CNAS Public Lecture Series – Spring 2013

Temple Hall 002

February 12, 2013 7:30 PM – 8:30 PM

THE ROLE OF ENDURANCE RUNNING IN THE EVOLUTIONARY HISTORY OF HUMANS

Speaker: Dr. Brian Greene, Associate Professor, Department of Biology

Distance running became a widespread form of exercise during the 1970's and has continued to increase in popularity since then. In 2011, over half a million runners completed marathons in the United States alone. However, distance running is not a popular spectator sport, suggesting that its popularity is motivated by a personal attraction to the activity. But why do we like to run? In general, humans are considered to be poor athletic performers, being weaker, slower, and less agile than most quadrupedal mammals and even other primates. However, we are exceptional distance runners and are able to outperform most other species in endurance tasks. Anthropologists have suggested that our upright bipedal posture is a key adaptation for endurance running that extends back through our ancestry over 3 million years. This unique body structure, in combination with a suite of characteristics that facilitate heat dissipation during exercise, allowed our ancestors to successfully hunt large, fast prey by pursuing them to exhaustion. This presentation will integrate recent information from studies in anthropology, exercise science, physiology, and neurobiology suggesting that our interest in endurance running is not merely a fitness fad but an artifact of our evolutionary history.

March 19, 2013 7:30 PM – 8:30 PM

TEACHING TODAY'S STUDENTS MATHEMATICS WITHOUT TEXTBOOKS

Speaker: Dr. Lynda Plymate, Professor, Department of Mathematics

Teaching and assessing mathematics is rapidly changing as a result of visual and dynamic technologies and students' motivation and ability to work/play with these new resources. Adding to this instructional technology is a pedagogy shift of teaching to a one-to-one classroom environment (one computer per student), initiated in southwest Missouri last year by the Joplin School District deciding to replace all high school textbooks lost in the tornado with a computer for each student's use. This one-to-one classroom format is spreading quickly, especially to neighboring districts, and the mathematics teachers are attempting to transition into a new style of teaching. I have been fortunate to receive two grants that explore this paradigm shift, one to observe and assist secondary math teachers from these nine southwest Missouri school districts transitioning to one-to-one environments, and a second to move two mathematics courses I currently teach into a blended format. During this presentation I will report what I am learning about this shift, to include the following topics:

- the "new" student (young and old)
- school structures and decisions necessary for a one-to-one classroom environment
- free or inexpensive instructional resources
- development of online instructional modules
- "flipped" and "blended" classrooms
- performance based assessment

April 16, 2013 7:30 PM – 8:30 PM

WATER, LAND, AND SOCIAL/ENVIRONMENTAL SUSTAINABILITY IN THE AMAZON BASIN

Speakers: Dr. Diann Thomas, Senior Instructor, Department of Chemistry and
Dr. Alexander Wait, Professor, Department of Biology

The Amazon Basin is the largest basin on the planet and also one of the least understood. Its drainage area covers more than one third of the South American continent, and its discharge contributes almost one fifth of the total discharge of all rivers of the world. The human density in the Amazon Basin is very low and people are concentrated in urban centers. However, despite the high proportion of the population living in urban areas, the economy of the region is still primarily dependent on the extraction of exportable minerals, oils and forest products, all of which have important implications for the quality of water in the Amazon Basin. The importance of the Amazon forest in regulating the hydrological and carbon cycles has only very recently been recognized and the consequences of the large-scale deforestation, mining, and oil production are not well understood. Within this landscape, people live their lives within a framework that necessitates some environmental sustainability, while in the United States, environmental sustainability is more of a conscious choice. We will explore the impacts of human activities on water quality and land in the Amazon Basin, while exploring social/environmental sustainability. Our presentation will illustrate the great beauty of the Amazon, its role in global ecology, the social and political landscape of Ecuador, and issues related to social/environmental sustainability through the lens of a biologist and chemist from the United States.

PARKING WILL BE AVAILABLE IN LOT 4, SOUTH OF TEMPLE HALL