The Marine Biological Laboratory and the University of Chicago Retreat

FEBRUARY 8-10, 2014

Donnelley Biological Sciences
Learning Center (BSLC)
924 East 57th Street
Chicago, IL 60637
With a legacy that dates from Charles Otis Whitman and Frank Lillie, the University of Chicago and the Marine Biological Laboratory have, over the past century, developed as hubs of international collaboration, groundbreaking interdisciplinary research, and sources of novel models of teaching and learning. With that inheritance we—the students, staff, and faculty of both institutions—now stand to leverage those great strengths to use the new affiliation to enhance collaborative research and teaching for UChicago, the year-round community at MBL, and MBL’s visiting scientists and teachers from around the world. Please join us as we launch this exciting future at the first MBL-UChicago Retreat.

NEIL SHUBIN

MBL-UChicago Retreat Planning Committee
Zoe Cardon, Marine Biological Laboratory, Co-Chair
Christian Hansel, University of Chicago
Susan Kidwell, University of Chicago
Karl Matlin, University of Chicago, Co-Chair
Jennifer Morgan, Marine Biological Laboratory
Joel Smith, Marine Biological Laboratory
Mark Westneat, University of Chicago
Linda Amaral Zettler, Marine Biological Laboratory

PICTURED OPPOSITE (clockwise from top left): Charles Whitman, founding director of the MBL, was also a founding member of the UChicago faculty / The University of Chicago (Hyde Park, Chicago campus) is a leader in international scientific collaborations / Many early MBL faculty studied, researched, and taught at UChicago / The MBL, in Woods Hole, Massachusetts, has been a driving force in biological discovery and research training / The “Squid Gate,” representing a local squid studied by MBL scientists, welcomes visitors to Woods Hole’s Waterfront Park / Students in the Woods Hole Partnership in Education Program spend a summer gaining practical experience in marine and environmental science / Students participating in MBL laboratory and field courses / Close ties between the MBL and UChicago extend to the founding of both institutions; buildings on both campuses (UChicago pictured) are named after UChicago faculty members from that era
Mixing and Mutating: Getting Acquainted with the Breadth of Research at the University of Chicago and the Marine Biological Laboratory

Day 1 activities to be held in BSLC 109 except where noted below

8 a.m. | Registration and Continental Breakfast
BSLC Lobby

8:30 a.m. | Welcome Remarks
Neil Shubin, Robert R. Bensley Professor, Organismal Biology and Anatomy, Committee on Evolutionary Biology; Committee on Development, Regeneration, and Stem Cell Biology; Senior Advisor to the President and Vice President for Research and National Laboratories, University of Chicago

8:45 a.m. | Welcome Remarks: A Chaos of Delight
Jonathan Gitlin, Deputy Director for Research and Stem Cell Biology; and Senior Advisor to the President and Vice President for Research and National Laboratories, University of Chicago

9 a.m. | Science and Synergies
Joan Ruderman, President and Director, Marine Biological Laboratory

SESSION 1
Educational Programs at UChicago and the MBL: Structures and Activities

9:30 a.m. | A Twentieth-Century Cosmos: The Culture of Learning in the Liberal Arts at Chicago
John W. Boyer, Martin A. Ryerson Distinguished Service Professor in History, and Dean of the College, University of Chicago

9:45 a.m. | A Laboratory Course for Undergraduate Science Majors
David Jablonski, William R. Kenan, Jr. Professor of Organismal Biology and Anatomy, UChicago

9:50 a.m. | A Lightning Tour of Science at the MBL
Biologist, Professor, and Vice Chair of the Program in Sensory Physiology and Behavior, MBL

10 a.m. | COFFEE BREAK

10:30 a.m. | Research Training and Educational Science at the MBL
Bill Reznikoff, Director of Education and Senior Scientist, Josephine Bay Paul Center, Marine Biological Laboratory

11 a.m. | Lightning Talks: Nascent Educational Programs
Moderated by Ron Vale

11:45 a.m. | Lightning Talks: Networks: Complexity and Control from Genes to Ecosystems
Moderated by Joel Smith

Noon | LUNCH
Lunch served in BSLC lobby, with open seating throughout the BSLC

SESSION 2
A Lightning Tour of Science at the MBL and UChicago

1 p.m. | Lightning Talks: Neurobiology: Behavior and Sensation from Synapse to Brain
Moderated by Roger Hanlon
Rapid Adaptive Coloration: Linking Science, Art, and Technology (Roger Hanlon, Director and Senior Scientist, Program in Sensory Physiology and Behavior, MBL)

1:30 p.m. | Lightning Talks: Sensory Biology
Moderated by Christian Hansel
• Evidence for Protons as Neurotransmitters at Vestibular Hair Cell-Calyx Afferent Synapses (Richard D. Rabitt, Professor of Bioengineering, University of Utah and Senior Adjunct Scientist, MBL)
• Phototransduction in Marine Model Systems: Molecular Mechanisms and Evolutionary Implications (Enrico Nasi, Adjunct Senior Scientist, Cellular Dynamics Program, MBL)
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• Synaptic Memories (Christian Hansel, Professor, Neurobiology, UChicago)

1:45 p.m. | Lightning Talks: Animals in the Biosphere: Contributions of Behavior, Microbiomes, and Evolution to Local and Planetary Scale Function
Moderated by Cathy Pfister
Animal, Microbe, and Nutrient Interactions in the Current and Future Oceans (Cathy Pfister, Professor, Ecology and Evolution, UChicago)

2 p.m. | Lightning Talks: Human Microbiomes and Environmental Microbial Communities
Moderated by Jack Gilbert
Ecosystems Center Data

3:45 p.m. | Lightning Talks: Human Microbiomes and Environmental Microbial Communities
Moderated by Jack Gilbert
Ecosystems Center Data

4:30 p.m. | “The Idea Mutator”—The Ultimate Battle of Wits for Scientists, and Cocktail Reception
BSLC Lobby

6 p.m. | Transportation to Quadrangle Club
BSLC Lobby

6:30 p.m. | Dinner
Quadrangle Club

“A History of Rich Collaboration: the University of Chicago and the Marine Biological Laboratory”
Jane Maenschen, Regents’ President’s, and Parents Association Professor, School of Life Sciences; Director of the Center for Biology and Society, Arizona State University, and Adjunct Senior Scientist, MBL

8:30 p.m. | Transportation to Hyatt Place—South
## DAY 2 | SUNDAY, FEBRUARY 9, 2014

### A Deep Look into Connections and Mechanisms

All day 2 activities to be held in **BSLC 109** except where noted below.

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| 8:30 a.m. | Continental Breakfast  
BSLC Lobby |
| 9 a.m. | Panel Discussion: Resources for Collaboration  
- Jonathan Gillin, Deputy Director for Research and Programs, Marine Biological Laboratory  
- Melina Hale, Professor, Organismal Biology and Anatomy, University of Chicago  
- Neil Shubin, Robert R. Bentley Professor, Organismal Biology and Anatomy; Committee on Evolutionary Biology; Committee on Development, Regeneration, and Stem Cell Biology; and Senior Advisor to the President and Vice President for Research and National Laboratories, University of Chicago |
| 10 a.m. | **COFFEE BREAK** |
| 10:30 a.m. | Thematic Roundtables—Session 1  
Please note room assignments  
- Research Computing and “Big Data” (moderated by Nathan Wilson, Associate Research Scientist, MBL; and Ian Foster, Arthur Holly Compton Distinguished Service Professor in Computer Science; Director, Computation Institute, UChicago; and Associate Director, Mathematics and Computer Science Division, Argonne National Laboratory)  
- Cellular Dynamics: Technologies and Computational Approaches (moderated by Rudolf Oldenbourg, Director and Senior Scientist, Cellular Dynamics Program, MBL; and Rick Feinon, Chair and Professor, Molecular Genetics and Cell Biology, UChicago)  
- Global Climate and Environmental Change: Hotspots, Paleo Insights, and Links to Policy (moderated by Eil Rastatter, Assistant Director and Senior Scientist, Ecosystems Center, MBL; and Julie Jastro, Senior Terrestrial Ecologist, Argonne National Laboratory)  
- From Gene Expression and Morphology to Behavior: Functional Diversity, Biomechanics, and Evolutionary Response to the Physical World (moderated by David Mark Welch, Director and Associate Scientist, Josephine Bay Paul Center, MBL; and Mark Westneat, Professor, Organismal Biology and Anatomy, UChicago)  
- Participant-driven new theme discussion 1  
- Participant-driven new theme discussion 2  
- Participant-driven new theme discussion 3 |
| Noon | **LUNCH**  
Lunch served in BSLC lobby, with open seating throughout the BSLC |
| 1 p.m. | Presentations from Roundtables—Session 1 |
| 2 p.m. | **COFFEE BREAK** |
| 2:30 p.m. | Thematic Roundtables—Session 2  
Please note room assignments  
- The Lives of Cells and Organisms: Development, Regeneration, Cancer, and Aging (moderated by Marko Horb, Director of the National Xenopus Resource and Associate Scientist, Eugene Bell Center for Regenerative Biology and Tissue Engineering, MBL; and Victoria Prince, Professor, Organismal Biology and Anatomy; Committee on Developmental Biology, Neuroscience, and Molecular Metabolism and Nutrition; Dean and Director, Office of Graduate Affairs, UChicago)  
- Water Water Everywhere (Nor Any Drop to Drink) (moderated by Chris Hall, Director and Senior Scientist, Ecosystems Center, MBL; and Steve Sibener, Carl William Eisendrath Distinguished Service Professor in Chemistry, UChicago)  
- From Gene Expression and Morphology to Behavior: Functional Diversity, Biomechanics, and Evolutionary Response to the Physical World (moderated by David Mark Welch, Director and Associate Scientist, Josephine Bay Paul Center, MBL; and Mark Westneat, Professor, Organismal Biology and Anatomy, UChicago)  
- Participant-driven new theme discussion 1  
- Participant-driven new theme discussion 2  
- Participant-driven new theme discussion 3 |
| 4 p.m. | Presentations from Roundtables—Session 2 |
| 5 p.m. | What’s Next? Retreat Summary and Future Planning |
| 6:30 p.m. | Transportation to Ida Noyes Hall  
BSLC Lobby |
| 7 p.m. | **Dinner**  
Ida Noyes Hall—Cloister Club |
| 9 p.m. | Transportation to Hyatt Place—South |

# DAY 3 | MONDAY, FEBRUARY 10, 2014

## Exploration

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| 8 a.m. | **Argonne National Laboratory Optional Tour**  
The bus for the Argonne tour will depart the Hyatt Place—South at 8 a.m. and will return to campus (Ida Noyes Hall) at approximately 1 p.m.  
Due to entry requirements at Argonne, only those who signed up in advance and received security clearance will be permitted. A government-issued photo ID is required. |
| 8:30 a.m. | **The Field Museum Optional Tour**  
The bus for the Field Museum tour will depart the Hyatt Place—South at 8:30 a.m. and will return to campus (Ida Noyes Hall) at approximately 1 p.m. |
| TBD | **University of Chicago Optional Campus Tour**  
Details to be announced. |

**1-3 p.m.** | “Meet and Greet” with prospective summer undergraduate research fellows as part of the Metcalf Internship Program  
Ida Noyes Hall  
Lunch will be provided. |
Marine Biological Laboratory and UChicago: Partners in Biological Discovery

Building on a relationship that began in the 1880s, the University of Chicago and the Marine Biological Laboratory have formed an affiliation to strengthen our mutual missions of leadership and innovation in scientific research and education, support MBL’s renowned summer programs, create research and educational opportunities at both institutions, enhance shared specialties ranging from molecular engineering to climate change, and advance biological discovery worldwide.

mbl.edu
uchicago.edu/mbl