

Daniel E. Winkler

Curriculum Vitae

Contact

Current appointment: **PhD Candidate**, Ecology & Evolutionary Biology
Reviewing Editor, *Applications in Plant Sciences*
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Education

Sept 2017 PhD, Ecology and Evolutionary Biology. Department of Ecology and Evolutionary Biology, University of California, Irvine. Advisor: Dr. Travis E. Huxman.
Dissertation: Climate change effects on protected and invasive plant species.

May 2013 MS, Environmental Systems. Environmental Systems Graduate Group, University of California, Merced. Advisor: Dr. Lara M. Kueppers. Thesis: A multi-level approach to assessing alpine productivity responses to climate change. [link](#)

May 2008 BA, Biological Anthropology, cum laude. Department of Anthropology. New York University.

Peer-Reviewed Publications

5. **Winkler DE**, JL Conner, TE Huxman, DE Swann. *accepted*. The interaction of drought and habitat explain space-time patterns of establishment in saguaro (*Carnegiea gigantea*). *Ecology*
4. Conner, JL, T Foley, **DE Winkler**, DE Swann. 2017. Demographic changes over > 70 yr in a population of saguaro cacti (*Carnegiea gigantea*) in the northern Sonoran Desert. *Journal of Arid Environments* 139:41–48. doi: 10.1016/j.jaridenv.2016.12.008 [link](#)
3. Kudo G, Y Kawai, Y Amagai, **DE Winkler**. 2017. Degradation and recovery of an alpine plant community: experimental removal of an encroaching dwarf bamboo. *Alpine Botany* 127:75–83. doi: 10.1007/s00035-016-0178-2 [link](#)
2. **Winkler DE**, Y Amagai, TE Huxman, M Kaneko, G Kudo. 2016. Seasonal dry-down rates and high stress tolerance promote bamboo invasion above and below treeline. *Plant Ecology* 217(10): 1219–1234. doi: 10.1007/s11258-016-0649-y [link](#)
1. **Winkler DE**, KJ Chapin, LM Kueppers. 2016. Soil moisture mediates alpine life form and community productivity responses to warming. *Ecology* 97(6): 1553–1563. doi: 10.1890/15-1197.1 [link](#)

Other Publications

2016 **Winkler DE**. 16 August 2016. Improving earth systems models through research in the tropics. PLOS Ecology Community Blog. [link](#)

- 2016 CM MacKenzie and **DE Winkler**. 15 August 2016. Common gardens for all your climate change needs. PLOS Ecology Community Blog. [link](#)
- 2016 **Winkler DE**. 12 August 2016. Redundancy in response to global change: ecosystem processes buffered by functional diversity. PLOS Ecology Community Blog. [link](#)
- 2016 **Winkler DE**. Forget the supervolcano, let's talk buckwheat! In: *The Wonder of It All: 100 Stories from the National Park Service*. pp. 8–10. San Francisco, Yosemite Conservancy.
- 2015 **Winkler DE**. Spring 2015. Citizen scientists and drought: expected and unexpected measures curtailing the invasive Sahara mustard. In: Wildflowers! newsletter. pp. 3–4. University of California Cooperative Extension.
- 2015 **Winkler DE**. 16 January 2015. When water chokes the desert: finding an unseen benefit in California's drought stricken deserts. Water UCI Graduate Team Blog. [link](#)

Invited Talks

- 2017 **Winkler DE**. A changing Sonoran Desert: the iconic saguaro cactus and the invasive Sahara mustard. Anza-Borrego Desert State Park. Borrego Springs, California.
- 2016 **Winkler DE**. Desert “extremes” and plant communities out of balance. Anza-Borrego Desert State Park Botany Society. Anza-Borrego Desert State Park. Borrego Springs, California.
- 2016 **Winkler DE**, Chapin KJ, Garmon D, Huxman TE. Mustard mayhem! Pinning the origin and pathways of a highly invasive species. Mathias Symposium 2016. Oral Presentation. Bodega Marine Laboratory. Bodega Bay, California.
- 2015 **Winkler DE**, Filippone CL, Hubbard JA, Huxman TE, Swann DE. With climate change, where does it all go? “Historic” plant species and seasonal water sources. National Park Service Young Leaders in Climate Change Professional Development Symposium. Oral Presentation. Department of the Interior. Washington, D.C.
- 2015 **Winkler DE**, Chapin KJ, Huxman TE, Garmon D. Determining the origins of the invasive Sahara mustard (*Brassica tournefortii*) in North America. San Diego Botanic Garden. Oral Presentation. Encinitas, California.
- 2015 Aguilar L, Berry M, Brauch J, Mata Lara M, Ogletree S, Fitzgerald Weber K, **Winkler DE**, Wally Wright C, Young D. Integration of watershed monitoring and citizen science at San Juan Island National Historical Park. Oral Presentation. San Juan Island, Washington.
- 2015 **Winkler DE**, Chapin KJ, Huxman TE, Garmon D. Enabling long term solutions for biocontrol of Sahara mustard (*Brassica tournefortii*) invasion in North American Deserts. The Biodiversity and Invasive Species Network. Oral Presentation. Borrego Springs, California.
- 2014 Aldred J, Bendana S, Bijak A, Devantier J, Fillippone C, Haserodt M, Lancaster H, Luna Golya G, Schook D, **Winkler DE**. Dynamics of rare and sensitive waters of Saguaro National Park. George Wright Society Park Break: Saguaro National Park. Oral Presentation. Tucson, Arizona.

Contributed Presentations

- 2017 **Winkler DE**, Conner JL, Huxman TE, Swann DE. Hydrologic refugia for establishment of the keystone saguaro cactus during drought. Ecological Society of America 102nd Annual Meeting. Oral Presentation. Portland, Oregon.
- 2017 **Winkler DE**, Chapin KJ, Kao M, Garmon D, Huxman TE. Local adaptation during the rapid expansion of the invasive Sahara mustard in the southwest. Ecological Society of America 102nd Annual Meeting. Oral Presentation. Portland, Oregon.
- 2017 Chapin KJ, **Winkler DE**, Agnarsson I. Island biogeography and ecological modeling of the amblypygid *Phrynus marginemaculatus* in the Florida Keys archipelago. Ecological Society of America 102nd Annual Meeting. Oral Presentation. Portland, Oregon.
- 2017 **Winkler DE**, Chapin KJ, Huxman TE. Introduction of Sahara mustard (*Brassica tournefortii*) in North America: Evolutionary and environmental mechanisms promoting invasive species success. The XIX International Botanical Congress. Oral Presentation. Shenzhen, China.
- 2017 **Winkler DE**, Amagai Y, Kaneko M, Huxman TE, Kudo G. Bamboo invasion above and below a treeline ecotone: seasonal soil moisture dry-down rates and high stress tolerance promote invasion success of *Sasa kurilensis*. The XIX International Botanical Congress. Oral Presentation. Shenzhen, China.
- 2017 **Winkler DE**, Filippone C, Hubbard JA, Swann D. Seasonal water use of Saguaro cacti (*Carnegiea gigantea*) and their nurses. George Wright Society Biennial Conference. Oral Presentation. Norfolk, Virginia.
- 2017 **Winkler DE**, Chapin KJ, Huxman TE. The unusual population structure of a pervasive invasive: Sahara mustard in National Parks. George Wright Society Biennial Conference. Oral Presentation. Norfolk, Virginia.
- 2017 Brooks E, **Winkler DE**. Drought at Extremes: Connecting Biological, Socio-Economic, and Cultural Extremity in a Water Dependent Ecology. Oral presentation as part of panel titled: Water Traditions and New Directions for Drought: Risk and Disaster in Southern California Water. Society for Applied Anthropology Annual Meeting. Santa Fe, New Mexico.
- 2016 **Winkler DE**, Chapin KJ, Garmon D, Huxman TE. Using population genomics to uncover the rapid colonization of Sahara mustard (*Brassica tournefortii*) in the United States. California Invasive Plant Council Symposium. Oral Presentation. Tenaya Lodge at Yosemite, California (**1st place Student Paper Competition**)
- 2016 Sforza RFH, Augé M, Marini F, Bon MC, **Winkler DE**, M Cristofaro, L Smith. Biocontrol of Sahara mustard: An updated on exploration in the native range. California Invasive Plant Council Symposium. Oral Presentation. Tenaya Lodge at Yosemite, California.
- 2016 **Winkler DE**, Chapin KJ, Garmon D, Huxman TE. Genomic analyses of the rapid colonization of Sahara mustard in the US. Ecological Society of America 101st Annual Meeting. Oral Presentation. Fort Lauderdale, Florida.
- 2016 **Winkler DE**, Brooks E, Huxman TE, Olson VA. Extremes of Borrego: biological and social life in a changing desert ecosystem. Ecological Society of America 101st Annual Meeting. Poster Presentation. Fort Lauderdale, Florida.

- 2016 **Winkler DE**, Chapin KJ, Garmon D, Huxman TE. Population genomics and the rapid colonization of Sahara mustard (*Brassica tournefortii*) in the United States. Botany 2016. Oral Presentation. Savannah, Georgia.
- 2015 Jabis M, **Winkler DE**, Kueppers LM. Warming contracts flowering phenology in an alpine ecosystem. American Geophysical Union Fall Meeting. Poster Presentation. San Francisco, California.
- 2015 **Winkler DE**, Goulden ML, Kudo G, Kueppers LM, Huxman TE. The complex future of parks: effects of climate change on invasive species in protected ecosystems. George Wright Society Biennial Conference. Oral Presentation. Oakland, California.
- 2015 Swann, D, Aldred J, Bendana S, Bijak A, Devantier J, Fillippone C, Haserodt M, Lancaster H, Luna Golya G, Schook D, **Winkler DE**. Park Break Study of vital resources in Saguaro National Park. George Wright Society Biennial Conference. Oral Presentation. Oakland, California.
- 2015 **Winkler DE**. What goes up must come down: morphophysiological variation in an invasive Japanese dwarf bamboo. Ecology and Evolutionary Biology Graduate Student Symposium. Oral Presentation. University of California, Irvine.
- 2014 **Winkler DE**, Huxman TE, Kudo G. Morphological and physiological compensation promote climate-induced invasions above and below treeline. American Geophysical Union Fall Meeting. Poster Presentation. San Francisco, California.
- 2014 **Winkler DE**, Kudo G. Invasive species biology in a changing climate: insights from deserts to alpine tundra. Japan Society for the Promotion of Science Summer Symposia. Poster Presentation. Sokendai, Japan.
- 2013 **Winkler DE**, Kueppers LM. Productivity responses of an alpine plant community to climate changes: A multi-scale approach. Ecological Society of America 98th Annual Meeting. Oral Presentation. Minneapolis, Minnesota.
- 2012 **Winkler DE**, Kueppers LM. Plant Cover Responses to Simulated Climate Change in Alpine Plant Species. Ecological Society of America 97th Annual Meeting. Poster Presentation. Portland, Oregon.
- 2008 **Winkler DE**, Smith R. Seasonal reproductive potential and iteroparity of the burying beetle (Coleoptera: Silphidae). Summer Research Symposium. Rocky Mountain Biological Laboratory. Oral Presentation. Gothic, Colorado.

Grants & Awards

- 2017 Physiological Ecology Section Travel Award, Ecological Society of America, \$500
- 2017 Graduate Fellowship Award, Ayala School of Biological Sciences, UC Irvine, \$1000
- 2017 American Alpine Club Research Grant, \$500
- 2017 Forrest Shreve Student Research Fund, Ecological Society of America, \$1200
- 2017 International Botanical Congress Award, NSF & Botanical Society of America, \$2400
- 2017 George Melendez Wright Student Travel Scholarship, George Wright Society, \$1175
- 2017 Graduate Assistance in Areas of National Need Research Grant, \$2075
- 2016 1st Place Student Paper Competition, California Invasive Plant Council, \$250
- 2016 Associated Graduate Students Travel Scholarship, UC Irvine, \$400
- 2016 PLOS Ecology Reporting Fellowship, \$500
- 2016 Tucson Cactus and Succulent Society Research Grant, \$2000
- 2016 Explorers Club Exploration Fund – Mamont Scholar, \$1400
- 2016 Real Brown Travel Award, Ecological Society of America, \$300

2016 NCAR Graduate Workshop on Environmental Data Analytics Award
 2016 Graduate Assistance in Areas of National Need Research Grant, \$2146
 2016 Associated Graduate Students Travel Scholarship, UC Irvine, \$400
 2016 Mathias Symposium Award, UC Natural Reserve System \$600
 2016 Western National Parks Association Research Grant, \$7476
 2015 ARCS Award Nominee, UC Irvine School of Biological Sciences
 2015 COTE Cluster of Excellence Summer School Award, U. of Bordeaux, France \$3,000
 2015 California Drought Scholarship, Water UC Irvine & AGU Chapman Conference, \$325
 2015 George Melendez Wright Student Travel Scholarship, George Wright Society, \$1150
 2015 Associated Graduate Students Travel Scholarship, UC Irvine, \$400
 2015 George Wright Society Park Break Fellowship, \$3000
 2014 Howie Wier Memorial Conservation Grant, Anza-Borrego Foundation, \$1500
 2014 School of Biological Science Travel Grant, UC Irvine, \$500
 2014 Hardman Native Plant Award, California Native Plant Society, \$550
 2014 Joshua Tree National Park Robert Lee Graduate Student Research Grant, \$3752
 2014 Anza Borrego Foundation Student Travel Scholarship, \$190
 2014 Water UCI / Jet Propulsion Laboratory Research Fellowship, \$5000
 2014 Mayhew Graduate Research Award, Boyd Deep Canyon Desert Res. Center, \$1166
 2014 George Wright Society Park Break Fellowship, \$3000
 2014 Annetta Carter Memorial Fund, California Botanical Society, \$1000
 2014 UC MEXUS Student and Postdoctoral Research Small Grant, \$1500
 2014 Mildred E. Mathias Graduate Student Research Grant, \$2860
 2012 Sigma Xi Associate Membership
 2011 Star Award, US National Park Service, \$750
 2011 Science Program for Excellence in Science – AAAS
 2009 AmeriCorps Education Award, \$1000
 2008 University Honors Scholar, New York University
 2004–08 New York University, Dean’s List
 2004 New York University, Residence Hall Leadership Award

Academic Fellowships

2017 Ayala School of Biology Sciences Graduate Fellowship Award, UC Irvine, \$1000
 2017 Public Impact Distinguished Fellowship, UC Irvine, \$12,000
 2017 Steele/Burnand Anza-Borrego Desert Research Center Fellowship, \$22,139
 2016 Newkirk Graduate Student Fellowship, Newkirk Center for Science & Society, \$6889
 2016 GAANN – Graduate Assistance in Areas of National Need Fellowship, \$32,476
 2016 GAANN – Graduate Assistance in Areas of National Need Fellowship, \$13,600
 2015 UC Irvine Data Science Initiative Graduate Fellowship, UC Irvine, \$6039
 2015 Young Leaders in Climate Change Fellowship, National Park Service, \$15,000
 2014 School of Biological Sciences Fellowship, UC Irvine, \$11,524
 2014 East Asia and Pacific Summer Institute Fellowship, NSF, \$11,748
 2014 Steele/Burnand Anza-Borrego Desert Research Center Fellowship, \$22,139
 2013 School of Biological Sciences Fellowship, UC Irvine, \$3198
 2012 Graduate Student Researcher Fellowship, UC Merced, \$9978
 2012 Graduate Division Fellowship, UC Merced, \$3885
 2012 Environmental Systems Graduate Bobcat Fellowship, UC Merced, \$3750

- 2008 Rocky Mountain Biological Laboratory Fellowship, \$5000
 2004–8 New York Lottery Leaders of Tomorrow Scholarship, \$4000
 2004–8 New York University Academic Scholarship, \$60,000

Professional & research experience

- 2016– **Reviewing Editor, *Applications in Plant Sciences***
 Two-year term board position. Reviewing Editor for *APPS* Primer Notes and *ad hoc* reviewer for Protocol Notes, Software Notes, Genomic Resources Articles, Application Articles, and Review Articles.
- 2015 **National Park Service Young Leaders in Climate Change Fellow** Saguaro National Park and Sonoran Desert Network, Tucson, Arizona, US National Park Service
 Working with park biologists at Saguaro National Park and the Sonoran Desert Network investigating the ecohydrology, seasonal water sources, and impacts of climate change on the iconic saguaro cactus, *Carnegiea gigantea*.
- 2015 **George Wright Society Park Break Participant**, San Juan Island National Historical Park, Washington, US National Park Service
 Graduate participant investigating the local impacts on water sources within an surrounding the park. Developed a potential management plan identifying effective avenues of monitoring ecosystem health with the help of local managers and non-profit volunteer groups.
- 2014–15 **Water UCI/ Jet Propulsion Laboratory Research Fellow, Water UC Irvine**
 Water UCI campus initiative, University of California, Irvine.
 Serving as the ecologist on an interdisciplinary research team tackling the ecological and social dynamics of water sustainability issues in the desert community of Borrego Springs, California.
- 2014–15 **NSF EAPSI Research Fellow, Climate-induced invasions at high elevations**
 Daisetsuzan National Park, Hokkaido, Japan and Hokkaido University.
 Lead researcher examining the morphological (growth strategies) and physiological mechanisms (water-use efficiency plasticity) that have promoted the dwarf bamboo *Sasa kurilensis* to invade alpine and subalpine communities. Fieldwork included weekly backpacking in remote, rugged terrain to measure growth and physiology.
- 2014 **George Wright Society Park Break Participant**, Saguaro National Park, Tucson, Arizona, US National Park Service
 Graduate student participant in study investigating the dynamics of rare waters in the Saguaro National Park. We collected data in the field and compiled through databases to create models aimed at understanding the ecological and geologic controls on intermittent waters in the park.
- 2010–11 **Biological Science Technician**, Sonoran Desert Network, US National Park Service.
 Co-lead vegetation mapping crew at Saguaro National Park’s West District;
 Conducted upland vegetation surveys and fire effects monitoring at high elevations

in Saguaro National Park's East District; Conducted species-level identifications of Sky Island plants; delineated vegetation communities using multispectral satellite imagery and field data collection; digitized community delineations in ArcGIS 9.3; collected soil and plant data using point line intercepts.

- 2011 **Volunteer in Parks (VIP)**, Rocky Mountain National Park, US National Park Service. Assisted in integrative pest management for the conservation of Limber pine (*Pinus flexilis*).
- 2009 **Conservation and Land Management Botany Intern**, Bureau of Land Management, Vernal Field Office
Surveyed and installed rare plant species monitoring plots; carried out multiple collections for Seeds of Success program in conjunction with the Millennium Seed Bank.
- 2009 **Volunteer in Parks (VIP)**, Yellowstone National Park, US National Park Service
Delineated thermal wetlands at Old Faithful; surveyed for rare plant species' at Fishing Bridge and Lake; mapped rare plant occurrences using GPS; participant in 2009 BioBlitz Plant Team.
- 2008 **Intern, U.S. Fish & Wildlife Service**, Buenos Aires National Wildlife Refuge, USFWS and Student Conservation Association
Monitored desert grassland habitat recovery from prescribed fire; surveyed and installed fire monitoring vegetation plots; surveyed Refuge for endangered species' occurrences.
- 2008 **Research Fellow**, Rocky Mountain Biological Laboratory
Designed and conducted field experiment on breeding behaviors of burying beetles (*Nicrophorus* spp.); used GeoXT GPS and ArcGis to map research sites; assisted mentor in on-going research experiments; conducted weekly experiments in Field Ecology course.
- 2007 **Intern, Biological Anthropology**, American Museum of Natural History
Catalogued and inventoried Medical Human Skeletal Collection; assisted in restoration and preservation of skeletal remains; performed various administrative and organizational tasks.

Teaching experience

- 2015 Guest Lecturer, Global Sustainability, UC Irvine (US13B, 4 credits). *Global climate change, the carbon budget, and carbon sequestration*.
- 2013 Teaching Assistant, Physiological Plant Ecology, UC Irvine (E127, 4 credits).
- 2013 Guest Lecturer, Physiological Plant Ecology, UC Irvine (E127, 4 credits). *Plant allocation and growth strategies*
- 2012 Teaching Assistant, Life: Concepts and Issues, UCLA (LS15, 4 credits)
- 2012 Guest Lecturer, Ecosystems of California, UC Merced (ESS050, 4 credits). *Urban ecosystem structure and the heat-island effect*

- 2012 Teaching Assistant, Ecosystems of California, UC Merced (ESS050, 4 credits)
2011 Teaching Assistant, Biological Anthropology, UC Merced (ANTH005, 4 credits)

Student Mentoring

UC Irvine undergraduate research (Bio Sci 199 credits):

- 2014–16 Michelle Yu-Chan Lin, 10 credits + Summer Undergraduate Research Fellowship Program Awardee + Excellence in Research Honors + Robert Ernst Prize for Excellence in Research in Plant Biology
2014–16 Melanie Kao, 12 credits + Excellence in Research Honors
2015–16 May Li, 10 credits
2014–15 Jun Dong, 6 credits
2016 Anh Dang, 3 credits
2016 Angela Choi, 3 credits
2016 Aarohi Desai, 5 credits
2016 Herman Kooner, 3 credits
2016 Khanh Phan, 2 credits

UC Irvine undergraduate and local high school research volunteers

- 2016 Herman Kooner
2016 Jeffrey Vozzo
2015 Keon Rabbani
2014 Alyssa Collins
2014 Phuongthao Nguyen

Conference mentoring

- 2016 Vincent Oliveras, Ecological Society of America meeting, Fort Lauderdale, Florida
2016 Liz Sampson, Botany meeting, Savannah, Georgia

Service & Outreach

Editorial positions

- 2016– Reviewing Editor, *Applications in Plant Sciences* (2016 – present: 11 manuscripts reviewed)

Peer-reviewer

- 2015 Arctic, Antarctic, and Alpine Research (2015: 1 manuscript)
2017 Biological Invasions (2017: 1 manuscript)
2015 Ecosphere (2016: 2 manuscripts, 2015: 1 manuscript)
2012 Plant and Soil (2013: 1 manuscript, 2012: 1 manuscript)

Conference abstracts reviewer

- 2017 Ecological Society of America Student Section Travel Awards
2016 North American Congress for Conservation Biology

Conference session chair

- 2017 George Wright Society Conference on Parks and Protected Areas (OCC 64: Understanding Aquatic & Riparian Invasive Species and Outbreak Events)

- 2016 Ecological Society of America meeting (COS 46: Invasion: Dynamics, Population Processes)
- 2015 George Wright Society Conference on Parks and Protected Areas (OCC 208: Responding to Invasive Plant Species).

Outreach

- 2016 Guest Instagrammer for American Geophysical Union (June 2016: [link](#))
- 2016– Master Plant Science Team mentor and liaison for the PlantingScience elementary school online program

Service

- 2015–16 Graduate Admissions Committee, UC Irvine Ecology & Evolutionary Biology
- 2015 U.S. National Park Service Young Leader in Climate Change

Media and Press

- 2017 Ecological Society of America [link](#)
- 2017 Phys.org [link](#)
- 2017 Science Newsline [link](#)
- 2017 Environmental News Network [link](#)

Training, certifications & study abroad

- 2016 3rd Annual Graduate Workshop on Environmental Data Analytics, NCAR, Boulder, CO
- 2016 Safe Zone Training, UC Irvine LGBT Resource Center
- 2015 Next Generation Sequence Data Analysis, UC Irvine Data Science Initiative short course
- 2015 Introduction to Linux, UC Irvine Data Science Initiative short course
- 2015 COTE Summer School: Biodiversity and Global Change, U. of Bordeaux, France
- 2015 CPR & AED certified, National Park Service, Tucson, Arizona
- 2014 Summer Abroad, Hokkaido University, Sapporo, Japan
- 2013 Wilderness First Aid, Remote Medical, Institute of Arctic and Alpine Research
- 2011 Wilderness First Responder, Wilderness Medical Associates, University of Arizona
- 2011 High Occupancy Vehicle Training, University of Arizona
- 2009 Wildland Firefighter Red Card Certification (Type 2), Bureau of Indian Affairs
- 2009 Training, All Terrain Vehicle Safety Institute, Basic Safety Training
- 2005 Semester Abroad, New York University in Florence, Italy
- 2005 Semester Abroad, New York University in Paris, France

Professional Affiliations

- 2016– Botanical Society of America
- 2015– California Invasive Plant Council
- 2014– California Native Plant Society
- 2014– U.S. Biosphere Reserves Association
- 2014– George Wright Society
- 2011– Ecological Society of America
- 2014–16 American Geophysical Union
- 2013–16 California Botanical Society

2013–16 Southern California Botanists

2012–14 Sigma Xi

2011–14 Member, American Association for the Advancement of Science (AAAS)
Science Program for Excellence in Science

2008–09 Member, Rocky Mountain Biological Laboratory