

## Ecology 101: Student interest in fisheries sparked by teacher's extern experience



Science teacher and IMSEP Extern Mike Todd and student Taylor Linder discuss ecosystems as part of Environmental Science, a new course offered at Ames High School.

"When I took Biology from Mr. Todd, it was interesting. But now that I'm in 'Environmental Science' it's, wow – my total outlook has changed," exclaimed Taylor Linder, an Ames High School junior and student of Mike Todd, one of IMSEP's first year participants in the Real World Externships for Teachers of Math & Science program. After his time with the Iowa Department of Natural Resources (DNR) this summer, Mike went back to the classroom determined to add more hands-on experiences for his students. Mike introduced a new course to the fall class offerings at Ames High. He wrote two grants to purchase nets and a boat for his students to use in the dedicated prairie area outside the school and at the newly adopted Moore Park Pond. He brought in guest speakers, such as DNR's natural resource biologist Ben Dodd, to expose students to the world of water ecology. He convinced a local Ames company to donate money to purchase a professional-grade dissolved oxygen meter for the class to use. The impact on his students is obvious. "You can see they get it. And they understand how they affect their living environment." When asked what Taylor's plans are after his senior year, he said, "...majoring in fisheries or water ecology at Iowa State."

## Iowa Math & Science Academy encourages minority, low-income students

The Iowa Math and Science Academy (IMSA), a college-prep program sponsored by IMSEP, is designed to draw more students of under-represented groups into the science, technology, engineering and mathematics (STEM) fields. Students from Black Hawk, Bremer, Buchanan, Butler and Grundy counties in Iowa may apply to participate in the program, which spans summers and academic years through high school. In addition to academic potential, participants must qualify as either first generation college-bound, under-represented minority, and/or low income. The program's coordinator, Angela Francis, brought three Academy representatives-- Alisha Thompson (Independence); Anita Bwiza (Cedar Falls); and Luke Gosse (Jesup) to the recent IMSEP Advisory Council meeting for a feature presentation. Poised and well prepared, the students responded to questions on a number of issues, including how IMSA fits into and improves upon their current school requirements. Anita told the group, "...what we covered on campus this summer, we won't even GET to until spring semester...". Alisha shared her reason for being in the IMSA. "I hope to get into college and better myself. You can come from the worst circumstances ever, but you can still persevere." Luke thought the program has helped him with relationships. "It's really helped my social skills and I now know 39 more kids than I knew before." Kudos to Angela and her students for making time to share with us the very successful Iowa Math & Science Academy program.



From left to right: IMSA's Angela Francis; Alisha Thompson; Anita Bwiza and Luke Gosse.

## Iowa's Race to the Top to include STEM



The stars are aligning for a reinvigoration of STEM education in Iowa. The latest initiative to surface is the possible infusion of millions of dollars of federal support through the U.S. Department of Education's *Race to the Top* fund, part of the American Recovery and Reinvestment Act of 2009. Iowa is one of approximately 30 states to file a letter of intent to compete for the first round of grants, due in January. Iowa's application will be centered on the Iowa Core Curriculum and within that, an interwoven thread of STEM education activities, considered a "competitive priority", in support of four key reform areas: standards and assessments; data systems; effective teachers and principals; and transforming low-achieving schools. Along with *Race to the Top*, the White House just announced the new *Educate to Innovate* campaign to improve the participation and performance of America's students in STEM. IMSEP will be a state conduit for some of the partnership and volunteer opportunities to come from this program. For more information about *Race to the Top*, see <http://www.ed.gov/programs/racetothetop/index.html> and for *Educate to Innovate*: <http://www.whitehouse.gov/issues/education/educate-innovate>.

## Recruitment, diversity focus of IMSEP outreach

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An eastern Iowa science teacher now uses video self-analysis to help identify the tripping points to learning biology. Fifth graders at a Grinnell elementary school are learning about the region's geology and its relevance to our mining and agriculture industries. In Council Bluffs, chemistry students are learning about bonds and balanced equations through authentic experiments. The thousands of students and teachers reached through these and other faculty outreach projects attest to the exponential impact of the successful *IMSEP Competitive Grant Program* for faculty. Beginning this spring, the focus of the program will narrow to key IMSEP objectives as identified in our recent "landscape analysis." Tentatively planned for an April launch of FY 2011 funds, leaders will invite individuals and teams to bring forward their best ideas for addressing these five IMSEP objectives:

- Increase the number and quality of math and science teachers produced by Iowa universities;
- Decrease the number of unlicensed mathematics and science teachers in Iowa;
- Decrease the attrition rate for mathematics and science teachers in Iowa;
- Increase the ethnic, racial and socioeconomic diversity of mathematics and science teachers in Iowa; and
- Increase the number and diversity of students who major in mathematics and science fields in Iowa's Regent universities.

To learn more or read about past awards, go to <http://www.iowamathscience.org/competitivegrants.shtml>.

## IMSEP Updates

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- **Mark your calendar for January 9, 2010, for the Iowa Championship for FIRST (For Inspiration and Recognition of Science and Technology) Tech Challenge (FTC)** at the University of Iowa's Memorial Union. Currently, twenty-four teams of high school students from Iowa and surrounding states are set to pit robots they've designed and built against other team's entries in sport-like games. Contact Rebecca Whitaker at [ftc.iowa@gmail.com](mailto:ftc.iowa@gmail.com) or go to <http://k-12.engineering.uiowa.edu>.
- **Math and science STEM GEMS on classroom walls near you...**IMSEP's "Stem Gem" brochures/posters featuring students, teachers and professionals using math and science in their everyday lives will be mailed in January to superintendents of all public schools in Iowa for use in their math and science classrooms. Three posters in the series are currently available – there will be more to come. If you'd like copies of current posters (Albert Wiggins, teacher and administrator, George Washington Carver Academy, Waterloo; Amy Carolan, ecologist, Washington Conservation District, Minnesota and UNI grad; and Thor Anderson, Bondurant-Farrar high school senior and stockcar driver), contact Tonja at [imsep@uni.edu](mailto:imsep@uni.edu).
- **Friend us on Facebook.** Become an IMSEP Fan at <http://www.facebook.com/#/pages/Cedar-Falls-IA/Iowa-Math-and-Science-Education-Partnership/78308038568?ref=ts>.
- **By the Numbers – Did you know:**
  - The number of undergraduate STEM majors at Iowa's public universities increased by 6.5% this year, with the percentage who are female rising by 8% and the percentage who are minorities rising by 9%?
  - Since fall 2008, 113 undergraduates have taken part in the I-Teach Mathematics & Science seminar, a comprehensive recruitment program at the University of Northern Iowa (UNI), Iowa State University (ISU), North Iowa Area Community College (NIACC) and Hawkeye Community College (HCC)?
  - Seventy-six percent of those completing the UNI I-Teach Mathematics & Science seminar declared majors in mathematics or science teaching (31 of 41)?
  - Combined enrollment of science teaching majors at UNI and ISU is 120, up from 91 last year?
  - Combined enrollment of mathematics teaching majors at UNI and ISU is 130, up from 104 last year?
  - Want to know more? Visit the IMSEP website at <http://www.iowamathscience.org/media2/facts.shtml>

## Happy New Year from IMSEP

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The Iowa Mathematics and Science Education Partnership would like to express our gratitude for your dedication and support over the last year in helping Iowa move forward in math and science. From all of us at the IMSEP office, our partners and collaborators at Iowa State University, University of Northern Iowa and University of Iowa, have a happy and safe 2010!