



EMMANUEL COLLEGE

The Center for Science Education



SUMMER 2011

Science Content Professional Development Courses for Secondary School Science Teachers

The Center for Science Education at Emmanuel College is offering science content professional development summer institutes at minimal cost for teachers - a \$40 registration fee for each course. Each course meets for four six-hour sessions (8:00 a.m. to 2:30 p.m.) providing 24-28 Professional Development Points depending on assignments. Participants may elect to take a course for two graduate credits at a fee of \$125.00 per credit.

Biology in the Big Picture **June 27-30, 2011**

Dr. Josef Kurtz, Associate Professor of Biology

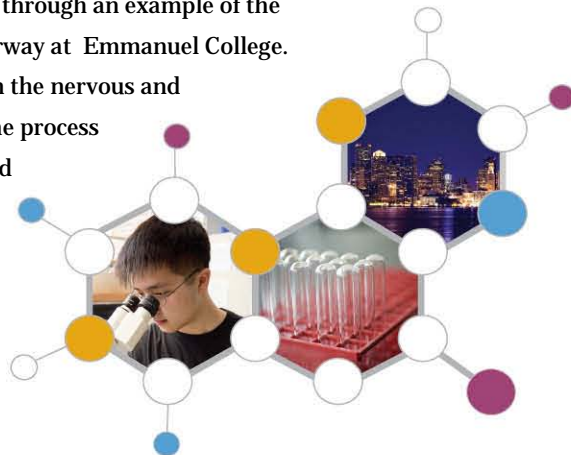
The world of science is often perceived as existing in a vacuum; the dispassionate search for 'truth' independent of influence and bias. In reality, the practice of science sits right at the intersection of knowledge impacting fields such as law, politics, literature, art, religion and business and being equally subject to influence from these fields and others. What would the science be in going to the moon without Jules Verne? What impact will knowing your genetic sequence have on your future job options? Does prayer play any role in surgical outcomes? We will address these questions (and many others) as we investigate the role of science in the larger world around us.

Neuroscience and Immunology **July 11-14, 2011**

Dr. Josef Kurtz, Associate Professor of Biology

Dr. Todd Williams, Associate Professor of Biology

Neuroscience and immunology represent two of the fastest growing sciences in biomedical research. The scope of both of these fields incorporates genetics, cell biology, molecular biology, systems physiology as well as advanced lab techniques including imaging, DNA analysis and both *in vitro* and *in vivo* assays. In this institute participants will be led through an example of the interdisciplinary approach used in the joint ongoing research project currently underway at Emmanuel College. During these four days time will be split between discussions of the interplay between the nervous and immune systems followed by hands on lab work that will take participants through the process of studying the function of microglial cells, cells that originate in the bone marrow and migrate into the central nervous system. These studies will have important implications in further understanding such diseases as Alzheimer's, Parkinson's and Multiple Sclerosis.



The Physics and Biology of DNA
July 25-28, 2011

Dr. Ana Otero, Special Instructor of Biology
Dr. Allen Price, Assistant Professor of Physics

DNA is the central molecule of life. In addition to being of great biological importance, DNA also provides beautiful examples of basic physical principles. Through lectures, discussions and laboratory and computer exercises participants will learn about the biological role of DNA and its physical properties. Participants will see a demonstration of how biophysical data can be collected from single molecules of DNA and be guided through the analysis of actual data. There will be group discussions on how instruction in both the life and physical sciences can be enhanced by using DNA as an example.

Using Genomics to Investigate Gene Structure
August 22-25, 2011

Dr. Paul March, Professor of Biochemistry

The course will cover the science of Genomics and how genome data can be applied to develop inquiry based investigation into gene structure and function. Through lectures, discussions and computer laboratory exercises participants will learn the basic science and applications of genome sequencing. Hands on experiences will include interactive computer-based research projects using an ongoing scientific investigation, free software and public databases.

Notes

- Enrollment is restricted to 16 per class and is on a first come, first served basis.
- 24 to 28 PDPs will be awarded depending on attendance and participation.
- To register complete the attached form and return with a \$40 check made out to Emmanuel College to: Diane Bissaro, Emmanuel College, 400 the Fenway, Boston, MA 02472 bissardi@emmanuel.edu

Please check the course you would like to attend:

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June 27-30, 2011

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NAME _____ DATE _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ E-MAIL _____

SCHOOL _____