

## MARGARET SWIFT

Nicholas School for the Environment  
Duke University  
Durham, NC 27708

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### EDUCATION

- 2019 – **Duke University, Durham, NC**  
**Ph.D.** Environment, *in progress*  
**Advisor:** James S. Clark
- 2013 – 2017 **The College of William & Mary, Williamsburg, VA**  
**B.S.** Computational and Applied Mathematics and Statistics, *magna cum laude*  
Biology Concentration; Russian and Post-Soviet Studies Minor  
**Advisors:** Junping Shi, Leah B. Shaw, Sarah L. Day

### PROFESSIONAL EXPERIENCE

- 2019 – Teaching Assistant, **Duke University, Durham, NC**  
*ENV 710: Applied Data Analysis for Environmental Science (2019)*
- 2017 – 2019 Developer, **International Business Machines (IBM), Washington, DC**  
*Food and Drug Administration (2018 – 2019)*  
Created automated data management notifications (Apache NiFi); designed and developed a consolidated internal webpage (Angular 7, Eclipse) for the Office of Computational Sciences' data management toolkit.
- Teva Pharmaceutical (2017 – 2018)*  
Developed workflow automation tools (R, VBA, AppleScript) to assist API testing; analyzed mock patient smart-inhaler datasets (Python); took over role of UI lead to wrap up patient user interface implementation.
- 2015 – 2017 Research Assistant, **The College of William & Mary, Williamsburg, VA**  
*Dispersal-induced global extinction in two-patch model under the Allee effect*  
Incorporated concepts of logistic growth, the Allee effect, and dispersal into a deterministic analysis of marine populations (MATLAB, Mathematica); spoke to this effect at regional and national mathematics conferences.
- Russian Movie Theater Project*  
Conducted, transcribed, and translated Russian interviews; crafted a user interface (Python) to assist XML interview tagging; analyzed topical trends in these data (NLTK) and created a web page for their display (HTML).

### GRANTS, FELLOWSHIPS, & AWARDS

- 2019 James B. Duke Fellowship  
*Duke University (\$5000)*
- 2017 Post-Secondary Russian Scholar Laureate  
*American Council of Teachers of Russian*
- 2015 Expeditions in Training, Research, and Education for Mathematics and Statistics through Quantitative Explorations of Data (EXTREEMS-QED)  
*National Science Foundation [DMS-1331021] (\$4000)*

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## CONFERENCE TALKS & POSTERS

Abstract: *Dispersal-induced global extinction in a two-patch model under the Allee effect.*

- 2016 Joint Mathematics Meetings, *Seattle, Washington* (talk)  
2015 Young Mathematicians Conference, *Columbus, Ohio* (poster)  
2015 Shenandoah Undergraduate Mathematics and Statistics, *Harrisonburg, VA* (talk)

## TEACHING EXPERIENCE

- 2020 *ENV 832: Environmental Decision Analysis (Duke University)*  
Guided students in understanding decision analysis, including lottery-weight systems, decision trees, and debugging and improving R code.
- 2019 *ENV 710: Applied Data Analysis for Environmental Science (Duke University)*  
Prepared and implemented weekly lesson plans for computational labs and held extensive office hours (4h/week) to help struggling students. ENV 710 is a statistical course for graduate students with an environmental focus; topics covered include probability, regression, statistical analysis in R, and basic coding.
- 2018 – 2019 *Inventory Team Lead (Casey Trees)*  
Taught teams of volunteers the basics of tree identification, measurement, and health assessment, and guided them through inventories of various city parks. Emphasized knowledge not just of tree species, but their function within the urban forest canopy, including benefits to public health and carbon impact mitigation.
- 2014 – 2017 *High School and Undergraduate Mathematics Tutor (William & Mary)*  
Worked individually with students in both high school and undergraduate math courses to understand mathematical concepts, including simple to linear algebra, calculus, and differential equations.

## CERTIFICATIONS

- 2019 SOLO Wilderness First Responder  
2012 PADI Open Water Diver

## PROFESSIONAL INVOLVEMENT & OUTREACH

- 2018 – 2019 Inventory Team Lead, Casey Trees, *Washington, DC*

## PROFESSIONAL MEMBERSHIPS

Environmental Impact Fellows Program  
Society of Duke Fellows  
oSTEM (Out in Science, Technology, Engineering, and Mathematics)  
Dobro Slovo Slavic Honors Society  
Pi Mu Epsilon Mathematics Honors Society

## RELEVANT COURSEWORK

- GRADUATE Theory of Statistical Inference, Bayesian Inference, LiDAR, Applied Data Analysis for Environmental Science (TA), Functional Ecology of Plants, Populations and Communities
- OTHER Statistical Data Analysis (R), Probability (R), Computational Problem Solving (Py.), Data Structures (Py.), Ordinary Differential Equations, Partial Differential

*Margaret Swift*

Equations, Nonlinear Dynamics & Chaos, Random Walks in Biology, GIS for Biologists, Mathematical Biology

## RELEVANT SKILLS

LANGUAGES      English, Russian, American Sign Language, Spanish, French  
COMPUTATION   R, Python, MATLAB, VBA, Bash, AppleScript, Mathematica  
DEVELOPMENT   RStudio, Eclipse, Spring Tool Suite, ReadyAPI, Jupyter Notebook  
WEB & OTHER   ArcGIS, Angular 7, HTML/CSS, Apache NiFi, LaTeX, NLTK