Daniel Macy Merchant

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SUMMARY

7+ years teaching and managing introductory and advanced college-level STEM courses for students of diverse backgrounds. Fluent in SOLO taxonomy, active learning, outcomes-based teaching-learning, and objective alignment practices; excited to learn and apply new strategies in learning and assessment. Passionate about fostering transferable life skills in undergraduates that prepare students for success during and after college.

EDUCATION

Doctor of Philosophy: Ecology and Evolution **May 2021**
Rutgers, The State University of New Jersey

Bachelor of Science: Ecology, Evolution and Natural Resources **May 2011**
Rutgers, The State University of New Jersey

Certificate in Environmental Geomatics **May 2011**
Rutgers, The State University of New Jersey

TEACHING EXPERIENCE

Adjunct Professor **Summer and Fall 2020, Summer 2021**
Course: General Biology (01:119:115), Online
Rutgers University, Division of Life Sciences

- Fostered student engagement and active learning habits by incorporating learning tools into lectures and bi-weekly, video-conference-based review sessions with 200+ student attendees.
- Designed novel student learning tools* for facilitating active learning in an online, remote setting.
  *(*see teaching portfolio: "Student Administered Learning Team" and "Paper for Evaluating Preparedness, Promoting Exam Readiness")*
- Guided students through development, organization, and maintenance of student-run, online learning community through the Discord platform, regularly engaging 500+ students in novel collaborative learning environment.
- Adapted in-person lectures to online learning platform: recording, editing, and posting 26 lecture videos to YouTube and LMS platforms, engaging up to ~800 enrolled students in course content.
- Mentored, advised, and supervised graduate student teaching assistants, providing guidance and troubleshooting for their facilitation of bi-weekly, online, active learning classrooms.
- Collaborated with up to 25 undergraduate peer tutors to develop novel approach for bi-weekly, online, peer-led study groups regularly attended by ~%25 of students enrolled in the course.

Adjunct Professor **Spring 2021**
Course: Career Explorations in Arts and Sciences (01:090:210)
Rutgers University, Division of Life Sciences

- Guided 24 students through their career journey using select readings, online resources, and recorded lecture videos to discover their strengths and values, explore careers and majors, and develop skills for pursuing their goals.
- Counseled students using individualized, constructive feedback on resumes, cover letters, and strategic career plans, aligning student career tools with intended career outcomes.
- Coached students through process of translating undergraduate experiences and coursework into transferable, career-relevant life skills.

Adjunct Professor **Fall 2020, Spring 2021**
Course: Principles of Biology (BIO 1000)
Kean University, College of Science, Mathematics and Technology

- Facilitated student learning of introductory biology content by modeling active learning practices through weekly recorded lectures in an asynchronous setting.

- Managed course content through the Blackboard learning management system, grading weekly assignments and discussion boards using standardized rubrics, increasing course transparency.
- Fostered regular student discussions through online discussion boards by providing constructive feedback, guiding discussions back towards learning objectives.

Coordinator, Peer-led Study Sessions **Fall 2019 to Spring 2020**

Course: General Biology (01:119:110 or 01:119:115)

Rutgers University, Division of Life Sciences

- Supervised, trained, and mentored 25 undergraduate peer tutors for weekly, peer-led, General Biology learning support program.
- Co-ordinated with instructors to iteratively design assessment tools for evaluating instructors' facilitation skills, improving both active learning-teaching practices and instructor buy-in.
- Developed weekly student activities that enhanced learning and ensured alignment with parent course content.
- Regularly updated and modified curricula materials including lesson plans, Powerpoints, assignments/rubrics, and handouts, uploading new versions to course website, ensuring alignment between delivered course content and course objectives.
- Assisted in leading weekly preparatory meetings for student learning assistants that efficiently aligned the study program with the parent course content.

Lecturer **Summer 2019**

Course: General Biology (01:119:115)

Rutgers University, Division of Life Sciences

- Delivered course content four times a week to 150+ students in lecture setting.
- Linked course content to student career objectives by identifying local research and job opportunities.
- Promoted transferable skills and study strategies through content organization and activities during lecture.
- Improved course transparency and student buy-in for active learning activities by aligning course content and student assessments through explicitly written exams based on stated learning outcomes.
- Provided one-on-one coaching to undergraduates during office hours four times a week, deepening students' course content understanding, study skills, gap analysis, and time management.

Teaching Assistant **Fall 2014 to Spring 2020**

Course: General Biology (01:119:115, 01:119:116)

Rutgers University, Division of Life Sciences

- Facilitated learning and development of ~75 students in multiple sections per semester in an active learning environment focusing on both general biology content and learning skills, such as organization, study methods, gap analysis, and critical thinking.
- Influenced course structure, including development of novel teaching tools and solutions to in-classroom problems, improving student buy-in and meeting content learning objectives.
- Mentored new TAs, onboarding them to policies necessary for managing course of 2000+ students and 20+ TAs from diverse backgrounds, helping to standardize and improve TA and student experiences.
- Collaborated with peers, lecturers, and administrators in team-oriented approach to student learning by refining existing tools and creating new learning tools for improving student achievement.

Teaching Assistant **Summer 2015, 2016, and 2017**

Course: Principles of Ecology (11:216:351)

Rutgers University

- Taught students the fundamental principles of ecology including population dynamics, nutrient cycles, ecosystem services, conservation, food webs, etc.
- Coached students in critical skills including scientific paper evaluation, ecological data collection techniques, basic statistics, and scientific writing.
- Evaluated student learning through grading homework, quizzes, exams and papers of ~30 students via rubrics.

Teaching Assistant **Spring 2014**

Course: Fundamentals of Environmental Geomatics (11:573:233)

Rutgers University

- Trained ~30 undergraduate students in basic ArcGIS technical skills including vector analysis, heads up digitizing, GPS data collection and attribute tables in an instructive lab setting.
- Coached students in critical thinking skills through problem-based learning labs, fostering independent problem-solving using GIS tools and techniques.
- Tutored students in basic cartographic and design principles, providing individualized constructive feedback through graded reports and assignments.

Teaching Assistant **Fall 2013**

Course: Intermediate Environmental Geomatics (11:573:362)

Rutgers University

- Trained ~30 undergraduate students in intermediate ArcGIS technical skills including data management, ArcSDE, Model Builder, Spatial Analyst toolbox, cost surface analysis.
- Coached students in critical thinking skills through problem-based learning labs, fostering independent problem-solving using GIS tools and techniques.
- Tutored students in cartographic and design principles, providing individualized constructive feedback through graded reports and assignments.

Teaching Assistant **May 2011, 2012, 2014, 2015, 2016**

Course: Ecological Field Techniques (11:216:274)

Rutgers University

- Taught ~30 students per course orienteering, use of GPS devices for scientific data collection, forestry surveying methods, and vegetation community survey protocols during a two week in-field course.
- Advised students on basic survey design and use of statistics for independent projects.

Teaching Assistant **January 2011**

Course: Winter Field Ecology (11:216:475)

Rutgers University

- Assisted teaching ~20 students the unique dynamics of winter ecology including snowpack physics, fauna survival techniques, and basic animal tracking skills during a week-long field course in the New York Adirondacks.

WORK EXPERIENCE

Graduate/Post-Graduate Researcher **Fall 2013 to Present**

Rutgers University, Department of Ecology and Evolution

- Designed survey protocols and assisted in two field seasons in northern Brazil executed by multi-national, multi-disciplinary teams, collecting ~700 shorebird survey records.
- Collaborated with multi-national research partners to design statistical tools to inform long term strategic planning and management decisions in northern Brazil.
- Managed large database of hundreds of field survey results, GIS data, and dozens of remote sensing images from multiple platforms for ease of access and efficient use in analytic processes.
- Developed novel remote sensing and GIS tools using Landsat 8 and Sentinel 1 remote sensing data using ArcGIS's Spatial Analyst and Model Builder, and Erdas Imagine for characterizing intertidal habitat sediment across the northern coast of Brazil and Bahia Lomas, Chile.
- Fashioned statistical models using the MaxEnt maximum entropy distribution modeling package, and Bayesian hierarchical generalized linear models with JAGS and R Statistical Software.
- Translated analytical results into concise and informative products ranging from technical reports, to posters and presentations for academic conferences, to publications in peer reviewed journals.

GIS and Statistical Consultant **September 2010 to present**

Daniel Merchant Consulting LLC

- Develop effective solutions to complex problems via ArcGIS products, R, Excel, and SQL queries, summarizing results in succinct deliverables for clients.
- Produce diverse deliverables including data products such as publication quality technical reports and data visualizations including maps and graphics.
- Author comprehensive, step-by-step standard operating procedure documents for both training purposes and clear communication with clients.
- Provide one-on-one training and customized training materials for new users in technical skills such as ArcGIS and Excel.

Research Assistant, GIS Technician **June 2010 to August 2013**

Rutgers University, Center for Remote Sensing and Spatial Analysis

- Adapted Northeast Terrestrial Habitat Mapping Project, designed at a relatively coarse scale to New Jersey's high resolution land cover products.
- Composed cartographic and data figures for use in technical reports and publications.
- Compared in situ vs remote sensing methods of monitoring seagrass changes in Barnegat Bay using ArcGIS and Erdas Imagine, supported publication of results into peer reviewed article.

Seasonal GIS Technician **February 2012**

New Jersey Department of Fish and Wildlife, Endangered and Nongame Species Program **to July 2013**

- Aided state biologists with the development of a habitat connectivity model for large mammals in the state of New Jersey.
- Managed series of camera traps for monitoring wildlife traffic through culverts.
- Gathered GPS data in the field for bobcat mark-recapture study using a scat finding dog .
- Prepared GIS data for analysis including wildlife occurrence data, remotely sensed habitat metrics, and GIS derived products like disturbance buffers.

Research Assistant **Fall 2011**

Rutgers University, Department of Ecology, Evolution and Natural Resources

- Collected and processing of hundreds of soil and leaf litter samples used in a model linking remote sensing of forest structure to soil carbon sequestration.

Ecological Preserve Intern **Summer 2010**

Rutgers University, Center for Remote Sensing and Spatial Analysis

- Learned fundamentals of GIS and ArcGIS software through independent study.
- Designed vegetation community survey of ~20 forest community plots, a trail network, and GPS mapped ~10 km of trails.
- Managed a large database comprised of aerial and satellite imagery of the preserve, geospatially referenced trails, vegetation surveys, and ongoing research data, later used in Natural Resource Management course run by advisor.

PEER REVIEWED PUBLICATIONS

Lathrop, Richard G., Scott M. Haag, **Daniel Merchant**, Michael J. Kennish, and Benjamin Fertig. 2014. "Comparison of Remotely-Sensed Surveys vs. in Situ Plot-Based Assessments of Sea Grass Condition in Barnegat Bay-Little Egg Harbor, New Jersey USA." *Journal of Coastal Conservation* 18 (3): 299–308. doi:10.1007/s11852-014-0319-y.

IN PREPARATION

Daniel Merchant, Richard G. Lathrop, Larry Niles, Danielle Paludo, Carlos David Santos, Joseph Smith, Amanda Dey, Stephanie Feign, Carmen Espoz Larrain, Fabio Labra Rodriguez. "Comparative multi-sensor remote sensing of intertidal sediment habitat – distinct patterns at distinct locations"

NON-PEER REVIEWED PROFESSIONAL PUBLICATIONS

Lathrop, Richard G., **Daniel Merchant**, Joseph Smith, Stephanie Feigin, Larry J. Niles. 2018. NMBCA Interim Report, Award Number F16AP00427. Shorebird Conservation in Tierra del Fuego Province, Chile. Available upon request

Merchant, Daniel, Richard G. Lathrop, Larry J. Niles, Joseph Smith, Stephanie Feigin, Amanda Dey, Carlos David Santos, Danielle Paludo. 2017. NMBCA Annual Report 2016-2017, Award Number F15AP00964. Shorebird Conservation in Brazil and Delaware Bay, Available upon request

Merchant, Daniel, Richard G. Lathrop, Larry J. Niles, Joseph Smith, Stephanie Feigin, Amanda Dey, Carlos David Santos, Danielle Paludo. 2016. NMBCA Annual Report 2015-2016, Award Number F15AP00964. Shorebird Conservation in Brazil and Delaware Bay, Available upon request

Lathrop, R. G., Niles, L. J., **Merchant, D.**, Farrell, T., & Licitra, C. 2013. Mapping and Assessing Critical Horseshoe Crab Spawning Habitats in Delaware Bay: Update to 2007/10 and Post-Sandy. Rutgers, The State University of New Jersey: Grant F Walton Center for Remote Sensing & Spatial Analysis. Retrieved from http://crssa.rutgers.edu/projects/coastal/hcrab/report/CRSSAreport_20130916_Horseshoe_Crab_Habitat_in_DelBay_Update.pdf

OUTREACH

Merchant, D. 2018, 2018, September. Distribution modeling of shorebirds in northern Brazil. Presentation, Workum, Netherlands. https://www.waderstudygroup.org/conferences/2018/#

Merchant, Daniel. 2017a, August. Characterizing intertidal flats in northern Brazil. Poster, Ecological Society of America, Portland, Oregon, U.S. https://eco.confex.com/eco/2017/webprogram/Paper63972.html

Merchant, Daniel. 2017b, September. Characterizing intertidal flats in northern Brazil. Presentation, International Wader Studies, Prague, Czech Republic. http://www.waderstudygroup.org/conferences/2017/

Merchant, Daniel. 2017c, September. Characterizing intertidal flats in northern Brazil. Poster, The Wildlife Society, Albuquerque, New Mexico. http://twsconference.org/sessions/poster-session-tuesday/

Merchant, Daniel. 2017d, September. Characterizing intertidal flats in northern Brazil. Presentation, Rutgers GIS Day, New Brunswick, New Jersey.

PROFESSIONAL SOCIETIES

The Fraternity of Alpha Zeta

Ecological Society of America

The Wildlife Society

International Wader Study Group

AWARDS, HONORS, & GRANTS

Professional Development Fund award ($739)	**Spring 2018**
Professional Development Fund award ($925)	**Spring 2017**
R. Locandro Award for Outstanding Student in Natural Resources	**Spring 2011**
Dean's list	**F11, Sp11, Sp09**

SKILLS

Remote Sensing:	Erdas IMAGINE ~8 years experience; Landsat optical remote sensing, Sentinel 1 synthetic aperture radar WorldView-2; familiarity with spectral mixture modeling
GIS:	ArcGIS ~9 years experience, Spatial Analyst, Model Builder, GPS data collection, ArcPad, Terrasync, GNSS post processing, heads-up digitizing, map design
Statistics:	R, MaxENT; familiarity with Bayesian inference methods and OpenBUGS software; generalized linear models; species distribution modeling
Computer:	Excel, Access, PowerPoint, Word, database management, Blackboard, Canvas, Sakai
Field-related:	GPS data collection, wildlife survey design, camera trap implementation
Education:	Working knowledge of AAAS Vision and Change, objective alignment practices, active learning, gap analysis, student evaluation methods, SOLO taxonomy