With the world honey bee populations facing steep losses, scientists worldwide are focusing their research on finding out why and how to fix this problem. John Hranitz, professor of biological and allied health science, studies the bee population, assisted in his on-campus lab during the spring semester by his Turkish research partner, Nazimye Güneş.

Honey bees play an integral role in agriculture. Due to their social nature, they can pollinate large fields of crops continuously throughout the warmer months. A few years without honey bee activity could be detrimental to food production. “Humans use pesticides mainly to manage harmful bugs and mites,” says Hranitz. “Certain mites are very harmful to the honey bee.”

These mites weaken bees by feeding on their blood, resulting in the recent drop in the honey bee population, he explains. However, pesticides can also be damaging to bees. By studying the bee’s brain and reading the stress protein levels, researchers are able to establish a marker of the stress level the bees are under when certain pesticides are applied.

“Through the use of these pesticides, we may be subjecting bees to sub-lethal stress,” Hranitz says. “So although we may not be killing them, this stress still manifests itself in ways that can cause declines in productivity through reproductive or behavioral problems.”

Hranitz and Güneş are dissecting bees’ brains to observe the levels of stress protein that result from mite abatement practices. “We do not know exactly what level of the pesticides cause sublethal stress that impairs bees. Hopefully, through this research we will figure that out,” Hranitz says.

Hranitz and Güneş met at the Beekeeping Development-Application and Research Center at Uludağ University in Turkey, which is funding her research at BU. A veterinary biochemist, Güneş is learning how Hranitz conducts the stress protein tests so she can share what she’s learned with her colleagues back home.

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Hranitz earned bachelor’s and master’s degrees from BU and a doctorate from Mississippi State University. He has been a member of BU’s faculty since 2002. Güneş earned her undergraduate and doctoral degrees from Uludağ University in Turkey.

SNAP Judgment

Bloomsburg University nursing students won the ninth annual Geoffrey Allen Walp Memorial Student Nurse Challenge, sponsored by the East Stroudsburg University chapter of the Student Nurse Association of Pennsylvania (SNAP) on March 2.

Based on the College Bowl program, the challenge helps prepare student nurses for the National Council Licensure Examination (NCLEX) for their Registered Nurse (RN) license. A large screen displays NCLEX-style, multiple-choice questions as two teams compete. The first to push the buzzer has the opportunity to answer the question and earn the point. Winning teams compete against each other until a final winner is determined at the last round.

BU students received a $500 check for their SNAP chapter and the right to house the trophy until next year’s challenge. All schools in the SNAP district, including diploma, associate and baccalaureate programs, are invited to participate.

Representing BU were: Ashley Ginther, Pottstown; Amanda Cruz, Holland; Jen McCauley, Saylorsburg; Rachel Crawford, Doylestown; Emily Searfoss, Spring Mills; Nikki Cicero, Doylestown; Amanda Nyce, Coopersburg; Jamie Thomas, Archbald; Kayla Zambiasi, Minersville; and Rebecca Gates, Greencastle; along with faculty advisers Allison Maloney and Mindi Miller.
EET Student Innovation

Students in the Electronics Engineering Technology (EET) program are trained to think critically and thoroughly to arrive at innovative solutions for real-world problems. They share their theoretical knowledge and hands-on experience through the Capstone Senior Design Project, where knowledge gained in the classroom is applied to a major design project.

Ghassan Ibrahim, associate professor of physics and engineering technology, developed and supervises the course. Since its inception in fall 2008, the goal has been to encourage EET students to be thinkers and problem solvers who persevere in achieving solutions to seemingly tedious problems. Innovative projects include:

- **The Electric Bike:** Students developed a self-powered bicycle where motors are controlled electronically to perform most, if not all, of the work without any pedaling from the rider. The aim was to prevent sweating and fatigue to make the bicycle a more economical and desirable mode of transportation.
- **Robotic Arm Simulator:** The purpose of this project was to control a robotic arm through the use of a sleeve-like device. This device slips onto a user’s arm, allowing him or her to control the robotic arm through simple, intuitive motions.
- **Smart Box:** This project developed a prototype “Smart Box” to transport controlled medical supplies, especially narcotics, under strict surveillance and security. The system uses two RFID readers, operating at two different frequencies, interfaced through Arduino mini card to a wireless card. All are embedded in the Smart Box. The readers communicate through the wireless card to a central monitoring computer. The hospital staff transporting the box is identified by an RFID tagged badge.
- **Catch Robot:** This project created an autonomous, self-contained robot that tracks a tennis ball and throws it back to the user using an attached pitching machine. The ball is tracked using video recognition software and communicated to the control software. The active system is designed to track the position of the tennis ball and move the robot along a rail system to catch the ball accordingly. The ball is caught with a net and returned to the person who originally threw it. Implementation of various software features for safety and ease of use were added so that the robot is user-friendly.

Winning Streak Continues

Brock Saylor, Gilbertsville, an environmental planning major in the Department of Geography and Geosciences, placed first in the student paper competition at the recent Pennsylvania Geographical Society meeting. Saylor presented the paper, “Using GIS to conduct a tree inventory at Bloomsburg University.” This is the second year in a row that a major from the Department of Geography and Geosciences has won this award.

Top 12 Percent

Sophomore mathematics major Zhaoning Yang finished in the top 12 percent of the 4,440 students from 572 institutions in the United States and Canada who participated in the 2011 William Lowell Putnam Mathematical Competition. Although the maximum possible score is 120, the top score on the exam was 91, and only 65 students scored 40 or greater. Zhaoning Yang scored 12, placing him in the top 532 contestants representing institutions including like MIT, Harvard, Cal Tech, Stanford and Princeton.

Chemists on Campus

Representatives of about 80 institutions in a six-state region are expected to take part in the 76th annual Intercollegiate Student Chemists Convention Saturday, April 14, at BU. Participants will present talks on their research.

Looking for IT?

The Department of Instructional Technology moved from its longtime home in McCormick Center to the newly renovated Sutliff Hall during Spring Break. From its new home base, IT will host the annual Corporate Advisory Council Meeting from April 11 to 13.

Nursing Student Research

Three senior nursing students are conducting research as part of their University Honors Program requirements. Kayla Binger, Shermans Dale, and Jamie O’Neill, West Chester, are studying the degree of uncertainty in people living with diabetes in rural and urban areas. Results will be used to guide interventions in health education to promote effective management of diabetes in the home setting.

Jamie Keister, Mifflinburg, is conducting research at Geisinger Medical Center. She is evaluating the influence of positive and negative religious coping on health-related quality of life in children and adolescents with cancer. Results will be used to increase awareness of the importance of religious coping strategies among children with cancer. Results will also be used to encourage members of the care team to foster use of religious coping resources as appropriate.