

VOICES OF **DISCOVERY**

Elon College, the College of Arts and Sciences, at Elon University is committed to engaging students and the community in the excitement and wonder of discovery. During the past two decades, scores of discoveries in molecular biology, atomic physics and computer technology have changed the face of science and brought dramatic changes to our world.

The **Voices of Discovery speaker series** brings to campus preeminent scientists and mathematicians who have left an indelible mark on the way we view the world. They share their remarkable experiences and perspectives with Elon students and the community. This series plays a fundamental role in the university's commitment to create a science-conscious community and to help students be informed citizens.

Voices of Discovery is just one element of Elon's efforts to provide outstanding science education. At the Dalton L. McMichael Sr. Science Center, students work in modern laboratories with cutting-edge research tools. They focus on discovery-based learning, undergraduate research and collaboration among the sciences, developing an appreciation for the scientific enterprise and how we acquire new knowledge.

VOICES OF **DISCOVERY** // 2015-16

ELON UNIVERSITY

ELON COLLEGE, THE COLLEGE OF ARTS & SCIENCES

PO Box 398

Elon, NC 27244

Nonprofit Organization
US Postage
PAID
Permit No. 1
Elon, NC

ELON
UNIVERSITY

VOICES OF **DISCOVERY**

2015-16



Tuesday, **September 15, 2015** | McCrary Theatre | 7:00 p.m.

Wes Jackson, Ph.D.

Founder and President of The Land Institute

According to the “Millennium Ecosystem Assessment 2005 Synthesis Report,” agriculture as currently practiced by much of the world represents “the largest threat to biodiversity and ecosystem function of any single human activity.” The cereal grains that are the chief food for humans are annuals grown in monoculture. Centuries of widespread planting, cultivation and harvesting of annual, genetically uniform plants has resulted in soil loss and degradation and is also associated with excessive use of water, fossil fuels, fertilizers and pesticides. Many experts believe that this type of agriculture is only perpetuated at the expense of natural capital and is not sustainable.

If agriculture based on annuals and monocultures is not ecologically sustainable, then Wes Jackson and many others argue that we must develop an agriculture based chiefly upon perennials and polyculture, similar to a mixed-species pasture that is used for grazing livestock.

Born on a farm in Kansas, Jackson was educated in botany and genetics and later returned to Kansas establishing The Land Institute in 1976. The Land Institute is committed to researching food production methods that sustain the land, a precious resource in an increasingly precarious state around the globe. A significant focus of the Institute is its work to perennialize wheat and develop grains that will grow well in polycultures. Scientists at the Institute collaborate widely on this challenging, long-term project that will eventually convert agriculture to complex, sustainable ecosystems to feed people who depend on healthy ecological systems.

In addition to scientific papers, Jackson has written several books for general readers including *Nature as Measure* and *Consulting the Genius of the Place: An Ecological Approach to a New Agriculture*. Jackson and the Institute are frequently featured in the popular media, including National Public Radio, *National Geographic* and *The Atlantic Monthly*. He is a recipient of the Pew Conservation Scholars award and a MacArthur Fellowship.

Why basic ecology and evolution hold the secrets to the future of medicine



Thursday, **November 5, 2015** | McCrary Theatre | 7:00 p.m.

Robert R. Dunn, Ph.D.

Associate Professor, Department of Biological Sciences, N.C. State University
Member, Keck Center for Behavioral Biology, N.C. State University

According to Robb Dunn, the human body may represent the last great frontier for exploration and understanding. An evolutionary biologist and writer, Dunn is fascinated with the many small, mostly unseen and frequently ignored, wild species that live near us or actually on and in our bodies and have significantly shaped our evolution.

In his book, *The Wild Life of our Bodies*, Dunn describes some of the intimate and complex ecologies with wild species and maintains that scientists are just beginning to learn that such relationships not only sometimes results in illness, but are more often essential for health. Dunn and increasingly many others believe that the current health-related focus on cleansing ourselves from nature to avoid germs and disease will change as we discover the many essential and beneficial associations with small species that live with us and that the medicine of the future will be ecological in nature.

While Dunn’s professional study of diversity, ecology and evolution has included exotic and faraway tropical forests, much of his current work at

North Carolina State University lies close to home as in the microflora and fauna of bedrooms, urban arthropod communities, facial mites and belly button biomes. Dunn believes that there is so much that we don’t know or understand that is right in our own cities, homes and on our own bodies.

A prolific scholar, Dunn’s writings include more than 100 journal articles, but he is perhaps best known for popular science books, such as *Every Living Thing* and *The Man Who Touched His Own Heart* and the many popular science articles and essays that have appeared in the *BBC Wildlife Magazine*, *Scientific American*, *National Geographic* and others. Dunn is passionate about engaging non-scientists in the excitement of discovery and is a co-leader of the yourwildlife.org program that engages scientists, students and public volunteers. Dunn recognitions include Best American Online Science Writing, National Outdoor Book Award for Natural History and Perry Atkinson Distinguished Faculty Award.

Out on a limb – challenges of women in science



Wednesday, **March 2, 2016** | McCrary Theatre | 7:00 p.m.

Margaret (Meg) Lowman, Ph.D.

Chief of Science and Sustainability, Institute for Biodiversity Science and Sustainability, California Academy of Science

E.O. Wilson referred to the forest canopy as the “last frontier” of biological research on the planet. Currently about 30 percent of the total global land area is covered by forests, whose tree tops or canopies significantly impact local and planetary ecosystem services, including such essential processes as photosynthesis, oxygen production, climate and climate regulation, water purification and conservation, soil fertility and stability, biodiversity and others. Tropical forest canopies, which presently cover only about 6 percent of land surface may be home to half or more of the total biodiversity of the planet.

Imagine working in the treetops for a living. For more than 30 years Meg Lowman, known as “Canopy Meg, the Einstein of the treetops” and the “mother of canopy research” has developed and implemented access strategies for canopy research, studied tropical and temperate canopies around the globe contributing to the mapping and understanding

of biodiversity and canopy ecology, worked with local people for conservation and sustainable forest management and promoted science literacy and science careers for under-represented groups, such as minorities and women.

Biologist, ecologist, explorer, writer and public speaker, Lowman is the author of more than 125 scholarly articles and books, including *Life in the Treetops: Adventures of a Woman in Field Biology* and *Treetops at Risk: Challenges of Global Canopy Ecology and Conservation* (with Soubadra Devy). In her current position at the California Academy of Science, Lowman oversees the institute’s efforts in research and conservation. Other leadership roles have included serving as vice president of the Ecological Society of America and founding the TREE Foundation. Numerous awards and recognitions reflect Lowman’s commitment to science, conservation and education.