

INTERCHANGE

May 2005

Volume 12, Number 3

From the Regional Math & Science
Center at Grand Valley State University

*Our Vision: Math and Science: Excitement in
Learning for Success in Living*

*Our Mission: Provide and coordinate
leadership, programs and services to achieve
excellence for all in the teaching, learning and
application of mathematics and science.*

In this Issue...

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Celebration** and **Chemistry Olympiad**
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Sam Rhine returns to GVSU this fall to
talk genetics; **explore crime science** at
Wayland High. *page 8*

New Math Workshops Designed to Meet NCLB

In June, the RMSC will be offering three new workshops designed to enhance the understanding and application of the content and teaching/learning standards in mathematics as presented in the mathematics Grade Level Content Standards (GLCE) and the Michigan Curriculum Framework (MCF). These teacher professional development opportunities will provide a rich understanding of mathematical concepts and help teachers meet NCLB highly-qualified requirements.

see "Workshops Offered" on page 2



Young planetary scientists demonstrate Moon phases. See "Sky Celebration a Success" on page 3

Presenting The 2005 Dockeray Scholarship Winners!

This year's winners are Alyn Kiel from Montague High School and Andrew Mueller from Grand Rapids City High School. These scholarships go to graduating seniors who plan to pursue a career in science. They are in honor of Mary Jane Dockeray, founding curator of the Blandford Nature Center in Grand Rapids.

see "Dockeray Scholarships" on page 2

Workshops Offered

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- **Number & Operations: Rational Numbers for Elementary Teachers**, Grades K-5, June 20 – 23, 2005; 8:00 am – 1:00 pm; GVSU Allendale Campus. During this four session workshop, taught by GVSU faculty members Esther Billings and Pam Wells, participants will focus on the concepts addressed in the Number and Operations strand of the GLCE's through interactive learning situations. Topics will include recognizing, naming, and representing commonly used fractions; understanding and representing equivalent fractions, operating on rational numbers, and translating fluently among fractions, decimals, and percents. This workshop is available for one graduate credit or 3 SB-CEUs.

- **Algebra Concepts I for Elementary Teachers**, Grades K-5, June 27-30, 2005; 8:00 am – 1:00 pm; GVSU Allendale Campus.

INTERCHANGE

Where information is given and received for the purpose of advancing excellence in mathematics and science education. Published six times. Deadline for copy for the next issue of *Interchange* is September 9, 2005.

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These materials were developed under a grant awarded by the Michigan State Board of Education.

During this four session workshop, taught by GVSU faculty members Esther Billings and Pam Wells, participants will focus on the concepts of patterns, relationships, functions, and change that lay the groundwork for more formal work with algebra in later grades. Connections among the Number and Operations, Algebra, and Geometry strands that promote algebraic thinking will be emphasized. This workshop is available for one graduate credit or 3 SB-CEUs.

- **Geometry for Middle Grades Teachers**, June 20-23 and June 27- 30; 9:00 am – 4:30 pm; GVSU Allendale Campus. During this two-week workshop, taught by GVSU faculty member Char Beckmann, participants will learn about a wide range of topics in geometry including the two- and three-dimensional shapes, coordinate geometry, transformation and symmetry, spatial reasoning, and geometric modeling. They will also consider research in how middle grades students learn geometry, applications in school curricula, and connections among content areas. This offering may be taken as a 3 credit graduate course or as a 45-hour workshop.

Detailed on-line brochures for the workshops along with information on registration and fees are available at www.gvsu.edu/rmsc. For more information contact Karen Meyers at (616) 667-2278 or meyersk@gvsu.edu.



Alyn Kiel, 2005 Dockeray Scholar

Dockeray Scholarships

continued from page 1

Alyn Kiel plans to attend Michigan State University in the fall. She will study agricultural science and possibly veterinary medicine. She plans to involve herself in agricultural research projects and serve as a bridge between technology and the people who use it. Alyn currently works in retail and also has several equestrian training jobs. She is an active member of the Montague Equestrian Team and an officer of the Montague Chapter of the Future Farmers of America. She is also a member of the National Honor Society and is in the top ten of her graduating class.

Alyn has volunteered at soup kitchens, community blood drives, and church mission trips among others. Alyn's FFA Advisor says, "I rank Alyn as one of the best student leaders I have ever had. I consider myself lucky to have her as a student and officer within my organization."

Andrew Mueller is graduating from Grand Rapids City High School and he plans to attend Michigan State University to pursue a career in fisheries and wildlife or natural resources management. Andrew's teacher has said, "Andrew is an extraordinary student who is a true pleasure to have in class. He is dedicated to learning and reaching his true potential. His personal qualities are as impressive as his academic record."

Andrew won the Leadership Award from the Mayor of Grand Rapids in 2002. He placed 1st, 3rd, 4th and 5th in his events at the 2004 Regional Science Olympiad Tournament and has most recently served as City High School's Science Olympiad Team Captain.

Andrew has volunteered his talents with the West Michigan

Environmental Action Council, the Nature Conservancy of West Michigan, The Land Conservancy of West Michigan, the John Ball Zoo, the Grand Rapids Civic Theatre, and the Kent County Youth Fair. He has been an active member of 4-H Clubs, both state and local.

Congratulations are extended to this year's winners. The \$1,500 scholarships will be presented at the Spring Science and Math Update Seminar on May 4, 2005.



Andrew Mueller, 2005 Dockeray Scholar

Sky Celebration a Success!

On National Astronomy Day, April 16, 2005, the Regional Math and Science Center at GVSU invited the public to an evening designed to *Celebrate The Sky*. The first part of the evening featured a series of indoor events such as Star Lab, Exploring the Phases of the Moon, Impact Investigations, Views from Hubble, Viewing the Night Sky, and Inside Einstein's Universe. These events were led by GVSU professors, GVSU science clubs, and local science educators. Following these events, sky viewing took place under the leadership of members of the physics department at GVSU and the Muskegon Astronomical Society who generously shared their telescopes as well as their expertise in astronomy. Some of

the highlights that viewers were able to see included the craters of the Moon, the rings of Saturn, and the moons of Jupiter. Over 225 participants of all ages enjoyed the evening of astronomy activities on the Allendale Campus.

The event is one of a series of events planned by the RMSC to commemorate World Year of Physics 2005. It was sponsored by the RMSC, Physics Department, and College of Liberal Arts and Sciences at GVSU with special funding provided by Michigan Space Grant Consortium and Inside Einstein's Universe – Harvard-Smithsonian Center for Astrophysics.

Celebrating Phenomenal Physics

Planning is underway for a science extravaganza for the west Michigan community hosted by the Regional Math and Science Center and Physics Department at GVSU.

The event on Saturday, October 29, 2005 is in conjunction with the year-long series of activities planned for the World Year of Physics 2005 at Grand Valley State University. Educational activities and opportunities will be provided for students and their families to experience the wonder of physics. The focus will be on understanding the diverse phenomena of pure physics, applying physics principles in other science disciplines and the real world, and exploring career opportunities available through the study of physics.

Included in the day will be:

- Hands-on science and mathematics in the labs and classrooms,
- Free standing displays such as a walk-in kaleidoscope and robots,
- Large group demonstrations by GVSU science faculty and guest presenters.

The west Michigan community at-large is invited, along with K-12 students, their teachers and parents, as well as Grand Valley State University faculty, students, and alumni. The tentative times are 9:00 a.m. to 3:00 p.m. and events will take place in Padnos Hall of Science and Henry Hall on the Allendale campus of GVSU. Please plan to join us as we Celebrate Phenomenal Physics.

Chemistry Olympians Advance!

The International Chemistry Olympiad's Local Section Qualifying exam took place at GVSU on Wednesday, March 23. A total of 90 students from 11 area high schools took the exam. The top ten students completed the National Qualifying exam at GVSU on Thursday, April 14. This three-part exam tested chemistry theory and concepts through a multiple choice test, an essay exam, and a laboratory practical. The top ten students were from East Kentwood High School (Brian Koenig, teacher); Hudsonville High School (Kevin Conkel, teacher); Ludington High School (Kathy Winczewski, teacher); Muskegon Catholic Central (Mike Holt, teacher); Rockford High School (Don Seifert, teacher); and West Ottawa High School (Gus Lukow, teacher). The top three students and their schools will receive \$50 from the local section of the American Chemical Society for their efforts. Approximately 1000 students nationwide take this exam. The top 20 attend a chemistry training camp at the Air Force Academy in Colorado Springs in early June. From there, the top 4 compete internationally in Taipei, Taiwan, in July. Good work to the students and teachers. Good luck getting to Taiwan!

Do Hurricanes Affect Michigan?

By Bill Neal, Department of Geology

The December 26, 2004 tsunami demonstrated that far away climatic events impact our lives. Now in the glow of Spring, the 2005 hurricane season nears, officially beginning on June 1st, and it's time to ask the annual question: "Are we learning from past hurricane experience?" The answer seems to be "No" as shoreline communities insist on rebuilding in the same high-hazard coastal zones where future hurricanes are a certainty, and then trying to hold the shoreline in place by building artificial beaches. This latter perceived solution to the problem, that is nourishing beaches by pumping sand from offshore or trucking inland sand to rebuild the beach, brushes aside the fact that sea level is rising (about one foot per century for our Atlantic and Gulf Coasts). To keep apace with this sea-level rise, beaches need to move up in elevation and to retreat landward to retain their equilibrium position with respect to sea level. A one-foot sea-level rise hardly sounds threatening, but along the nearly flat coastal plain that extends from Long Island, New York to Miami, Florida, and along the entire Gulf Coast, that translates to a shoreline shift of 1000 to 2000 feet landward. This relationship explains why beach retreat is on the order of six feet per year along the Outer Banks of North Carolina. Note that the process is beach retreat, not beach erosion, as the beach does not disappear, but simply shifts landward. When buildings are in the path of such

dynamic readjustment, the static structures are eroded and economic loss results.

But isn't this only a problem for the property owners? Not really. Nearly every beach fronting urban-suburban communities along these coastal plain shores has been "nourished," and most of these nourishment projects are funded in part by federal dollars, so taxpayers in Michigan are helping to provide beaches for the tourist industries of communi-

...capital investment between hurricanes is increasing rather than decreasing...

ties from Texas to Florida to New York, as well as encouraging more development (see beach nourishment at www.nicholas.duke.edu/psds/). And the quality of these artificial replacement beaches rarely equals the original natural beach; the beaches have been degraded to protect the property.

And beaches are magnets for development. Population growth in the coastal zone has led to increased building and development, so the capital investment between hurricanes is increasing rather than decreasing. Each new hurricane's cost in damages sets new records in dollar-value losses. And those losses impact the economy far beyond the county or state where the damage occurred. For example, it was reported in a Grand Rapids Press article (9/30/04) that after the 2004

hurricanes in Florida and Alabama, Foremost Insurance with offices in Caledonia Township, Kent Co., had 120 workers handling claims from those storms. All insurers were "expected to take a \$15 billion to \$20 billion hit" from the four hurricanes, wiping out as much as half of their annual profits (Do you think the rates for all of their customers may have gone up the next year?). Hurricane Andrew in 1992 caused numerous insurance companies to go out of business. And more and more federal and state dollars go into disaster planning and recovery. The National Flood Insurance Program is one of the largest entitlement programs underwritten by the federal government. Clearly hurricanes impact the national economy, and it is no surprise that the insurance and banking industries are more and more interested in the dynamics of hurricanes and other natural phenomena. Today's student of business, economics, management and planning needs to know the fundamentals of climate, geology, and oceanography as well as their discipline in order to succeed in a world of global climate change, rising sea level, and potential increased hurricane frequency and intensity.



This page is produced by faculty from GVSU.

GVSU Summer Fun!

Registration continues for the series of Summer Science Adventure Camps (SSAC) to be offered by the Regional Math and Science Center at GVSU. The camps will take place on the Allendale campus during the month of July. The four-day camps are designed for students entering grades 4-8 and cover a wide variety of science topics such as Exploring Flight and Space, Forensics, The Physics of Sports, Digging Rocks, The Physics of Toys and Amusement Parks, and Magic and Fun with Physics. All SSAC camps combine classroom and experiential opportunities as students learn key scientific principles and apply them to real world situations. The camp brochure is available on the RMSC website at www.gvsu.edu/rmsc/ and contains more detail about the camps as well as registration forms. Class size is limited to 16 and the camps fill quickly so you will want to register your child now.

Summer Course in Modern Physics

Do you want to introduce your students to Albert Einstein's breakthroughs in physics, for which we are currently celebrating the "World Year of Physics?" If so, register now for a Summer 2005 course at GVSU, *Modern Physics with Computer Visualization (PHY 670)*. The course provides an in-depth exploration of special relativity and quantum physics taught in an inquiry format. Content will be supplemented with discussions on how to teach these concepts effectively at the secondary level. The course runs June 27 – August 10, MTWTh 9:00 – 10:50 a.m. on the Allendale campus.

This course is one of many offered throughout the academic year as part of the M. Ed. program with Physics Emphasis, although

they are open for all teachers who wish to broaden their understanding of physics content and pedagogy. The only prerequisite for each course is completion of introductory college level physics. For further details, contact Dr. Brad Ambrose at (616) 331-2524.

Teacher Workshop at the Indiana Dunes

Great Lakes Institute 2005: Experience Lake Michigan on board an education vessel, through the goggles of a snorkel and by walking the shoreline! This three day/two night workshop will put participants on board the W.G. Jackson, an education vessel from the Annis Water Resources Institute at Muskegon, MI. Other regional experts will be involved in this in-depth look at our most valuable natural resource—the Great Lakes. Educators will experience a variety of activities, materials and resources to incorporate Great Lakes themes into their classrooms.

- Sessions begin at 9 a.m., Monday, June 27 and continue through 5 p.m., Wednesday, June 29.
- Cost of the workshop is \$150 and includes meals, lodging and lots of materials.
- Worth 2 hrs of graduate credit.

All workshops take place at the scenic Indiana Dunes Environmental Learning Center in Porter, IN and participants will enjoy the retreat-style setting of the cabins and Cowles Lodge of the Learning Center. To register for this workshop, call the IDELC at (219) 395-9555 or email gpidelc@verizon.net for a registration form to reserve a spot.

Participants can earn graduate credit through Indiana University Northwest or Chicago State University, for an extra cost for either workshop. Register directly

with IUN on their website, www.iun.edu. Contact Dr. Ken Schoon at IUN at (219) 980-7766 for more information. To register with CSU, contact Mike Siola at (773) 995-2964.

Professional Development

GVSU's Integrated Science Program is proposing a Title II grant that, if funded, will provide 90-hours of MDE approved professional development for science teachers. If you have three or more years of teaching experience you may use this option as part of a district approved program to become "Highly Qualified" to teach Science.

If you are interested in enrolling in this program please contact the Integrated Science Program office at (616) 331-2273 or email josephj@gvsu.edu.

Hope Offers Summer Science Camps

Hope College Summer Science Camps registration has begun. This year we are offering 29 week long, half-day camps. They are designed to present hands-on learning in an exciting way. For complete information and to register, check out our website at www.hope.edu/camps. The camps fill very quickly, so don't delay.

Sessions include: K2 Mystery Crew, Crime Scene Investigation, Demented Dissection, Lego Engineering, Extreme Construction, Petra: Lost City of Stone, Mini Boot Camp, Natural Disasters, Sssuper Dissection, HammerTime Construction, Lego Robotics I, Space Patrol, Lego Robotics II, Prehistoric Planet, ER, Club Vet: Animal Science, Fantastic Food Science.

CALENDAR OF EVENTS

MAY

14 Sunday

Migration Bird Count at Howard Christensen Nature Center from 8:00a.m. to 5:00p.m. This is part of a continent wide survey to document bird locations on a given day during bird migration. It's a fun process that helps teachers, students, and citizens. Contact Ranger Steve (Mueller) at stevemueller@kentisd.org or (616) 887-1852.

16 Monday

Guided Wildflower Walk. From 7 – 8 p.m. at the Wittenbach Agriscience and Environmental Center and Wege Natural Area, 11715 Vergennes, Lowell, MI. Call (616) 987-1002 for details.

JUNE

13-17 Monday-Friday

WMU's **Michigan Ecology in Your Schoolyard** by Mark Fitzpatrick for teachers grades K-8. Classes meet at the Blandford Nature Center in Grand Rapids on June 13-17 from 8:30 a.m. to 4:30 p.m. (plus June 15, 7:00-9:30 p.m.) for three graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

WMU's **Groundwater Teacher Training Camp** by Dr. Duane Hampton for teachers grades K-12. Classes meet on the Battle Creek campus on June 13-17 from 8 a.m. to 5 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

20 - 30 Monday-Thursday

GVSU's two week **Geometry for Middle School Teachers** by Dr. Char Beckmann. Classes meet on the Allendale Campus on Monday through Thursday from 9:00 a.m. to 4:30 p.m. each week. Available for 3 graduate credits. More details available at www.gvsu.edu/rmsec.

20-23 Monday-Thursday

GVSU's **Number and Operations: Rational Numbers** by Drs. Esther Billings and Pam Wells. For teachers grades K-5. Classes meet on the Allendale Campus on Monday through Thursday from 8:00 a.m. to 1:00 p.m. Available for 1 graduate credit. More details at www.gvsu.edu/rmsec.

20-24 Monday-Friday

WMU's **Matter Matters** by Gregg Zulauf for teachers grades 6-12. Classes meet at the MAISD Regional Math/Science Center, Muskegon, on June 20-24 from 8:30 a.m. to 4:00 p.m. for one or two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

WMU's **Crime Scene Investigation (CSI) and Science – Secrets Revealed** by Dr. John Goudie for teachers grades 4-12. Classes meet at the Kalamazoo Area Math and Science Center on June 20-24 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

27-30 Monday-Thursday

GVSU's **Algebra Concepts I** by Drs. Esther Billings and Pam Wells. For teachers grades K-6. Classes meet on the Allendale Campus on Monday through Thursday from 8:00 a.m. to 1:00 p.m. Available for available for 1 graduate credit. More details available at www.gvsu.edu/rmsec.

27-July 1 Monday-Friday

WMU's **Astronomy for Elementary Teachers** by David Nette for teachers grades K-6. Classes meet at the Battle Creek Kendall Center on June 27-July 1 from 8:30 a.m. to 4 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

27-July 1 Monday-Friday

WMU's **On/Minds-On: Exploring the Nature of Science and Scientific Inquiry** by Dr. Renee' Schwartz for teachers grades K-12. Classes meet at Room 1127 Wood Hall, WMU Campus on June 27 to July 1 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

JULY

5-8 Tuesday-Friday

Exploring Flight and Space Camp I, session 1 for students entering grades 4, 5, and 6. 9:00 a.m. to 3:00 p.m. on the Allendale Campus of GVSU. Additional details at www.gvsu.edu/rmsc/.

The Physics of Sports for students entering grades 6-7. 9:00 a.m. to 3:00 p.m. on the Allendale Campus of GVSU. Additional details at www.gvsu.edu/rmsc/.

11-14 Monday-Thursday

Exploring Flight and Space Camp I, session 2 for students entering grades 4, 5, 6. 9:00 a.m. to 3:00 p.m. on the Allendale Campus of GVSU. Additional details at www.gvsu.edu/rmsc/.

11-15 Monday-Friday

WMU's **Crystals, Minerals and Rocks for Elementary Teachers** by Dr. John Grace for teachers grades K-6. Classes meet at Room 1206 Wood Hall, WMU Campus on July 11 to 15 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

WMU's **Constructing Ideas in Physical Science** by Dr. Robert Poel for teachers grades 6-9. Classes meet at the Southwest Regional Campus on July 11-15 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

CALENDAR *OF* EVENTS

17-22 Sunday-Friday

WMU's **Environmental Education and Outdoor Science** by Dr. Mark Jenness for teachers grades K-12. Classes meet at Higgins Lake, Ralph A. MacMullen Conference Center, Roscommon, MI on July 17 to 22 from 8:00 a.m. to 5:00 p.m. for one or two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

18-21 Monday-Thursday

Forensic Science for students entering grades 4, 5, and 6, 9:00 a.m. to 3:00 p.m. on the Allendale Campus of GVSU. Additional details at www.gvsu.edu/rmsc/.

Magic and Fun with Physics for students entering grades 4, 5, 6, 9:00 a.m. to 3:00 p.m. on the Allendale Campus of GVSU. Additional details at www.gvsu.edu/rmsc/.

18-22 Monday-Friday

WMU's **Activities in Outdoor Education** by Larry Fegel for teachers grades 3-9. Classes meet at the Outdoor Discovery Center, Holland, MI, on July 18-22 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

WMU's **Sound and Simple Machines** by Dale Freeland for teachers grades 7-12. Classes meet at Room 1413 Wood Hall, WMU Campus on July 18 to 22 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

WMU's **Atmospheric Science** by Dr. Joseph Stoltman for teachers grades 7-12. Classes meet at Room 1413 Wood Hall, WMU Campus on July 18 to 22 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

25-28 Monday-Thursday

Digging Rocks for students entering grades 4, 5, 6, 9:00 a.m. to 3:00 p.m. on the Allendale Campus of GVSU. Additional details at www.gvsu.edu/rmsc/.

Physical Science of Toys and Amusement Parks for students entering grades 6, 7, and 8, 9:00 a.m. to 3:00 p.m. on the Allendale Campus of GVSU. Additional details at www.gvsu.edu/rmsc/.

25-28 Monday-Thursday

WMU's **Classroom Science Centers and Teaching Collections** by Dr. Mark Jenness for teachers grades K-8. Classes meet at the Battle Creek Kendall Center on July 25-July 28 from 8:30 a.m. to 4 p.m. for three graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

25-29 Monday-Friday

WMU's **The Geology of Lake Michigan's Shoreline** by Dr. Ronald Chase for teachers grades K-12. Classes meet at the Traverse City EUP Campus on July 25-29 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

1-4 Monday-Thursday

Crime Science Through Laboratory and Inquiry Education workshop for middle and high school science educators at Wayland High School, Wayland, MI, 9:00 a.m.-2:30 p.m. Contact Brian Bollone (bbollone@nvps.net) or Pat Nelson (Pnelson@wayland.k12.mi.us).

1-5 Monday-Friday

WMU's **Becoming a Master Teacher of Physical Science** by Gregg Zulauf for teachers grades 6-12. Classes meet at the Grand Rapids Graduate Center - Beltline in Grand Rapids on August 1-5 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

8-12 Monday-Friday

WMU's **Teaching Science with Toys Using Inquiry-Based Instruction** by William Burd for teachers grades 2-6. Classes meet at the Stevenson Center for Higher Education, Muskegon, on August 8-12 from 8:30 a.m. to 4:00 p.m. for two graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

SEPTEMBER

27 Tuesday

Sam Rhine presents **Genetic Update Conference**. See details at www.samrhine.com.

AUGUST

1-4 Monday-Thursday

WMU's **Classroom Science Centers and Teaching Collections** by Dr. Mark Jenness for teachers grades K-8. Classes meet at the Battle Creek Kendall Center on August 1-4 from 8:30 a.m. to 4 p.m. for three graduate credits. For additional details see "Summer Science Workshops" at www.wmich.edu/science.

Explore Crime

The *Crime Science Through Laboratory and Inquiry Education* workshop invites any middle and high school science educators from across Michigan to Wayland High School, Wayland, MI. August 1-4.

Forensic Science is the application of the methods and techniques of the basic sciences to legal issues. Most often a criminalist analyzes, compares, identifies, and interprets physical evidence through objective means. As many know of you know, Forensic Science is a very broad field of study making it interdisciplinary within scientific fields (Biology, Chemistry, Physics, Geology, and Biochemistry) and other core academic areas. And, given all the media attention and popularity of television shows such as *C.S.I.* and *Forensic Files* which glamorize and oversimplify the science being done, developing an appropriate science based course with state and national standards is a key focus of the workshop.

Now, more than ever, teachers need professional development opportunities, support and encouragement to accomplish the

development and design of a forensic science course. The goal of this highly interactive course focuses on increasing science teachers' knowledge of the forensic sciences by providing them the background materials (500+ pg notebook) to enrich and/or to develop challenging, innovative curricula, and allow participants to work with common laboratory materials.

The Forensic Science workshop begins on Monday, August 1, from 9:00 a.m.-2:30 p.m. with guest speakers from local, county and state law enforcement units. The workshop will focus on: curriculum development, entomology, anthropology, physical evidence, glass and sand analysis, microscopy of hairs and fibers, paint analysis, fingerprint identification, firearms analysis, tool impressions, document analysis, toxicology, and mystery story writing.

Make plans to attend this workshop this summer- it will be a great opportunity to jumpstart your school district's forensic science unit/program/course. For more information or questions, please contact workshop coordinators Brian Bollone (bbollone@nvps.net) or Pat Nelson (Pnelson@wayland.k12.mi.us).

Sam Rhine at GVSU this Fall

On Tuesday, September 27, 2005, Sam Rhine, a nationally known genetics lecturer, will return to Grand Valley State University to present his *Genetic Update Conference*. This year's conference will feature Prions, RNAi, Gene Therapy, and Stem Cell Therapy. Dr. Rhine develops his programs by researching over 1500 scientific articles from over 100 journals monthly to be sure every presentation has the most current information available.

This all-day conference is designed for high school students and their teachers. Many schools bring their AP biology students to this type of conference as well as those students who are interested in careers in medicine or the life sciences.

Watch Sam Rhine's website, www.samrhine.com for more information about this conference and registration. Information is also available by contacting the Genetic Ed Center, (800) 727-2315, or srhine@aol.com.



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