

# GREGORY R. BOYCE

SciTech 228  
Department of Chemistry and Biochemistry  
East Stroudsburg University  
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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  $\alpha$ -substituted  $\beta$ -ketoesters to  $\alpha,\beta$ -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.\* "Arylboronic 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  $\alpha,\beta$ -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 (-)- $\alpha$ -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 <sup>th</sup> FloHet, Gainesville, FL	3/2020
Gamma Sigma Epsilon Centennial Convention, Davidson College, Davidson, NC	11/2019
18 <sup>th</sup> 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 <sup>rd</sup> FAME Conference, Tampa, FL	5/2017
253 <sup>rd</sup> 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*” Synthposium at UF (Virtual) 5/2021

**Quiroz, D. R.; Foster, J. R.;** Boyce, G. R. “*Efforts towards the Total Synthesis of  $\gamma$ -Curcumene*” FloHet, Gainesville, FL 3/2020

**Lee, R. M.;** Boyce, G. R. “*Efforts towards the Direct  $\gamma$ -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  $\gamma$ -Functionalization of Cyclopentenones*” FURC, Fort Myers, FL 2/2020

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

## MEETINGS ATTENDED

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

## PROFESSIONAL SERVICE

### I.) Service to Discipline

Hosted the 49 <sup>th</sup> 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
<i>Session Chair</i> in Organic Chemistry at the 253 <sup>rd</sup> 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 8<sup>th</sup> 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