

# JUSTINE G. GRABIEC

PhD Candidate | Department of Earth Sciences | University of Southern California

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## EDUCATION

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<b>PhD</b>	<b>University of Southern California (USC)</b> Geological Sciences Advisors: John P. Platt & Emily H.G. Cooperdock Dissertation subjects: (U-Th)/He thermochronology & fluids and volatile/element cycling in subduction zones	August 2021 – present
<b>MS</b>	<b>University of North Carolina at Chapel Hill (UNC)</b> Geological Sciences Advisor: Drew S. Coleman Thesis: <i>Using Micro CT Imaging to Understand K-Feldspar Megacryst Origin, Crystallization, and Textural Coarsening</i>	December 2019
<b>BS</b>	<b>University of Maryland College Park (UMD)</b> Geology; Planetary Science Minor Advisors: Sarah C. Penniston-Dorland, Richard J. Walker, Melodie E. French Thesis: <i>Insights into the formation of the Cottonwood Canyon fault in the Catalina Schist</i>	May 2017

## GRANTS, HONORS, & AWARDS

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<b>Earth Sciences Graduate Student Research Award – Spring 2022, Fall 2024</b> USC Department of Earth Sciences	2022, 2024 (2)
<b>Earth Sciences Graduate Student Travel Grant – Fall 2022, Fall 2023, Spring &amp; Fall 2024</b> USC Department of Earth Sciences	2022-2024
<b>Professional Development Fund</b> USC Graduate Student Government	2023
<b>Community Service with Excellence/Distinguished Service Award</b> USC Volunteer Center and the City of Los Angeles	2023
<b>Mineralogy, Geochemistry, Petrology and Volcanology Division Travel Grant</b> Geological Society of America	2022
<b>NSF/GSA Graduate Student Geoscience Grant &amp; Outstanding Mention</b> National Science Foundation, Geological Society of America, GSA Grant # 13424-22, NSF Award # 1949901	2022
<b>Women in Science and Engineering (WiSE) Graduate Top-off Fellowship</b> USC WiSE	2021

<b>First Place in Graduate Student Poster Presentations and Graduate Student Recognition</b> UNC Department of Geological Sciences Anadarko Symposium	2019
<b>Student Lipman Research Award</b> Geological Society of America Specialized Grant, Grant #12049-18	2018
<b>Doctoral Merit Assistantship</b> UNC Graduate School	2017
<b>Nominee for 2017 Cooperative Summer Geoscience Internship Program with the National Association of Geoscience Teachers</b> South Dakota School of Mines and Technology	2016
<b>College of Computer, Mathematical, and Natural Sciences Scholarship</b> UMD	2016
<b>L. Austin Weeks Undergraduate Grant</b> UMD Department of Geology	2016
<b>Departmental Grant for Geologic Field Camp</b> UMD Department of Geology	2016
<b>Undergraduate Summer Research, Travel, and Educational Enrichment Award</b> UMD College of Computer, Mathematical, and Natural Sciences	2016
<b>Marc Lipella Memorial Scholarship</b> Marc Lipella Foundation, Inc.; UMD Department of Geology	2016
<b>Mineralogical Society of America Undergraduate Prize</b> UMD	2015

#### RESEARCH AND LABORATORY EXPERIENCE

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<b>Visiting Graduate Researcher</b> USC Wrigley Institute for Environment and Sustainability, Santa Catalina Island, CA	June 2025 – present
<b>Graduate Student</b> USCHelium, MicroCT, PLASMA (Plasma Laboratory for Atmosphere, Solid Earth, and Marine Analyses), Rock Preparation, and Petrology Laboratories, Department of Earth Sciences, USC	August 2021 – present
<b>Visiting Graduate Student</b> XRF, XRD, and Raman Spectroscopy; Mineral Sciences Department, Natural History Museum of Los Angeles County	October 2024, April 2025
<b>MicroCT Laboratory Manager</b> USC	May 2023 – present
<b>Rock Preparation Laboratory Manager</b> USC	May 2023 – present

**Visiting Graduate Student**

August 2022

Stable Isotope, UTChron, Geochemistry, and Clean Laboratories, Jackson  
School of Geosciences Department of Geology, University of Texas at Austin

**Graduate Student**

August 2017 – December 2019

Isotope Geochemistry and Petrology Laboratories, Department of  
Geological Sciences UNC

**Visiting Graduate Student**

August 2017 – December 2019

MicroCT Laboratory, Shared Materials Instrumentation Facility,  
Duke University

**Visiting Graduate Student**

August 2018

The Plasma Mass Spectrometry Laboratory, Department of Geology,  
UMD

**Intern/Researcher**

June 2017 – August 2017

Lunar and Planetary Institute & Johnson Space Center (NASA),  
Houston, TX  
Advisors: David Kring and Martin Schmieder

**Undergraduate Laboratory Technician**

March 2016 – February 2017

Rock Preparation and Mineral Separation Facilities & Isotope  
Geochemistry Laboratory, Department of Geology, UMD

**Undergraduate Researcher**

January 2016 – May 2017

Rock Preparation and Mineral Separation Facilities, Isotope  
Geochemistry Laboratory, & Advanced Imaging and Microscopy  
Laboratory, Department of Geology, UMD

**TEACHING AND MENTORING EXPERIENCE**

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**Teaching**

Teaching Assistant, USC

*GEOL108: Crises of a Planet* (Spring 2022, Spring 2025)      2022 Evaluation Score: 3.6/4.0  
2025 Evaluation Score: 3.3/4.0

Organized and graded three sections of weekly laboratory exercises that included hands-on experiments and data interpretation; provided pre-lab discussions of material; wrote and graded pre-lab quizzes.

*GEOL315: Minerals and Earth Systems* (Fall 2021, 2022, 2023, 2024)

2022 Evaluation Score: 4.0/4.0

2023 Evaluation Score: 3.9/4.0

2024 Evaluation Score: 4.0/4.0

Created syllabus; updated and created laboratory exercises and practicals and organized samples (minerals, rocks, and thin sections) as needed; created and graded exams and quizzes; led trips to the Natural History Museum of LA County; troubleshoot petrographic microscope issues; reorganized samples and laboratories such that future teaching assistants could easily locate samples and prepare assignments (2022); assisted students with MicroCT, XRD, and Raman spectroscopy analysis of mineral specimens as well as field work and CSD calculations for a semester-long project (2022); assisted in planning and organizing a weekend field trip to Santa Catalina Island (2022) and San Gabriel Mountains (2024).

*“Justine was amazing! She helped me not only in lab and lecture but also by giving me advice for grad school. She's the best TA I've ever had across all departments.”*  
- 2023 GEOL315 Student

**Lecturer, UNC**

*GEOL425: Introduction to Field Geology* (Spring 2020)

Planned and organized a semester-long course aimed to serve undergraduate students before they attended field camp that included the introduction and practice of various field techniques and modes of data collection; created syllabus; wrote and graded weekly projects and a final exam; scoped the viability of potential field sites for geologic mapping and stratigraphic columns and led field trips to the suitable areas with ~8 undergraduate geology majors; created and graded exams and semester-long projects; created field exercises and projects suitable for virtual learning.

**Teaching & Field Assistant, Guest Lecturer, UNC**

*GEOL72H: First-Year Seminar: Field Geology of Eastern California* (October 2018, 2019)

Planned, organized, and assisted a group of ~20 first-year students conduct field work in Owen's Valley, the Sierra Nevada, and the Inyo Mountains, California for one week while staying at the White Mountain Research Center's Owen's Valley and Crooked Creek research stations; assisted with in-depth field data collection, analysis, and interpretation; provided pre-field lectures on the geology of the area being studied.

**Teaching Assistant & Guest Lecturer, UNC**

*GEOL301: Earth Materials: Minerals* (Fall 2019)

Planned, organized, and updated course syllabus and weekly laboratory exercises; graded exercises; lectured students about thermodynamics and phase equilibria.

**Teaching Assistant, UNC**

*GEOL304: Petrology and Plate Tectonics* (Spring 2019)

Planned, organized, and updated course syllabus and weekly laboratory exercises; planned and created a semester-long laboratory-based project; assisted with field trips; graded exercises and multiple semester-long projects.

**Teaching Assistant, UMD**

*GEOL204: Dinosaurs, Early Humans, Ancestors, and Evolution: The Fossil Record of Vanished Worlds of the Prehistoric Past* (Spring 2017)

Led and facilitated three weekly discussion sections based on readings and assignments; graded written assignments and oral presentations.

***Mentoring***

Ailani Bonilla (USC Undergraduate)

- Graduate Mentor: Directed Research, USC (Spring 2023, Fall 2023)  
Projects: Characterizing mélange mineral phases using XRD
- Graduate Mentor: Research Experience for Undergraduates (REU), Brown University (Summer 2024)  
Project: Where is nitrogen stored during subduction?

## PUBLICATIONS

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### Abstracts

- Bonilla, A., **Grabiec, J.G.**, Cooperdock, E.H.G., Bustos Moreno, J.F., Celestian, A.J., Mallik, A., and Bebout, G.E., 2024, *Unveiling Hosts for Nitrogen Transportation and Storage in Meta-Serpentinites*: 2024 AGU Annual Meeting.
- Bonilla, A., **Grabiec, J.G.**, Cooperdock, E.H.G., Bustos-Moreno, J.F., Celestian, A.J., Mallik, A., and Bebout, G.E., 2024, *Unveiling hosts for nitrogen transportation and storage in meta-serpentinites*: 2024 GSA Annual Meeting.
- Grabiec, J.G.**, Bonilla, A.N., Cooperdock, E.H.G., Bustos-Moreno, J.F., Rebaza, A.M., Mallik, A., Bebout, G.E., and Celestian, A.J., 2024, *Nitrogen in ultramafic and sedimentary mélange matrices and its implications for subduction zone nitrogen budgets*: 2024 GSA Annual Meeting.
- Bucheli, C., Segee-Wright, G., **Grabiec, J.G.**, Cooperdock, E.H.G., Barnes, J.D., Lackey, J.S., Stockli, L.D., Stockli, D.F., and Ardill, K., 2024, *Constraining Halogen Budgets in Continental Arcs at the Whole-Rock Scale*: 2024 Goldschmidt Conference.
- Cooperdock, E.H.G., **Grabiec, J.G.**, Rojas, A., and Celestian, A.J., 2024, *Increasing equitable access to meaningful research experiences through undergraduate mineralogy and earth materials classes*: 2024 Goldschmidt Conference.
- Grabiec, J.G.**, Cooperdock, E.H.G., and Platt, J.P., 2023, *Exploring the Shallow Exhumation History of the Southern California Borderland using Apatite, Rutile, and Zircon (U-Th)/He Thermochronology on Santa Catalina Island*: 2023 AGU Fall Meeting.
- Grabiec, J.G.**, Cooperdock, E.H.G., Barnes, J.D., and Lackey, J.S., 2022, *Halogen distribution in continental arc plumbing systems: Sierra Nevada, California*: 2022 GSA Annual Meeting.
- Grabiec, J.G.** and Glazner, A.F., 2019, *The origin and growth of K-feldspar megacrysts in granodiorite, Tuolumne Intrusive Suite, California*: 2019 GSA Annual Meeting.
- Grabiec, J.G.**, Glazner, A.F., and Law, B., 2018, *Non-symmetric zoning and lack of correlation among neighboring K-feldspar megacrysts in granodiorite*: 2018 GSA Annual Meeting.
- Grabiec, J.G.**, Kring, D.A., and Schmieder, M., 2018, *A petrological assessment of shock deformation in uplifted crater wall strata of Barringer Meteorite Crater, Arizona*: 2018 Lunar and Planetary Science Conference.
- Grabiec, J.G.**, Kring, D.A., and Schmieder, M., 2017, *A petrological assessment of shock deformation in uplifted wall rock strata at Barringer Meteorite Crater, Arizona*: 2017 Lunar and Planetary Institute Summer Intern Conference.
- Grabiec, J.G.**, Penniston-Dorland, S.C., Walker, R.J., and French, M., 2017, *Insights into the formation of the Cottonwood Canyon Fault in the Catalina Schist*: 2017 GSA Annual Meeting.

### MS Thesis

- Grabiec, J.G.**, 2019, Using Micro CT Imaging to Understand K-Feldspar Megacryst Origin, Crystallization, and Textural Coarsening [M.S. thesis]: Chapel Hill, University of North Carolina, 44 p. <https://doi.org/10.17615/e3y6-zt50>.

### Undergraduate Thesis

- Grabiec, J.G.**, 2017, Insights into the formation of the Cottonwood Canyon fault in the Catalina Schist [Undergraduate thesis]: College Park, University of Maryland, 24 p. <https://www.geol.umd.edu/undergraduate/paper/grabiec.pdf>.

## PRESENTATIONS

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- Communicating Your Science*, USC REU and Zinsmeyer 2024 Program, Los Angeles, California, June 2024, June 2025 (Oral)

*The “So What” Factor? & Clarity and Flow*, **USC Writing Center Workshop**, June 2025 (Oral)

*Nitrogen in ultramafic and sedimentary mélange matrices and its implications for subduction zone nitrogen budgets*, **Geological Society of America Connects 2024**, Anaheim, California, September 2024 (Oral)

*From slab to surface: a story of subduction and exhumation on Catalina Island, California*, **USC Department of Earth Sciences Lithospheric Dynamics Seminar**, March 2024 (Oral)

*Exploring the Shallow Exhumation History of the Southern California Borderland using Apatite and Zircon (U-Th)/He Thermochronology on Santa Catalina Island*, **103<sup>rd</sup> Annual American Geophysical Union Conference**, San Francisco, December 2023 (Oral)

*Building Stronger Arguments*, **USC Writing Center Workshop**, October 2023 (Oral)

*Halogen distribution in the continental crust: Sierra Nevada, California*, **USC Women in Sciences and Engineering STEM Bytes Seminar**, November 2022 (Oral/virtual)

*Pluton crystallization in the Sierra Nevada: relationships between silicate melt, crystals, and fluids in a continental arc setting*, **University of Texas at Austin Department of Geological Sciences Lithosphere and Deep Earth Seminar** (Invited), November 2022 (Oral/virtual)

*Halogen distribution in felsic to intermediate plutonic rocks: Sierra Nevada, California*, **USC Department of Earth Sciences Lithospheric Dynamics Seminar**, November 2022 (Oral)

*Halogen distribution in continental arc plumbing systems: Sierra Nevada, California*, **Geological Society of America Connects 2022**, Denver, Colorado, October 2022 (Oral)

*Halogens in the upper continental crust: systematics from pluton to volcano*, **Volatiles from Source to Surface: A GeoPRISMS Workshop**, Bozeman, Montana, May 2022 (Poster)

*Using Micro CT Imaging to Understand K-Feldspar Megacryst Origin, Crystallization, and Textural Coarsening*, **USC Department of Earth Sciences Lithospheric Dynamics Seminar**, October 2021 (Oral)

*The origin and growth of K-feldspar megacrysts in granodiorite, Tuolumne Intrusive Suite, California*, **51<sup>st</sup> Annual Geological Society of America Conference**, Phoenix, September 2019 (Poster)

*Non-symmetric zoning and lack of correlation among neighboring K-feldspar megacrysts in Cathedral Peak Granodiorite*, **17<sup>th</sup> Annual Anadarko Student Research Symposium**, UNC, April 2019 (Poster)

*Non-symmetric zoning and lack of correlation among neighboring K-feldspar megacrysts in granodiorite*, **50<sup>th</sup> Annual Geological Society of America Conference**, Indianapolis, November 2018 (Poster)

*Crystallization of K-Feldspar Megacrysts in Granite: A 3D Tomographic Study*, **Graduate Research and Policy Expo**, UNC, April 2018 (Poster)

*A petrological assessment of shock deformation in uplifted crater wall strata of Barringer Meteorite Crater, Arizona, 49<sup>th</sup> Annual Lunar and Planetary Science Conference, Houston, March 2018 (Poster)*

*Insights into the formation of the Cottonwood Canyon Fault in the Catalina Schist, 49<sup>th</sup> Annual Geological Society of America Conference, Seattle, October 2017 (Poster)*

*A petrological assessment of shock deformation in uplifted wall rock strata at Barringer Meteorite Crater, Arizona, 33<sup>rd</sup> Annual Lunar and Planetary Institute Summer Intern Conference, Houston, August 2017 (Oral)*

## **FIELD EXPERIENCE**

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- **Santa Catalina Island, CA:** January 2016, August 2021, March & December 2022, April & May 2023, June 2024, February 2025
- **Whipple Mountains, CA:** November 2024
- **Mojave Desert, CA:** October 2024
- **San Simeon, CA:** April 2023
- **Liebre Mountain & Mill Creek, CA:** November 2022, November 2024
- **Death Valley National Park, CA:** November 2022
- **Sierra Nevada/Yosemite National Park, Owen's Valley, Inyo Mountains, CA:** October 2018 & 2019, March 2022
- **Black Hills, SD & WY:** June - July 2016
- **Valley and Ridge Province, WV:** April 2016

## **PROFESSIONAL SERVICE AND OUTREACH**

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**GSA Connects 2025 Field Trip Leader**  
Santa Catalina Island, to be held October 2025

**Graduate Student Representative, Department of Earth Sciences Curriculum Committee**  
USC, October 2024 – present

**Graduate Student Organizer for REU and Zinsmeyer Summer Research Programs**  
Wrigley Institute for Environment and Sustainability/USC, May 2024 – August 2024, January 2025 - present

**Graduate Student Advisor for Society for Earth Science Students/Sigma Gamma Epsilon Undergraduate Student Organization**  
USC, January 2023 – March 2024

**Convener, Co-Chair: Fluids and Deformation during Subduction from the Trench to the Subarc**  
Geological Society of America Connects 2024, September 2024

**Panelist, Dornsife PhD Academy: Staying on Track – Time Management Tips**  
USC, September 2024

**Moderator, Graduate Student Panel for USC REU and Zinsmeyer Internship Students, USC,**  
July 2024; Wrigley Institute for Environment and Sustainability, June 2025

**Student Representative, Membership Ad-Hoc Committee**

Geological Society of America, November 2023 – January 2024

**Pathways and Career Exploration in STEM (NSF) Geoscience Presenter, Tour and Field Guide**

USC, January 2022 & 2023, April 2023, January 2024

**Student Convener, Co-Chair: Convergent Margin Dynamics**

American Geophysical Union Annual Meeting, December 2023

**SACNAS@USC Chapter Treasurer**

Society for the Advancement of Chicanos/Hispanics and Native Americans in Science, USC, August 2022 – July 2023

**Membership and Fellowship Committee Student Member-at-Large**

Geological Society of America, July 2020 – July 2023

**Student Advisory Council Member**

Geological Society of America, July 2020 – July 2023

**Lithospheric Dynamics Seminar Co-Coordinator**

USC Department of Earth Sciences, June 2022 – April 2023

**Student Volunteer**

GSA Connects 2022, October 2022

**STEM Day Instructor**

Society for the Advancement of Chicanos/Hispanics and Native Americans in Science, USC Chapter, April 2022

**Society of Advancement of Chicanos/Hispanics and Native Americans in Science Research**

**Pairing Mixer Presenter**

USC, November 2021

**STEM Alumni Mentorship Program Mentor Volunteer**

UMD College of Computer, Mathematical, and Natural Sciences, September 2021 – May 2022

**Pre-Algebra Tutor**

Durham, NC, August 2020 – June 2021

**Science Writing and Communication Club Editor**

UNC, September 2017 – December 2019

**UMD Geology Club Treasurer\* and President\*\***

College Park, MD, \*May 2015 – May 2016; \*\*May 2016 – May 2017

**Maryland Day Volunteer**

UMD Department of Geology, April 2015 and April 2017

**Chemistry Tutor**

UMD, February 2015 – May 2015



**Raritan Valley Community College Planetarium Volunteer**  
Branchburg, NJ, June 2010 – September 2011

#### **TRAINING, WORKSHOPS, AND CERTIFICATES**

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**Fluids in Cascadia Workshop (CRESCENT)**  
University of Oregon, Portland, 2025

**UCLA SIMS Workshop** (University of California Los Angeles)  
Los Angeles, CA, February 2025

**Serpentinite, Fluids and Plate Boundary Deformation in Subduction Zones** (McGill University)  
Mont-Saint-Hilaire, Québec, Canada, March 2024

**Sustainability for USC Students**  
USC, September 2023

**Future Faculty Teaching Institute** (Center for Excellence in Teaching)  
USC, August 2022 – December 2022

**SZ4D 2022 Community Meeting** (NSF)  
Houston, TX (Virtual Participant), November 2022

**GSA RISE (Respectful Inclusive Scientific Events) Liaison**  
Geological Society of America, October 2022

**Volatiles from Source to Surface: A GeoPRISMS Workshop** (NSF)  
Montana State University, May 2022

**Stand Up Against Street Harassment Public Training** (New York City Commission on Gender Equity, Right to Be (formerly Hollaback!), L'Oréal Paris)  
Virtual, April 2021

**Bystander Intervention to Stop Anti-Asian-American and Xenophobic Harassment** (Asian Americans Advancing Justice, Right to be (formerly Hollaback!))  
Virtual, April 2021

**Introduction to Field Safety Leadership** (Geological Society of America, Exxon Mobil)  
Virtual, October 2020

**Getting to Fair: The Impact of Implicit Bias on Decision-Making** (Geological Society of America)  
Virtual, September 2020

**What's Your Problem, What's Your Point?** (Geological Society of America)  
Geological Society of America Annual Conference, Phoenix, September 2019

**Strabo Field Workshop for Petrology** (StraboSpot)  
Graduate Student Organizer, Bishop, California, 2018

**Sharing Science** (American Geophysical Union)  
Lunar and Planetary Institute, Houston, June 2017

## PROFESSIONAL AFFILIATIONS

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**Geological Society of America** (2015 – present)  
**Mineralogical Society of America** (2015 – present)  
**American Geophysical Union** (2018 – present)  
**Society for Advancement of Chicanos/Hispanics and Native Americans in Science** (2021 – present)  
Geochemical Society (2018 – 2020)  
Sigma Xi (2018 – 2020)

## OTHER PROFESSIONAL EXPERIENCE

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### **Writing Consultant**

USC Writing Center, August 2023 – May 2024

### **Interviewer for Medicaid Transformation Provider Experience Survey**

UNC Survey Research Laboratory, April 2021 – June 2021

### **Geology and Astronomy Tutor, Front Desk Monitor**

UNC Academic Support Program for Student-Athletes, February 2020 – August 2021

### **Assistant Academic Athletic Counselor**

UMD Department of Athletics Academic Services and Career Development Unit, October 2015 – May 2016

### **Interpretive Specialist (Geoscientists-in-the-Parks and GeoCorps America)**

Geological Society of America, Rock Creek Park, Washington, D.C., May 2015 – October 2015

### **Planetarium Employee**

Raritan Valley Community College Planetarium, Branchburg, NJ, September 2011 – August 2014

## COMMUNITY SERVICE

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### **Volunteer for Alumni Day**

USC Wrigley Institute for Environment and Sustainability, July 2025

### **Friends and Neighbors Day Volunteer**

USC, September 2022 – May 2023

### **Food Not Bombs 919 Volunteer**

Chapel Hill and Carrboro, NC, November 2020 – July 2021

### **Estes Hills Elementary School Drama Club Set Designer, Prop Master, Assistant Stage Manager**

Chapel Hill, NC, September 2018 – March 2019

### **Carolina Dining Services Advisory Board Graduate and Professional Student Federation Representative**

UNC, September 2017 – May 2019

### **Recovery Leader and Volunteer for Food Recovery Network**

UMD, May 2015 – May 2016

**Tabby's Place Cat Sanctuary Volunteer**  
Ringoos, NJ, July 2014 – August 2016