

Dept: **Biochemistry and Molecular Biology**

Course No: **MGS 5151**

Title of Course: **Innovation in Agriculture and Science for High School Teachers**

Mayo Clinic Rochester is sponsoring an educational program intended to strengthen the content knowledge of high school biology teachers in the areas of molecular biology and genomics. The program will include a low stress, one-week class taught by Ross Aleff that will include:

- Hands-on training in molecular biology theory and laboratory techniques containing 3 separate blocks:
 - Milk and cheese testing
 - Soil testing for fungi, bacteria and *B. subtilis*
 - Genetically modified crops and food
 - Genomic identification of (bovine and goat) genes in milk and cheese
 - PCR
 - DNA Extraction
 - Gel Electrophoresis
- Within the block, teachers will learn the concepts of DNA extraction and purification; PCR; DNA sequencing; and restriction digestion in fungi and bacteria for soil and milk testing.

The week-long class will run from June 20-24, 2011, 8 AM to 4 PM in the Mayo Clinic Molecular Biology teaching lab (Stabile 12-62).

Participants must attend the entire week class (1 credit), incorporate the a portion of the science unit in their classroom during the academic year or use of the Mobile Science Laboratory (1 credit), and either take a summer refresher course or use the Mobile Science Laboratory a second time during the 2011-2012 academic year (1 credit). Three graduate credits from the Mayo Graduate School will be available to participants who complete all sections of the year-long program. Teachers only attending the one week summer session will receive 1 graduate credit. There will be no charge for the class or graduate credit.

The long-term goal of this program is to develop an interactive group of teachers who will incorporate molecular biology and genomics instruction into their classrooms. Teachers will be expected to interact with Mayo Clinic staff and other teachers in the program to enhance the instruction of the curriculum unit during the academic year. All consumables including Zymo soil kits will be provided for the teacher's classroom once they have scheduled the Mobile Science Laboratory. Instructional support by Ross Aleff will be available to facilitate implementation of the concepts and activities learned in the class.

This summer's class is open to high school teachers with an on-going agriculture assignment in any Minnesota, Wisconsin or Iowa school. The class can accommodate a maximum of eight teachers.

Please respond by April 29, 2011.

Upon completion of the course, teachers will also be eligible to use the Mobile Science Laboratory. The mobile laboratory contains all the necessary equipment and consumable items to perform all the experiments used in the Mayo summer program. The laboratory contains enough equipment for 30 students to be trained in one session.

For more information, please see the following website.

<http://www.ssc.coop/ssc/cwp/view.asp?A=3&Q=274767>

Please send your Name, School, and e-mail address to: milliken.jennifer@mayo.edu

Type **June Agriculture Course** in the subject line.