Join us for this series of six free public lectures on **Saturday mornings** from 11:00 a.m. to about 12:30 p.m. in **100 Thomas Building** on the Penn State University Park Campus.

This free public minicourse features lectures given by Penn State researchers whose labs are expanding the frontiers of scientific knowledge about strategies for growing enough food for everyone.

The Penn State Lectures on the Frontiers of Science is a program of the Penn State Eberly College of Science that is designed for the enjoyment and education of residents of the Central Pennsylvania area and beyond. The 2012 series features Penn State faculty members in the Eberly College of Science and the College of Agricultural Sciences.

**21 JANUARY**
Where will the food come from in a hotter, more crowded world?

**SPEAKER:** NINA V. FEDOROFF, PENN STATE

The climate is warming. Water tables are falling everywhere. Biodiversity is under pressure. There is not enough farm land. And yet today’s human population of 7 billion will race past 9 billion by 2050. Can we increase the food supply and still shrink the ecological footprint of agriculture?

**28 JANUARY**
The global pollinator crisis

**SPEAKER:** CHRISTINA GROZINGER, PENN STATE

Seventy percent of our agricultural crops — particularly micronutrient-rich fruit, vegetable, and nut crops — require the help of animal pollinators like bees in order to produce seed and fruit. However, pollinator populations have been in decline worldwide. What are the causes and consequences of this decline, and what can we do about it?

**4 FEBRUARY**
The good bugs: Why agriculture needs microbes

**SPEAKER:** MARILYN ROOSSINCK, PENN STATE

Modern agriculture does its best to rid food crops of viruses, bacteria, and fungi, but wild plants thrive while they are full of these “bugs.” Hear a Penn State scientist describe what she is discovering about how microbes — including viruses — benefit their host plants. Learn how her research is revealing ways that microbes can make agriculture more sustainable.

**11 FEBRUARY**
Novel solutions to complex diseases for subsistence agriculture

**SPEAKER:** DAVID HUGHES, PENN STATE

Human trade and migration have homogenized the world such that every pest is everywhere — bringing together organisms that normally would not meet and leading to catastrophic problems for agriculture. Learn how pests and disease cripple poor subsistence farmers, how global trade compounds this problem, and how agricultural universities such as Penn State contain the solutions.

**18 FEBRUARY**
Feeding the future: From the lab bench to the dinner table

**SPEAKER:** BRUCE MCPHERON, PENN STATE

Which creative research experiments today might most quickly boost food production on our stressed planet? Hear an insider’s insights from the Dean of the Penn State College of Agricultural Sciences about research projects with food crops and farm animals that could change the world.

**25 FEBRUARY**
Roots of the second green revolution

**SPEAKER:** JONATHAN LYNCH, PENN STATE

One billion are hungry in the third world, where crop yields are low because of drought and low soil fertility. In rich nations, intensive use of irrigation and fertilizers is causing environmental havoc. Can we develop new crops with better root systems that would boost yields in poor nations while reducing environmental damage in rich nations?

For more information, call 814-863-0901, or e-mail science@psu.edu, or check the web at www.science.psu.edu/frontiers

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