

GREGORY R. BOYCE

SciTech 228
Department of Chemistry and Biochemistry
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Associate Professor
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EDUCATION

Ph.D. in Synthetic Organic Chemistry; University of North Carolina, Chapel Hill, NC	2011
ACS-Certified B.S. in Chemistry; Emory University, Atlanta, GA	2006
High School Diploma; Saint Thomas Aquinas High School, Fort Lauderdale, FL	2002

PROFESSIONAL EXPERIENCE

Associate Professor of Chemistry, East Stroudsburg University, PA	2023-present
Visiting Scholar with Prof. Andrew Smith; University of St Andrews, Scotland (Sabbatical)	2021-2022
Associate Professor of Chemistry, Florida Gulf Coast University, FL	2018-2023
Assistant Professor of Chemistry, Florida Gulf Coast University, FL	2013-2018
Postdoctoral Researcher with Prof. Stéphane Roche, Florida Atlantic University, FL	2012-2013
Visiting Assistant Professor, Mercyhurst University; Erie, PA	2011-2012
Graduate Research with Professor Jeffrey S. Johnson; University of North Carolina, NC	2006-2011
Undergraduate Research with Professor Craig Hill; Emory University, Atlanta, GA	2005-2006

HONORS AND AWARDS

FGCU 1-Year Sabbatical Award	2021-2022
FGCU Faculty Excellence Award in Mentoring	2017, 2019
FGCU Lucas Fellowship for Faculty Development	2018-2020
FGCU Junior Faculty Scholarship Excellence Award	2018
ACS National Organic Symposium Faculty Travel Award	2017
FAME Faculty Travel Award	2017
Graduate Assistance in Areas of National Need (GAANN) Teaching Fellowship (UNC)	2009-2010
Francis P. Venable Fellowship (UNC)	2006
Outstanding Undergraduate TA Award for General Chemistry (Emory)	2006

PUBLICATIONS

Undergraduate Names are in Bold.

- 12.) Yuan, D.; Goodfellow, A. S.; Duan, Z.; Kang, T.; Kasten, K.; Cordes, D. B.; McKay, A. P.; Buehl, M.*; Boyce, G. R.*; Smith, A. D.* "Understanding Divergent Substrate Stereoselectivity in the Isothiourea-Catalysed Conjugate Addition of Cyclic α -substituted β -ketoesters to α,β -unsaturated Aryl Esters." *Chem. Sci.* **2023**, *14*, 14146-14156. (**Sabbatical Publication**)
Highlighted in Synfacts, **2024**, *20*, 0327.

Prior to ESU

- 11) Boyce, G. R.*; Musolino, S. F.; Yang, J.; Smith, A. D.*; Taylor, J. E.* "Arylboric acid-catalyzed dehydrative racemization of secondary and tertiary alcohols." *J. Org. Chem.* **2022**, *87*, 13367-13374. (**Sabbatical Publication**)
- 10) Wu, J.; Young, C. M.; Watts, A. A.; Slawin, A. M. Z.; Boyce, G. R.*; Bühl, M.*; Smith, A. D.* "Isothiourea-catalyzed enantioselective Michael addition of malonates to α,β -unsaturated aryl esters." *Org. Lett.* **2022**, *24*, 4040-4045. (**Sabbatical Publication**)
- 9) **Weeks, K. L.**; Williams, J. D.; Boyce, G. R.* "A three-step enantioselective synthesis of (+)- and (–)- α -thujone." *Org. Biomol. Chem.* **2021**, *19*, 8018-8020.
- 8) **Steele, J. H.**; **Bozor, M. X.**; Boyce, G. R.* "Transmutation of scent: An evaluation of the synthesis of methyl cinnamate, a commercial fragrance, via a Fischer esterification for the second-year organic chemistry laboratory." *J. Chem. Educ.* **2020**, *97*, 4127-4132.
- 7) **Weeks, K. L.**; **Rutkowski, K. R.**; **Morales Loyola, A. A.**; Boyce, G. R.* "Utilization of pyridoxal acetal salts as water-triggered, slow-release pro-fragrances." *New J. Chem.* **2018**, *42*, 15538-15540.
Featured as journal's back cover art.

- 6) **Yazarians, J. A.; Jiménez, B. L.;** Boyce, G. R.* "A regioselective etherification of pyridoxine via an *ortho*-pyridinone methide intermediate." *Tetrahedron Letters*, **2017**, 58, 2258-2260.
- 5) Williams, J. D.; **Yazarians, J. A.; Almeyda, C. C.;** Anderson, K. A.; Boyce, G. R.* "Detection of the previously unobserved stereoisomers of thujone in the essential oil and consumable products of sage." *J. Agric. Food Chem.*, **2016**, 64, 4319-4326.

Prior to FGCU

- 4) Boyce, G. R.; Johnson, J. S. "An asymmetric vinylogous Michael cascade of silyl glyoximides, vinyl Grignard, and nitroalkenes via long range stereoinduction." *J. Org. Chem.* **2016**, 81, 1712-1717. **Highlighted in Synfacts, 2016, 12, 0409.**
- 3) Boyce, G. R.; Greszler, S. N.; Johnson, J. S.; Linghu, X.; Malinowski, J. T.; Nicewicz, D. A.; Satterfield, A. D.; Steward, K. M. "Silyl Glyoxylates. Conception and implementation of simple but useful new reagents for multicomponent coupling." *J. Org. Chem.* **2012**, 77, 4503-4515.
- 2) Boyce, G. R.; Liu, S.; Johnson, J. S. "Construction of cyclopentanol derivatives via three-component coupling of silyl glyoxylates, acetylides, and nitroalkenes." *Org. Lett.* **2012**, 14, 652-655. **Highlighted in Synfacts 8, 0435.**
- 1) Boyce, G. R.; Johnson, J. S. "Three-component coupling reactions of silyl glyoxylates, vinyl Grignard reagent, and nitroalkenes: An efficient, highly diastereoselective approach to nitrocyclopentanols." *Angew. Chem. Int. Ed.* **2010**, 49, 8930-8933.

REVIEWS, BOOKS, AND BOOK CHAPTERS

Undergraduate Names are in Bold.

- 4) **Klootwyk, B. M.;** Boyce, G. R.* "Tetrachlorocyclopropene" *Encyclopedia of Reagents for Organic Synthesis [Online]*, John Wiley and Sons Ltd. **2019**
- 3) **Weeks, K. L.;** Boyce, G. R.* "Tris(Dimethylamino)Sulfonium Difluorotrimethylsilicate" *Encyclopedia of Reagents for Organic Synthesis [Online]*, John Wiley and Sons Ltd. **2019**
- 2) **Rutkowski, K. R.;** Boyce, G. R.* "Copper(2+), [(4S,4'S)-2,2'-(1-methylethylidene)bis[4,5-dihydro-4-phenyloxazole-kN3]]-, bis[(OC-6-11)-hexafluoroantimonate(1-)] and Copper(2+), [(4S,4'S)-2,2'-(1-methylethylidene)bis[4-(1,1-dimethylethyl)-4,5-dihydrooxazole-kN3]]-,bis[tetrafluoroborate(1-)]" *Encyclopedia of Reagents for Organic Synthesis [Online]*, John Wiley and Sons Ltd. **2018**
- 1) Boyce, G. R.; Johnson, J. S. "tert-Butyl 2-(tert-butyldimethylsilyl)-2-oxoacetate" *Encyclopedia of Reagents for Organic Synthesis [Online]*, John Wiley and Sons Ltd. **2013**

GRANT ACQUISITION

External

ACS-PRF New Directions "Rational Prediction of Green Solvents for Aryl-Aryl Coupling Reactions," 2020	(co-PI with Prof. Daniel Lambrecht)	\$70,000
NSF-MRI for Acquisition of a Single Crystal X-Ray Diffractometer, 2019	(co-PI)	\$165,000
NSF-MRI for Acquisition of 400 MHz NMR, 2015	(co-PI)	\$293,600

Internal

At ESU

Tech Fee Grant for a Polarimeter, 2024
 Tech Fee Grant for a Chemical Fridge/Freezer, 2024
 Tech Fee Grant for a Vacuum Pump, 2024
 Foundation Grant, 2024
 Start It Grant, 2024
 Grow It Grant, 2023
 Foundation Grant, 2023

At FGCU

Seidler Summer Research Fellowship, 2023
 Seidler Summer Research Fellowship, 2021
 Seidler Summer Research Fellowship, 2019
 Seidler Summer Research Fellowship, 2018
 Seidler Summer Research Fellowship, 2017
 FGCU Small Grant for Preliminary Study, 2016

COURSES TAUGHT AT ESU

Chem 433 – Organic Chemistry III
Chem 236 – Organic Chemistry II Laboratory
Chem 235 – Organic Chemistry I Laboratory
Chem 234 – Organic Chemistry II
Chem 233 – Organic Chemistry I
Chem 126 – General Chemistry II Laboratory
Chem 124 – General Chemistry II
Chem 123 – General Chemistry I Laboratory
Chem 121 – General Chemistry I
Chem 104 – Chemistry for the Consumer

COURSES TAUGHT AT FGCU

CHM 4932 – Chemistry Senior Seminar (New Course Offering at FGCU)
CHM 4931 – Chemistry Senior Capstone
CHM 4254C – Medicinal Organic Synthesis
CHM 4220C – Advanced Organic Chemistry (New Course Offering at FGCU)
CHM 2211 – Organic Chemistry II
CHM 2211L – Organic Chemistry II Lab
CHM 2210 – Organic Chemistry I
CHM 2210L – Organic Chemistry I Lab
CHM 1045L – General Chemistry I Lab

INVITED PRESENTATIONS BY GRB

Faculty of Florida (FOF) Meeting, Lakeland, FL	9/2022
19 th FloHet, Gainesville, FL	3/2020
Gamma Sigma Epsilon Centennial Convention, Davidson College, Davidson, NC	11/2019
18 th FloHet, Gainesville, FL	3/2018
University of South Alabama	2/2018
SoFLACS Keynote Speaker	2/2018
Georgia State University, Atlanta, GA	11/2017
University of West Florida, Pensacola, FL	9/2017
93 rd FAME Conference, Tampa, FL	5/2017
253 rd ACS Meeting; San Francisco, CA (Chair of Session in Organic Chem.)	4/2017

STUDENT PRESENTATIONS AND POSTERS

Undergraduate Names are in Bold

Litts, N. A.; Simmons, E. K.; Boyce, G. R. "Optimizing the Aqueous Wittig Reaction for use in Undergraduate Organic Chemistry Laboratory Courses" MARM, State College, PA 6/2024
Luz, M. N.; Rackley, L. M.; Bozor, M. X.; Boyce, G. R. "Synthesis of Alkyl Aryl Ionic Liquids via the Chan-Lam Reaction" Synthesposium at UF (Virtual) 5/2021
Quiroz, D. R.; Foster, J. R.; Boyce, G. R. "Efforts towards the Total Synthesis of γ -Curcumene" FloHet, Gainesville, FL 3/2020
Lee, R. M.; Boyce, G. R. "Efforts towards the Direct γ -Functionalization of Cyclopentenones" FloHet, Gainesville, FL 3/2020
Pingale, R. S.; Boyce, G. R. "Efforts toward the Total Synthesis of Umbellulone" FloHet, Gainesville, FL 3/2020
Pingale, R. S.; Boyce, G. R. "Efforts toward the Total Synthesis of Umbellulone" FURC, Fort Myers, FL 2/2020
Muir, J. E.; Andrade, I.; Boyce, G. R. "Synthesizing Cyclopropanone-Containing Natural Products" FURC, Fort Myers, FL 2/2020
Lee, R. M.; Boyce, G. R. "Efforts towards the Direct γ -Functionalization of Cyclopentenones" FURC, Fort Myers, FL 2/2020
Quiroz, D. R.; Foster, J. R.; Boyce, G. R. "Efforts towards the Total Synthesis of γ -Curcumene" FURC, Fort Myers, FL 2/2020
Bozor, M. X.; Boyce, G. R. "An Investigation of the azo-Diels-Alder Reaction of Pyridoxal HCl with Imidates" NOBBChe, St. Louis, MO 11/2019
Quiroz, D. R.; Foster, J. R.; Boyce, G. R. "Total Synthesis of Curcumene" 11/2019

Gamma Sigma Epsilon Centennial Convention, Davidson College, Davidson, NC	
Bozor, M. X.; Boyce, G. R. “ <i>Investigation of the Inverse Electron Demand Diels-Alder Chemistry with Pyridoxal HCl</i> ” National Organic Symposium 2019, Bloomfield, IN	6/2019
Klootwyk, B. M.; Muir, J. E.; Boyce, G. R. “ <i>Utilizing Cyclopropanones in Strain-Releasing Methodologies</i> ” 257 th ACS National Meeting, Orlando, FL	4/2019
Quiroz, D. R.; Foster, J. R.; Boyce, G. R. “ <i>Total Synthesis of γ-Curcumene</i> ” 257 th ACS National Meeting, Orlando, FL	4/2019
Bozor, M. X.; Boyce, G. R. “ <i>Efforts towards Cycloadditions with Pyridoxal via an ortho-Pyridinone Methide Intermediate</i> ” 257 th ACS National Meeting, Orlando, FL	4/2019
Klootwyk, B. M.; Boyce, G. R. “ <i>Synthesis of Heterofunctionalized Cyclopropanones and Investigation of their Reactivity</i> ” 18 th FLoHet, Gainesville, FL Best Undergraduate Poster	3/2018
Steele, J. H.; Boyce, G. R. “ <i>The Fischer Esterification of trans-Cinnamic Acid to Methyl Cinnamate</i> ” 18 th FLoHet, Gainesville, FL	3/2018
Weeks, K. L.; Boyce, G. R. “ <i>Progress towards the Enantioselective Synthesis of Thujone</i> ” 18 th FLoHet, Gainesville, FL	3/2018
Martinez, K. L.; Boyce, G. R. “ <i>Enantioselective Synthesis of Thujone</i> ” 46 th National Organic Symposium, UC Davis, CA	6/2017
Rutkowski, K. R.; Boyce, G. R. “ <i>Endgame for the Total Synthesis of Khusiol</i> ” 93 rd FAME Conference, Tampa, FL Picked as Top 5 Undergraduate Poster	5/2017
Coury, S. A.; Yazarians, J. A.; Boyce, G. R. “ <i>Favorskii-Type Green Synthesis of Acrylates from Cyclopropanones</i> ” 68 th SERMACS; Colombia, SC	10/2016
Jiménez, B. L.; Boyce, G. R. “ <i>Synthesis of 4'-Substituted Amino Derivatives of Pyridoxine</i> ” 68 th SERMACS, Colombia, SC	10/2016
Rutkowski, K. R.; Boyce, G. R. “ <i>Efforts towards the Concise Total Synthesis of Khusiol</i> ” 68 th SERMACS, Colombia, SC	10/2016
Williams, J. D.; Yazarians, J. A.; Anderson, K. A.; Boyce, G. R. “ <i>Variations in the enantiomeric composition of thujone-containing essential oils</i> ” 252 nd ACS Meeting; Philadelphia, PA	08/2016
Jiménez, B. L.; Bracken, A.; Boyce, G. R. “ <i>Efforts towards the γ-functionalization of cyclopentenones</i> ” SERMACS; Memphis, TN	11/2015
Coury, S. A.; Tokamov, S.; Boyce, G. R. “ <i>Overcoming Aromaticity: Progress Towards the Cyclization of Cyclopropanones</i> ” SERMACS; Memphis, TN	11/2015
Yazarians J. A.; Boyce, G. R. “ <i>Synthesis of Ginkgotoxin and Related Ether Analogs</i> ” SERMACS; Memphis, TN	11/2015
Yazarians, J. A.; Almeyda, C. C.; Williams, J.; Boyce, G. R. “ <i>Total Synthesis of Thujone</i> ” Gamma Sigma Epsilon Biannual Meeting; University of Pittsburgh at Greensburg, PA	10/2015
Williams, J.; Yazarians, J. A.; Boyce, G. R. “ <i>Ginkgo Biloba: A New Look at an Old Plant</i> ” 250 th ACS Meeting; Boston, MA	08/2015

MEETINGS ATTENDED

Faculty of Florida (FOF) Meeting, Lakeland, FL	9/2022
20 th Centre for Synthesis and Chemical Biology, Dublin, Ireland (Virtual)	11/2021
19 th FloHet, Gainesville, FL	3/2020
Centennial Convention of Gamma Sigma Epsilon, Davidson, NC (Planning Committee)	11/2019
257 th ACS National Meeting, Orlando, FL	4/2019
18 th Ischia Advanced School of Organic Chemistry, Naples, Italy	9/2018
22 nd International Conference on Organic Synthesis, Florence, Italy	9/2018
ACChemS XL, Bonita Springs, FL	4/2018
18 th FloHet, Gainesville, FL	3/2018
Gamma Sigma Epsilon Biennial Meeting; Niagara University, NY	10/2017
46 th ACS National Organic Symposium, UC Davis, CA	6/2017
93 rd FAME Conference, Tampa, FL	5/2017
253 rd ACS National Meeting; San Francisco, CA	4/2017
68 th SERMACS; Colombia, SC	10/2016
NSF Chemistry Early CAREER Workshop, Washington, D.C.	3/2016
67 th SERMACS; Memphis, TN	11/2015
Gamma Sigma Epsilon Biennial Meeting; Greensburg, PA	10/2015
249 th ACS Meeting; Denver, CO	3/2015
66 th SERMACS; Atlanta, GA	11/2013

PROFESSIONAL SERVICE

I.) Service to Discipline

Hosted the 49 th Biennial Convention for Gamma Sigma Epsilon at FGCU	11/2022
70 Attendees from 43 predominantly undergraduate institutions across the country participated in the event and Prof. Roald Hoffmann (1981 Nobel Prize in Chemistry) was the keynote speaker.	
NSF GRFP Reviewer	2020
President of the Gamma Sigma Epsilon National Chemistry Honor Society	2022-2024
President-Elect of the Gamma Sigma Epsilon National Chemistry Honor Society	2019-2022
Executive Member of the Gamma Sigma Epsilon National Chemistry Honor Society	2017-2019
Session Chair in Organic Chemistry at the 253 rd ACS Meeting; San Francisco, CA	4/2017

Manuscript Reviewer: *ACS Catalysis*, *J. Chem. Educ.*, *Org. Biomol. Chem.*, *ACS Omega*, *Tetrahedron*, *Tetrahedron Letters*, *Current Catalysis*, *Current Organic Chemistry*, and *Topics in Current Chemistry*.

II.) Service to the Department and University

At ESU

Adjunct Evaluation Committee Chair	2024-present
Faculty Senator	2024-present
Assessment Coordinator for Chemistry and Biochemistry Department	2024-present

Search Committees

Chair of Visiting Assistant Professor of Physical Chemistry Faculty Search	Summer 2024
Co-Chair of Physical Chemistry Faculty Search	Fall 2023

At FGCU

Head of the Teaching Cells for Organic Lecture and Lab	2019-2023
Mentor for New Faculty through the Lucas Center at FGCU	2019-2023
Associate Member of the Graduate Faculty at Florida Gulf Coast University	2015-2023
Founding Faculty Advisor for Gamma Sigma Epsilon National Chem. Honor Society	2015-2023
Research Lab Coordinator for Seidler-422 and Seidler-423 Laboratories	2015-2021
Author and Editor of FGCU's <i>Organic Chemistry Lab Manual</i>	2013-2023

Search Committees

Eminent Scholar Faculty Search Committee	2021
Lab Manager Search Committee	2017, 2018

MEDIA, OUTREACH, AND BROADER IMPACTS

NBC News Story "Calls to Poison Control up nearly 50% from people misusing household cleaners" (Interviewed as expert to explain what chemicals should not be combined at home) 4/21/2020

FGCU360 Story "Undergraduate Research not just an Experiment at FGCU" 6/3/2019
<https://fgcu360.com/2019/06/03/undergraduate-research-not-just-experiment-fgcu/>

WINK News Story on our research on vitamin-based chemical delivery 3/7/2019
<https://www.winknews.com/2019/03/07/fgcu-professor-and-students-patent-discovery-that-could-change-medicine/>

WINK News Story on our research as "Molecular Architects" 7/25/2018
<https://www.winknews.com/2018/07/25/fgcu-students-are-creating-molecules-to-help-medication-development/>

Mentor for S. Coury who was profiled by *Naples Daily News* for her research in our group 06/2016

- [Graduate of Distinction](#)

Research Mentor for 8th Grade Student, C. Hill, on the *Extraction of Vincristine from Periwinkle* 2014-2015

- Southwest Florida Regional Science Fair "Best of Fair Award" Junior Class 2015
- Florida State Science Fair "Best of Fair Award" Junior Class 2015
- Highlighted on NBC-2 News "Murdock Middle School Student Honored Statewide for Work" 2015
- Highlighted in FGCU's Pinnacle Magazine Article 2015