From GABA to Greek Amphorae

At UMass Amherst, undergraduates can find research opportunities aplenty. Not surprisingly, the sciences offer undergrads a range of options, from looking into cell death to studying depression in prairie voles. But Greek amphorae, the American Civil War, and local tourism also come under scrutiny when professors open their research projects to students or act as advisors for independent studies. Whatever their focus, student researchers have in common intellectual curiosity, the desire to work hard, and in the words of biology professor Gerald Downes, "a willingness to seek out opportunities and get the most out of their educations."

Downes recently received a $790,000 grant from the National Institutes of Health for his research into spinal cord development in zebra fish. Working 10 or so hours a week in his lab is Liz Oler '08. For her "BDIC," bachelor's degree with an independent concentration, Oler has crafted an ambitious course of study that merges her interests in neuroscience, psychology, philosophy, and social justice. She hopes to enter a M.D./Ph.D. program next year.

John Solem

Professor Downes and Liz Oler examine zebra fish in the Morrill Science Center Lab.

In the lab, Oler is helping investigate the function of the neurotransmitter GABA. To find this research slot, Oler did her homework.

"There is so much to choose from," she said. "It's a big school, and many professors are doing research."

"You need to be proactive," she added. "I started looking sophomore year. There's a million labs, but I narrowed it down, looked at professors' Web pages and papers they'd written to see who might be a good fit. Gerry was teaching a lecture class I was taking, and I approached him after class."

And Downes said… no. "We have a lot of expensive equipment," he explained, "and it takes a lot of time to teach a student her way around the lab. You want to see the students do well. If someone wants to work in a lab, they should approach the faculty member, and keep asking. That bodes well for their seriousness."

Having convinced Downes that she was serious, Oler began working for him her junior year. A stipend from the Howard Hughes Medical Institute kept her on last summer, and she'll be there through this year.

"Liz is a fully integrated member of the lab," said Downes. She's learned key lab techniques, such as how to manipulate DNA, and worked with sophisticated equipment like the lab's high-speed video camera. She's also gotten a sense of life in a lab. "It's a relaxed, family atmosphere here," said Downes, who happily offers Oler career advice and his perspective on the field.

Oler's perspective is positive: "Science is invigorating, dynamic, important, pioneering work by nature…I like looking at the big picture and the small picture. When something goes wrong, I like figuring out what I can change to make it go right. You can never be bored in science."

With so many opportunities to do research, undergraduate students can always be engaged with whatever subject they decide to pursue.

—Faye S. Wolfe