

# Examples of educational elements from current NSF CAREER awards

PI and collaborators will develop interdisciplinary lab course (optical microscopy)

*integrate high school — graduate students into research program*

develop virtual online lab based in PI's experimental data

*develop permanent museum exhibit*

develop a new mobile science facility (BioBus): outreach to minority-serving schools

*work with high school students and undergraduates to develop hands-on experiences to convey key scientific concepts in undergraduate curriculum*

develop a program (ELECTRoDE) which integrates student and faculty at underrepresented institutions into year-round research

*development of new course material for both K-12 students and undergraduates to attract them to computer science*

plan to develop workshop-like demonstrations for students who learn in different ways — with venues at unusual (non-traditional) places like college dorms and high school classrooms

*offer school outreach program in partnership with elementary schools*

incorporate research into undergraduate and graduate courses

*develop a mentoring network for female science students*

organize science exposure day for middle school students, primarily for underrepresented groups in STEM

*create summer program for undergraduates — tied to PI's research program (share techniques and excitement in that research field)*

develop lab for existing undergraduate course

*develop new graduate-level course which integrates both a lab and a lecture component*

collaboration with a local start-up company

*institute a new science chapter of IEEE*

develop a problem-solving course connected with training a Putnam team

*create "Math Challenge" after-school program for gifted elementary and middle-school students*

organize summer school for young researchers

(continued...)

develop interactive, web-based learning programs

*provide a Saturday lecture series at a public venue (e.g., museum)*

commitment to provide public presentations and demonstrations

*augment the instructor education structure for the “Gateway to Technology” program — part of a nationwide non-profit middle school technology curriculum that encourages involvement of women and minority students*

host an annual teacher workshop

*organize semi-annual visiting days to PI’s research center for middle school students*

train high school teachers in research lab environment to develop science projects for the high school curriculum

*organize yearly undergraduate research symposium (lectures by senior mathematicians; presentations of project work by undergraduates)*

develop an interdisciplinary undergraduate course

*create a student design competition (engineering)*

interact with an existing NSF REU program

*develop a campus-wide undergraduate course on technical writing and communication (with a collaborator)*

visit minority-serving institutions; talk and host workshops on graduate studies, funding opportunities, academic career opportunities

*collaborate with NSF-RET program to provide research experiences for secondary math and science teachers*

build collaboration with Mexican institutions

*develop and coordinate a Young Physicist Program as a form of outreach for middle school and high school students*