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Bob Aaron  
*Illinois Wesleyan University*

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**CONTACT:** Bob Aaron, 309/556-3181

## **Environmental Education IWU Joins Columbia University's Biosphere 2 Project**

BLOOMINGTON, Ill.--Officials representing Biosphere 2--the world's largest glass-enclosed ecological laboratory--will be on campus next week as a key step toward having three or four Illinois Wesleyan University students enroll next spring in the unique learning and research project.

More than two dozen campuses--including IWU--are partners in the Biosphere 2 program, which has been operated by Columbia University since 1995. Through the partnership, IWU students have the opportunity to understand how humans impact the Earth by participating in semester-long educational and research programs at the Arizona-based Biosphere 2.

IWU students--science and non-science majors--will meet with the Biosphere 2 representatives for a program briefing on Sept. 7 at 7 p.m. in Room E-104 of the Center for Natural Sciences, 201 E. Beecher St.

The two Biosphere 2 officials who will visit IWU are Mike Omiecinski, director of student admissions, and Kristan Cockerill, an assistant professor who teaches a course on the Human Role in Environmental Change, providing the social science and humanities portion of the wide-ranging Earth Semester program.

Omiecinski is responsible for all aspects of student recruiting and works closely with partner schools to maintain strong ties with the Biosphere 2 program. Cockerill has a background in political science, journalism, and environmental policy.

Abigail Jahiel, assistant professor of international and environmental studies and co-director of IWU's Environmental Studies Program, explained that students will have the option of enrolling in Biosphere's Earth Semester or Universe Semester Programs.

"We're looking for students who are comfortable with math and science," Jahiel said, "but they don't have to be majors in those fields. Students must have the ability to adapt to new situations and work well with others since they will work on research teams and do interdisciplinary work. Students also should have good academic records."

Adaptation by students is important, Jahiel explained, since they will be living in "a desert environment, which is a dramatically different climate from where most students come from."

Given Harper, associate professor of biology and co-director of IWU's Environmental Studies Program, described Biosphere 2 as a "state-of-the-art facility, where you can control environmental variables to see how they impact ecosystems." The program, he added, gives students "hands-on experience in trying to solve ecological and environmental problems."

Those problems, Harper points out, are exacerbated because less than 5 percent of the world's people use 20-30 percent of global resources. Additionally, the industrial world represents about 20 percent of the world's population, but consumes approximately 80 percent of the world's resources. Another factor influencing these trends is great population growth in the developing world, a region aspiring to economic standards already achieved by the developed world.

The 16-week Earth Semester Program gives students the opportunity to learn the fundamental science of ecological systems and how science is used in ecosystem management. Students sharpen skills in scientific analysis, systems modeling, interdisciplinary communication, and written and oral presentations. The program also includes fieldwork in the Grand Canyon, Santa Catalina Mountains, and other locales.

The Universe Semester, also 16-weeks long, offers intensive studies in astronomy and astrophysics. Students use the center's telescope laboratory as well as the Kitt Peak National Observatory telescopes in the mountains near Tucson. They can select a wide range of courses, including Earth, Moon and Planets; Beyond the Solar System; Stellar Astrophysics; Galactic and Extragalactic Astrophysics; Waves, Optics and Modern Physics; Astrophysics of the Solar System; and Observational Astronomy.

Biosphere 2's program also includes field trips where students visit Mt. Lemmon, the Tucson Mountains, and the Gulf of California. Students spend five days studying coastal geology and ecology, as well as human influences on the region.

Additionally, students take a six-day field trip to either Northern or Southern Arizona/California, depending on the season and weather conditions. They study natural and human-made phenomena, including the San Andreas fault system and the Grand Canyon.

Jahiel described Biosphere 2 as a program attracting "highly qualified scholars" to an "exciting place" from the research and academic perspectives.

Biosphere 2 is a glass structure sealed off from the earth by a 500-ton welded stainless steel liner. It covers 3.15 acres, reaches 91-feet tall at its highest point, and contains five separate ecological areas: a rainforest, desert, savanna, marsh, and ocean. Within this compact space are housed more than 3,000 species of organisms.

Each semester--beginning this spring--IWU students will be selected to participate in academic programs at Biosphere 2, where they will study with others from Columbia University's campus partners, including Davidson, Occidental, Smith, and William and Mary.

Students live on Biosphere 2's 250-acre campus in the Sonoran Desert. Some opt for community living with about 10 classmates, while others prefer to share housing with only one or two students.

The campus is located in the foothills of the Santa Catalina Mountains in Oracle, Ariz., about a 30-minute drive from Tucson.

Biosphere 2--named after mother earth, the original biosphere--was constructed in the 1980s as an experimental site to test the ability of people to live in and manage an enclosed ecosystem.

For two years, four men and four women inhabited the site. They controlled the temperature, light, carbon dioxide, and other air and soil characteristics with sophisticated sensory monitors and other equipment. They moderated rainfall, temperature, and the chemical composition of the atmosphere within their self-created "planet."

Columbia University took over the facility in 1996, converting the large-scale ecological laboratory into an experimental learning center that gives students hands-on experience illustrating how the environment affects lives and how people affect the environment.

Harper believes that projects like Biosphere 2 are important for several reasons.

"The Earth is facing severe environmental problems," he explained, "including the loss of biodiversity, pollution, and human overpopulation. These environmental problems directly impact human welfare and well being. If we don't take steps to correct them at the very least our quality of life on earth will be affected--at the very worst the continued existence of humans is questioned."

Jahiel observed that solutions to many environmental problems ultimately may rest in societal and political decisions.

"To study natural science alone isn't sufficient," she said. "It's essential to understand national and global political processes and the U.S. role in those processes, as well as cultural, social, and economic issues. Biosphere 2 offers this integration of the humanities, social science, and science."

IWU, founded in 1850, enrolls more than 2,000 students in a College of Liberal Arts, and individual schools of Music, Theatre Arts, Art, and Nursing. Since 1994, these facilities have been added to the IWU campus: a \$15 million athletics and recreation center, a \$25 million science center, a \$6.8 million residence hall, a \$5.1 million Center for Liberal Arts, and a \$1.65 million baseball stadium. A \$26 million library and a \$6 million student center are under construction.

**Editor's Note:** To interview the representatives of Biosphere 2--Mike Omiecinski, director of student admissions, and Kristan Cockerill, an assistant professor--or IWU faculty members Given Harper and Abby Jahiel, call IWU's Office of University Communications at 309/556-3181.

