Final ICORE Proposal
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a. Abstract

Original Abstract (150)
In order to introduce students to various biotechnology / molecular biology techniques, my AP Biology class will be studying the molecular characteristics of the tomato spotted wilted virus infected peanut. This will also allow students to understand and appreciate the extent of emerging pathogens and their economic burden. Typically, students perceive emerging pathogens as only affecting humans. This exercise will bring a larger perspective to them, gain an appreciation of how these pathogens evolve and allow working hands on in the topic. It will also provide a platform to launch a biotech program at our school, MAST Academy.

Final Abstract (141)
In order to implement as much as possible of the original proposal but without laboratory equipment, I took advantage of the lecture material that we received at the ICORE course and used it for my lectures. Of my original plan, I designed a series of hypothetical results and gave to my students to analyze as lab-problem activities. Finally, I engaged all my classes in a school wide symposium presentation that started taking place yesterday to disseminate information on infectious diseases of impact in the teenage population. This is already creating a network of resources and support for our school student population. Our school principal is also considering allowing a spring semester course on biotechnology. Last but not least, our parent-teacher-student association has initiated a remarkable effort to repopulate our lab equipment and supplies by the start of classes August 2011.

Methods (What approaches - exam, group activity, etc did you use?)
As I presented my initial proposal by the end of the ICORE course, and even as I had return to school, I had not counted on the many unforeseen circumstances that plagued this year, which I will detail by categories.

Laboratory:
- Lab lack of ways to sterilize material – autoclave ceased working a year ago
- Lack of consumables until October
- Lack of vertical protein gel electrophoresis equipment and power sources
- Gas was unavailable for months until I dived under the lab stations, forced the rusty panels open and got each individual valve open.
- Filtered water was another main issue (pH ~ 5)

Technology
- My 6 computer laptops were never operational
- The school doesn’t have enough hubs presently at the library to have Mission Biotech installed

Human Resources
- Lack of a much promised student lab assistant
- Loss of funding to have graduate student TAs
- Our lonely IT person was shared among schools and was never able to install MBt. Recently, all IT personnel were massively pink-slipped and a few will be hired back during the summer on an hourly-paid fashion.
• For the year 2010-2011 we lost 4½ teaching positions at our 40 teacher total school, and this upcoming year, we are losing at least 1 positioned, and it is in our science department. More cuts will come through next week or during the summer. Hence, the ones who remain are loaded with additional duties.

Given that lab work was at a halt, I put all my classes to do an infectious diseases research. 2-3 students were paired to do research on infectious diseases of humans, including TB, HIV, Herpes, Mononucleosis, and on autoimmune diseases, such as Crohns, Lupus and Diabetes type I. The presentation includes body systems involved (part of our normal curriculum, so just a refresher), the molecular biology of the disease and latest approaches to diagnosis and treatments, the epidemiological data for Miami and/or Florida, specially for ages 14-19, psychological aspects to the diseases and what students can within our school to support other students with these conditions.

The honors biology students (all 75 of them) will do their presentations as part of their finals. One of my periods already did theirs yesterday. The other two periods will present next week. My AP biology classes (34 students) were presented with this assignment after the College Board test. They will present to the whole school in a symposium style next week before finals. Since I sent my students throughout the year to view kidney transplants at the Jackson Memorial Hospital Center for Transplants, we will have the manager of the facility, Ms. Elizabeth Kourtesis as a guest. I expect my students will cause a stir in the school community at large and to their peers out of school. I expect that what they are presenting will be discussed as an example around town.

**Results, outcomes**
My students are presenting a school wide symposium this upcoming week just before finals. We expect a peer-to-peer impact. The honors biology classes will ask questions to the AP biology presenters that will hopefully elicit a discussion. But most importantly, it will place the presenters as educated resources for the school community at large on issues that are important for their peers.

Students are already talking about forming a health club at school to maintain as a informational resource. Our outreach coordinator has also invited some select students to join them in the recruitment that we do to school around the county.

**Modifications, suggestions for future implementation.**
The ICORE course is outstanding. All the material that I took with me was shared and used to its maximum. Your flexibility and availability are superior. I would like to live to higher expectations.

☐ Please include examples of methods, assessments, pictures, and results, as applicable.
My students will do oral presentations by years end. I will try to film them and send them to you.

**b. Other key information:**
☐ How did you accomplish your aims/objectives?
I actually used the lecture material from the ICORE presentations and use it for my lectures. I will continue using the material at least in a lecture type fashion until we get the minimum
equipment to implement my plan. I described the plan to my students and gave them theoretical outcomes that we discussed as a lab assignment.

Describe the student population in which the activity was tried.
11th and 12th graders of AP biology and 9th graders of honors biology. About 50% male:female ratio, with a 60% majority of Hispanics.

What additional activities/outcomes? (in-service, site visits, etc)
I presented the ICORE lectures to the science department, and shared the material too.

How have you helped spread to community?
I have presented the material I obtained at ICORE to my department and have shared the material that we were given. Of special use were the HHMI videos. However, given the lack of lab funding this year, we were all very limited in our activities. Recently, I presented this opportunity at a District Science Department Chair meeting and brought in the information for the ICORE course to be distributed throughout the schools.

How are you disseminating the information gained during the Summer Institute?
After these activities, students have asked me to attend the summer programs for juniors at UF. I share it with colleagues and with the school at large through my students’ lead school-wide symposium presentation.
Next year, hopefully the symposium will include the outcomes of their research and that will make teachers aware of the possibilities that can be achieved and students about the importance of epidemiological studies.
In addition, depending on the district budgetary meeting next week, my school may get a semester course approved to teach Biotechnology at MAST.

How has this helped you personally?
I am still very enthused about trying to implement my proposal next year 2011-2012, if we still get access to the loaner material and can ask for visits. With the help of our parent-student-teacher association we will be able to get the funds to get the equipment. The most needed autoclave is actually on its way to school and will be installed over the summer. The many other requests on our wish list, from computers to consumables, will hopefully be taken care of, too. It always ends up being that goals get accomplished when we work as a community. Students talked to their parents, parents to the administrators, and now we are all fundraising together. I have faith in what this upcoming year will bring to our school.
This summer I will not be able to take another course for a variety of job related issues, including having to prepare interim assessment preparation test banks for my school’s biology courses, not only the ones I teach, but also all the others that will be assessed with an EOC this upcoming year. Also, I will have to prepare labs for a new incoming chemistry teacher, given that two of our teachers are retiring. In addition, I will be tutoring to get some extra funds considering the cuts we will be receiving in stipend and salary.
I am sure that the line the HHMI-ICORE course added to the curriculum was determinant on helping me get the Beckman Science Teacher Educator of the Year Award, 2 weeks ago.
My future plans are to take another course and to apply for a summer research position at UF for the summer of 2012.