

#### 24. ELECTROTHERAPY

(David Lachowski, Physical Therapist, WNY Physical Therapy Group P.C.)

Learn how electricity can be applied to a patient to help reduce pain, decrease swelling, and increase muscle strength. Lecture/demonstration will be presented.

#### 25. ICE AGE ANIMALS, PLANTS AND PEOPLE OF WESTERN NEW YORK

(Dr. Richard Laub, Curator of Geology, Buffalo Museum of Science)

Highlights of excavations over the past years and how the specimens uncovered are used to reconstruct Ice Age Western New York and its inhabitants.

#### 26. HAZARDOUS WASTE INVESTIGATIONS

(Richard P. Leonard, Environmental Scientist, U.S. Army Corps of Engineers)

Activities involved with soil and groundwater investigations at hazardous waste sites will be described and illustrated. Importance of chemistry and earth science training will be emphasized.

#### 27. ENVIRONMENTAL ENCOUNTERS: INSIDE & OUT

(Dr. Anne Meyer, Principal Research Scientist, Center for Biosurfaces, SUNYAB)

The worlds of environmental science and biomedical engineering are really one world. The concepts that govern the interaction of the body (the internal environment) with artificial hips, intraocular lenses, and synthetic blood vessels are the same as the principles that control how barnacles and tubeworms attach to the sides of ships, and how zebra mussels in the Great Lakes attach to power intakes and rocks. This session will depend on student participation to

discuss these concepts and to demonstrate several of the devices used to take advantage of natural processes in the internal and external environments.

#### 28. CHIROPRACTIC HEALTH CARE

(Dr. Robert Owens, Chiropractor, Eden Chiropractic)

Chiropractic: Health care for the 21st century.

Chiropractic is the leader in alternative health care where healing of injuries and illness is achieved without the use of drugs or surgery.

#### 29. INFECTIOUS DISEASES

(Beverly Roe, Prof. of Biology/Dept. Chair, ECC South)

An overview of new and old infectious diseases and what they do to us.

#### 30. NATURE IN FOCUS

(Paul Schnell, Founder/Director Institute for Environmental Learning)

Learn the basic of nature photography and how to improve the quality of your images. Some slides and tricks of the trade will be shared by a published wildlife photographer including a display of actual equipment used in the field.

#### 31. THE CHALLENGING FIELD OF PLASTIC AND RECONSTRUCTIVE SURGERY

(Dr. Samuel Shatkin, Jr., Plastic Surgeon, Aesthetic Associates Centre)

Introduction to plastic and reconstructive surgery through a slide presentation. This will include advances in the state-of-the-art technology of laser wrinkle removal. Discussion will also include reconstruction of birth deformities, injuries and cancer defects, as well as popular procedures for cosmetic surgery.

#### 32. NEW HORIZONS IN DENTISTRY

(Dr. Todd Shatkin, Dentist, Aesthetic Associates Centre)

A slide presentation and discussion to illustrate the newest techniques in general dentistry and in cosmetic dentistry; including bonding, bleaching, porcelain veneers and tooth colored fillings as well as the latest, most specialized procedures in dental implants.

#### 33. PHYSICS OF SOUND & DIGITAL PROCESSING

(Robert Ventola, Science Instructor, Ken-Ton Schools)

Introduction to physical properties of soundwaves.

Demonstration of digital sampling and recording. Students can see and hear first-hand how echoes and effects are created. Overview of midi music. Elements of sound recording will be shown.

#### 34. TRAINING, CAREERS AND ROLE OF THE VETERINARY TECHNICIAN

(Lynn Wittmeyer, Veterinary Technician, Medaille College)

A slide presentation to illustrate the training of a Veterinary Technician. Employment opportunities and state licensure will be covered. Emergency first aid and CPR all pet owners should know will be practiced, along with general animal health issues.

#### 35. PRESERVING OUR NATURAL WORLD

(Matthew Zymanek, General Manager, Hawk Creek Wildlife Rehabilitation Center)

An overview of Hawk Creek Wildlife Rehabilitation Center and their work to preserve our environmental heritage. From rehabilitation, breeding and education, Hawk Creek is a multifaceted organization. Includes live birds of prey.

## LARGE GROUP LECTURE DEMONSTRATIONS

#### SCIENCE IN EVERYDAY LIFE

(Dr. Donald L. Bird, Associate Professor, Science Education, Buffalo State College)

"Touch and Play" with some science in your everyday world. All too often we go about our lives not thinking about those things which influence what we do and what we see.

#### THE COLD, COLD WORLD OF CRYOGENICS

(Robert McClellan, Technologist, Praxair)

Lecture and demonstration on cryogenics. Uses, effects and properties of cryogens. Many fascinating experiments done using cryogenic liquids.

#### LABORATORY ANIMALS IN CANCER RESEARCH

(Mike McGarry, Director, Lab Animal Resources, Roswell Park)

The humane care and use of laboratory animals in the study of malignant disease of animals and humans is of great concern to the professional scientist and society at large. Selected animal models and their husbandry/health requirements will be discussed.

#### WHAT WOULD EINSTEIN SAY ABOUT ALL THIS?

(Dr. Ronald Palmer, Principal Engineer, West Valley Nuclear Services)

Albert Einstein reflects on the 100 years since the discovery of radium. Beginning with the exciting times of early discovery of radioactive materials and the development of the theories of relativity, through the production of atomic weapons and nuclear power plants, and up to the present challenges of radioactive waste disposal, Dr. Einstein has many important and prescient comments. Come and review the first 100 years of radioactivity!

#### THE REVOLUTIONARY INCREASE IN WEATHER DATA RESOLUTION

(Don Paul, Chief Meteorologist, WIVB TV)

This program will examine the change from primitive atmospheric models on a continental scale to higher resolution regional models, along with the advent of Doppler Radar, Wind Profilers, automated remote sensing and surface observations.

#### ENDANGERED SPECIES/C.I.T.E.S. TRADE IN WILDLIFE

(Margo A. Pfohl & Andrew Steelman, Wildlife Inspectors, U.S. Fish and Wildlife Service)

Import and export of wildlife and endangered species. Buffalo is an international border port. Inspectors are responsible for monitoring the international wildlife trade in commercial products. Film, slides and display.

#### HEAD/SPINAL CORD INJURY PREVENTION

(Krisann Piazza, Think First Coordinator, Millard Fillmore Health System Dept. of Neurosurgery)

Program includes a video, slide presentation, and a question and answer period with people who have sustained a brain or spinal cord injury. The program is designed to educate those at risk (15 to 24) for these types of injuries about the brain and spinal cord, how they're injured, and the best way to prevent such injuries.

*Fifteenth Annual*

## Science Exploration Day 1998

*Turn on  
to Science*

**Tuesday  
May 19**

**SUNY at Buffalo  
Amherst Campus**

*Featuring*

## A SPACE SCIENCE LECTURE DEMONSTRATION

Presented by

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## 1. ELECTRICAL AND COMPUTER ENGINEERING LABORATORIES

(Dr. James J. Whalen, Professor and Chair of Electrical and Computer Engineering, SUNYAB)

Tour and demonstration of various Electrical & Computer Engineering Laboratories: Microwave Lab, Laser Lab, VLSI (Very Large-Scale Integration) Lab, Clean Room for Microelectronics.

## 2. TOUR OF ENVIRONMENTAL HYDRAULICS LABORATORY

(Dr. Joseph Atkinson, Assoc. Prof. Civil Eng., SUNYAB)

The tour will be preceded by a brief discussion of "what is environmental hydraulics" and how it relates to the work done in the area of water resources and environmental engineering. Current research projects will be described and equipment will be demonstrated in the lab including a recirculating water tunnel, sediment flume, tilting channel, and rotating room.

## 3. THIN FILM TECHNOLOGY

(Dr. T. Mountziaris, Associate Professor, Chemical Engineering, SUNYAB)

Tour of the advanced materials processing laboratories in the Department of Chemical Engineering at UB. Projects to be demonstrated include synthesis of diamond films and semiconductor films by chemical vapor deposition. Scanning tunneling microscopy will also be demonstrated.

## 4. ADVANCED MICROSCOPY AND IMAGING LABORATORY

(Dr. Ping-chin Cheng, Associate Professor, Dept. of Electrical and Computer Engineering, SUNYAB)

Tour of the Advanced Microscopy and Imaging Laboratory, including a "virtual reality" display to show three-dimensional biomedical images.

## 5. RADIOACTIVITY - NATURALLY AND UNNATURALLY

(Theodore Adams, Vice President, and Paul Johnson, C.H.P. of B. KOH and Associates, Inc.)

Radioactivity and radiation are often thought to be something relatively new in man's development of his technological environment. But these special properties exhibited by certain natural and man-made materials have been around since the beginning of the earth's creation. Students will participate in an in-class experiment designed to "see" the various types of radiation and experience the types of instruments used to measure radiation in the environment. The program will conclude with a slide presentation of industrial sites contaminated with radioactivity which require remediation/clean-up.

## 6. CAN U C 3-D?: A CONTRAST OF IMAGING TECHNIQUES

(Dr. Francis Bajer, Board Member & Chairman, WNY Science Congress, Inc.)

From your newspapers "Magic Eye" to "ChromaDepth," from anaglyphs to parallax panoramagrams—as contrasted

# SCIENCE EXPLORATION DAY PROGRAM

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with holograms. This program will illustrate the different methods used to emphasize the value of three-dimensional imaging. The probability of color or stereo blindness in the viewing audience will also be discussed.

## 7. WHAT IS SUPERFUND? REMEDIAL ACTIVITIES AT HAZARDOUS WASTE SITES

(Michael Basile, Community Relations Director, U.S. Environmental Protection Agency)

Focus on the Superfund Process, what is the National Priorities List, what happens during a long-term cleanup, who pays, etc.? Will focus on sites the agency is actively involved with in the Western New York area.

## 8. CHROMOSOMES AND CANCER

(Dr. AnneMarie Block, Acting Director, Clinical Cytogenetics Laboratory, Roswell Park Cancer Institute)

Introduction to the field of Clinical Cancer Cytogenetics. Students will receive instruction in this cutting-edge field of genetics, "visit" the laboratory and cut-out an actual karyotype.

## 9. THE HUMAN GENOME PROJECT: LIFE IN THE 21st CENTURY

(Dr. Peter Bradford, Assistant Professor of Pharmacology and Toxicology, SUNYAB)

The human genome project is expected to be completed by the year 2005. The project will produce physical, genetic, and nucleotide maps of the entire human genome contained within the chromosomes and DNA. Detailed information of our 50,000-100,000 genes will produce comprehensive descriptions of our personal make-ups, including our potential genetic predisposition to complex diseases as well as our propensity to develop particular personality traits. What is in store for us? Be prepared! Come and find out.

## 10. LIVE ANIMAL DEMO OF SURGICAL PATIENT MONITORING

(Dr. William James Brown, Veterinarian, Blue Cross Small Animal Clinic)

Jordan, a golden retriever, and Mo, his chocolate lab sidekick, have volunteered to demonstrate how veterinarians monitor patients EKG, blood pressure and blood oxygen during a simulated surgery on a live animal.

## 11. AQUATIC CREATURES OF THE AQUARIUM

(Jeanette Brunner, Coordinator of Education, Aquarium of Niagara)

Learn about the inhabitants of the Aquarium. From penguins to piranhas and everything in between. Find out what it takes to keep the Aquarium's collection alive and healthy.

## 12. MULTIFUNCTIONAL STRUCTURAL MATERIALS

(Dr. Deborah Chung, Professor of Mechanical and Aerospace Engineering, SUNYAB)

A multifunctional structural material is a structural material that exhibits not only good structural properties, but also one or more attractive non-structural properties, such as strain/damage/temperature/light sensing, thermal insulation, anti-static and semiconductor behavior. The use of a multifunctional structural material diminishes or eliminates the need for conventional non-structural materials, such as strain gages for strain sensing, foams for thermal insulation, etc. Thus, its use reduces cost and improves durability. This new direction of engineering research, pioneered by the presenter, will be the subject of this presentation.

## 13. GEOLOGY - THE WORLD IN WHICH YOU LIVE

(Dr. Patricia Costanzo, Asst. Research Prof., Geology Dept., SUNYAB)

A video presenting many of the sub-disciplines of Geology: Hydrology, Volcanoes, Earthquakes, Mass Wasting, etc. Each topic is narrated by the women and men who have made significant contributions to the overall understanding of our home planet.

## 14. MAN & NATURE: CONTROLLING NATURAL DISASTERS

(Andrea Dargush, Assistant Director National Center for Earthquake Engineering Research, SUNYAB)

Earthquakes and other natural disasters affect not only our physical surroundings, but also our constructed and social environments. Scientists and engineers are investigators and problem-solvers, who work together to understand disasters and identify ways to minimize these effects. Learn more about the natural power of disasters and what researchers do to control their impacts.

## 15. DIVE INTO THE SWEETWATER SEAS

(Helen Domske, Associate Director, Great Lakes Program, New York Sea Grant)

The Great Lakes were called the Sweetwater Seas by early explorers due to their vast size and fresh waters. Dive into the Great Lakes with this audio-visual look at the fish and animals that call the Great Lakes home. Learn about research projects and conservation efforts that protect and preserve the Great Lakes ecosystem. Hands-on displays of preserved specimens will highlight the presentation.

## 16. BIOTECHNOLOGY - WHAT ARE THE POSSIBILITIES?

(Dr. Stephen Free, Assoc. Prof., Biological Sci. SUNYAB)

This interesting presentation will provide an introduction to biotechnology and what techniques are involved. Learn about the possibilities involved with biotechnology and the impact they will have on our lives.

## 17. OBJECT-BASED LEARNING: INSECTS FROM NEAR AND FAR

(Dr. Wayne Gall, Curator of Entomology, Buffalo Museum of Science)

Spectacular preserved butterflies, moths, beetles, and other insects from northeastern North America as well as exotic places will be displayed. They will be utilized to demonstrate how interesting scientific concepts can be conveyed using real objects as a focal point.

## 18. ASTRONOMY: PORTABLE STARLAB PLANETARIUM

(Arthur Gielow, Ferguson Planetarium Director, Buffalo State College)

Finding your way around the night sky via a portable planetarium, participants will observe projections of constellations, stars and galaxies learning more about the nature of the universe.

## 19. PARAMEDIC - A CAREER FOR LIFE

(Joseph M. Gonter, Coordinator, EMT/Paramedic Program, ECC South)

EMT personnel need to think quickly on their feet under stressful conditions. If you work well under pressure, emergency medical services (EMS) may be for you. Video and group participation will be featured.

## 20. USING FRUIT FLIES TO UNDERSTAND HOW THE BRAIN WORKS

(Dr. Linda Hall, Professor, Biochemical Pharmacology, UB)

Fruit flies (*Drosophila melanogaster*) look very different from humans but at a molecular level their brains use the same molecular building blocks. We will discuss how genetic mutations in flies are helping us understand brain function. We will see dramatic examples of nervous system mutations and learn how gene therapy provides both a cure and a tool for further research.

## 21. MACHINE DRILLED CAISSONS & PIERS

(Robert Henley, Chair. of Board, Northeast Caissons, Inc.)

A look at various construction projects on the east coast, including powerlines, commercial buildings, and bridges.

## 22. CAN A GENETIC DISEASE BE TREATED?

(Dr. Michael Hudecki, Research Prof., Executive Officer, Biological Sciences, SUNYAB)

Experimental approaches toward treating genetic diseases such as muscular dystrophy will be explored.

## 23. PHARMACY: PRESCRIPTION FOR SUCCESS

(Cindy Konovitz, Asst. Dean, Ann M. Triggie, Museum Dir., Patricia M. Cotter, and Louise M. Cooper, School of Pharmacy, SUNYAB)

See and learn about "Medication Experts" in action. A demonstration of some simple compounding (preparation of medication) and tours of the pharmacy museum and turn-of-the-century apothecary in the School of Pharmacy will be provided.