents about chemistry and biochemistry department on SCU Preview Day (April 15, 2018)
- Chemistry & Biochemistry department research seminar coordinator (2015 2017)
- Participated in the STEM programming and planning meetings and Wet Lab Focus Group discussions to propose policies for the allocation and management of resources for the Sobrato Campus for Discovery and Innovation at SCU (2014-present)

Undergraduate research students supervised (and outcomes)

- 1. Lindsey Gebhardt (Chemistry, Class of 2026)
- 2. Hannah Cowe (Biochemistry, Class of 2026)
- 3. Kasiet Temiralieva (Biology, Class of 2025)
- 4. Mary Xiang (Biology/Public Health, Class of 2025)
- 5. Meghan Ghumman (Biology, Class of 2024)
- 6. Elliott Anderson (Chemistry, Class of 2022), associate scientist at RayzeBio (Indiana)
- 7. Emma Figueredo (Biochemistry, Class of 2022), post-bac researcher at UCSF (Ruggero Lab)
- 8. Julia Dayton (Neuroscience, Class of 2022)
- 9. Michelle Nguyen (Biochemistry, Class of 2022)
- 10. Chi Ngo (Biochemistry, Class of 2022)
- 11. Ayush Kris (Biochemistry, Class of 2021), completed M.S. in bioinformatics at Weill Cornell Medical school
- 12. Cameron Read (Bioengineering, Class of 2021), research associate at 4D Molecular Therapeutics (Emeryville, CA)
- 13. Nour Fezzani (Biochemistry, Class of 2021), medical assistant at Vascular Surgery Medical Group (Morgan Hill)
- 14. Zachary Ottoes (Biochemistry, Class of 2020), associate scientist in Drug Product Design at Pfizer (Andover, MA)
- 15. Fabiola Gutierrez (Physics, Class of 2020), high school chemistry teacher in San Jose
- 16. Gillian Gadbois (Biochemistry, Class of 2020), Biochemistry Ph.D. student at UCSD (Ferguson Lab)
- 17. Morgan MacKenzie (Biochemistry, Class of 2019), research associate at Octant
- 18. Vivian Dao (Chemistry, Class of 2018), organic chemistry Ph.D. student at UCLA (Deming Lab)
- 19. Jacenda Rangel (Biochemistry, Class of 2018), Registered Nurse at San Francisco VA Medical Center
- 20. Madeleine Landry (Chemistry, Class of 2018), postdoctoral fellow at Stanford; completed pharmaceutical sciences Ph.D. at Oregon State Univ.
- 21. Amanda Fearon (Chemistry, Class of 2018), research associate at Arsenal Bio (San Francisco, CA)
- 22. Jennifer Yin (Biochemistry/Biology, Class of 2018), research associate at Bio-Rad Laboratories (Pleasanton, CA)
- 23. Anna Calkins (Chemistry, Class of 2017), completed chemistry Ph.D. University of Michigan (Biteen Lab), now working at Bristol Myers Squibb (New Jersey)
- 24. Trevor Moore (Chemistry/Math, Class of 2017), developer at Raindrop Systems (Cupertino, CA)
- 25. Sharon Chen (Biology, Class of 2017), pharmacist
- 26. Travis McAuley (Bioengineering, Class of 2016), Software Engineer at Ritten (Philadelphia, PA)

Courses taught at Santa Clara University

Name	Quarter(s) taught
CHEM 11: General Chemistry I lecture	F15, F16, F18, F19, F21, F23, F24
CHEM 11L: General Chemistry I lab	F14, F15, F23, F24
CHEM 12: General Chemistry I lecture	W17, W18, W19, W25
CHEM 12L: General Chemistry II lab	W15, W17
CHEM 50: General Chemistry III lecture	S25
CHEM 50L: General Chemistry III lab	S21, S24, S25
CHEM 115: Chemistry Seminar	F15, W16, S16, F16, W17, S17
CHEM 151 Quantum Chemistry	S15, S16, S17, S18, S19, S21, F21, S24
CHEM 152 Chemical Thermodynamics	W15, W16, W17, W18, W19, W20, W21, W22, W24
CHEM 154: Physical Chemistry Lab	S22
CHEM 182 Undergraduate Research	F15(2), W16(4), S16(4), F16(4), W17(4), S17(5), F17(4), W18(1),
	S18(3), F18(6), W19(4), S19(7), F19(5), W20(5), S21(1), F21(1),
	W22(1), S22(2), W24(3), S24(3)
CHEM 183 Senior Research	S16(1), W18(3), S18(1), S19(1), W20(2), S21(1), W22(1)
CHEM 184 Capstone Research	W17(1), S18(2), S22(1)

*numbers of students enrolled are shown in parentheses for CHEM 182, 183, 184
Some students are paid for conducting research from fellowships and do not count towards enrollment