Hands-On Science K-8 offers Math and Life Science

This spring, Science Outreach continues its series of graduate education courses, Hands-On Science K-8, with two offerings: Mathematics Concepts, and Heredity and Life Cycles. Registration costs are kept low through support from the Howard Hughes Medical Institute. To register, return the form on page 5, or visit the Science Outreach website at http://www.nslc.wustl.edu/so.

Edu 6002 Hands-On Science K-8: Heredity and Life Cycles

All living creatures grow and reproduce. But how do plants and animals pass on their traits to the next generation? Use plants, imaginary organisms, and animals to compare life cycles, explore genetics, discuss different types of reproduction, and analyze mutations. Learn about DNA, and get up to date on the Human Genome Project, genetically modified foods and other new developments. Demonstrate natural selection through simulations, and learn about effective ways to teach evolution.

Dates: Tuesdays 4:30-7 p.m., Jan. 15-May 7 (spring break March 5)
Location: Life Sciences 118
Credit: Three graduate credits in education
Cost: $200 registration fee, collected the first class day

Kevin Manwaring, Robinson Elementary, expresses surprise at his success in using a battery and wires to turn on a light bulb in the fall 2001 Hands-On Science K-8: Electricity and Magnetism course. His activity partner, Celeste Prussia, director of the Litzinger Road Ecology Center, looks on.

Edu 6010 Hands-On Science K-8: Mathematics Concepts

Gain a deep understanding of the mathematical concepts behind the K-8 curriculum. Then discuss how best to present them to elementary and middle school students. Sharing strategies with colleagues is a major element of this course. Topics covered include counting, numeration, arithmetic of whole numbers, fractions, rational numbers, negative numbers, decimal fractions, ratio, proportion and percents.

Course instructor Gary Jensen, professor of mathematics, explains his approach to the course. “I look forward to going through the concepts, computations and applications of arithmetic with experienced teachers who will bring to the class insight into how children respond to these concepts,” he says.

Dates: Wednesdays 4:30-7 p.m., Jan. 9-May 8 (spring break TBA)
Location: Life Sciences 108
Credit: Three graduate credits in education
Cost: $200 registration fee, collected first class day
Science Outreach/St. Louis Public Schools Partnership

GRADUATE EDUCATION COURSE:
“Genetics and Biotechnology”
for St. Louis Public and University City teachers of grades 6-9

Science teachers in the St. Louis Public Schools and University City School District are eligible to take a free graduate education course, Genetics and Biotechnology. The course’s focus is seventh grade curriculum in life sciences, but it is open to any teacher of grades 6-9. Through funding from the National Science Foundation Urban Systemic Initiative program, there is no cost to teachers for this course.

The course will cover cell structure and process, including mitosis and meiosis. Other topics include asexual reproduction, Mendelian inheritance, genetic engineering, the Human Genome Project, and bioethics.

Dates: Wednesdays 3-5:30 p.m., Jan. 9-May 8 (spring break TBA)
Location: Life Sciences 118
Credit: Three graduate credits in education
Cost: Free to teachers in the St. Louis Public Schools and University City School District. Course may be open to teachers in other districts as space permits; call Mark Kalk, (314) 935-8138, ext. 2.

Juanita Chambers, Gateway Institute of Technology biology teacher, looks over a student project. Ed Horack of Roosevelt High School and Rich Nolte of Metro High School presented this activity as a tool for teaching evolution.

SLPS professional development meetings

Professional development meetings for the St. Louis Public middle school science teachers and high school biology teachers will resume in January 2002. Mark your calendars, and don’t miss presentations by your colleagues on strategies they’ve used to meet standards in their own classrooms. There will be no April meeting for either group. Check the Science Outreach website for meeting notices and teaching and testing schedules: http://www.nslc.wustl.edu/so.

SLPS high school biology meetings
Missouri Botanical Garden
2:30-5:30 p.m.
Jan. 23: Microscope care; Science fair projects
Feb. 21: Cells and biochemistry
March 20: Genetics

SLPS middle school science meetings
Gateway Middle School, 3-5 p.m.
Jan. 9: Science fair projects
Feb. 13: Grade 6 matter and energy; Grade 7 force and motion; Grade 8 earth systems
March 13: Grade 6 all topics review; Grade 7 matter and energy; Grade 8 universe

Genetics and Biotechnology course registration

☐ Please register me for Genetics and Biotechnology. My district is (check one): ☐ St. Louis Public ☐ University City

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Home address

Home phone School phone E-mail
Mail to: Washington University, Science Outreach Course Registration, One Brookings Drive, Campus Box 1137, St. Louis, MO 63130.
Fax to: (314) 935-4432, or send an e-mail containing the above information, including course title, to obrien@biology2.wustl.edu.
Outreach Partnership sparks learning in fall ’01

St. Louis area students experienced the early results of Science Outreach’s partnership with the Missouri Botanical Garden, St. Louis Science Center and Saint Louis Zoo this fall, as teachers in the animal behavior and ecology groups pilot-tested these units. Results of the pilot testing will be incorporated this spring, and the standards-aligned units will be available on the Outreach website during 2002.

Curriculum developers from the genetics group held their pilot testing workshop at the St. Louis Science Center, Sept. 28-29 and Oct. 13, taking advantage of the staff’s expertise and exhibits in the DNA Zone. Jessica Johnston, science teacher at Wydown Middle School, was part of the pilot testing group. “I want to use the whole unit because it’s very integrated with other subjects like art, math, theater, and it has great visuals,” she explained.

The genetics pilot curriculum developers are Gary Schoenberger, Gotsch Intermediate School; Brenda Tyndall, Nottingham Middle School; Laura Sturmfels, Cindy Encarnacion, Fred Vasquez and Debbie Wudtke, all of the St. Louis Science Center; Gary Corbin, Modern Genetics coordinator; and David Kirk, professor of biology. Genetics pilot testers are Doris House, Blewett Middle; Leodis Fields, Des Peres Middle; Sandy Murray, St. Monica’s School; Andrea Neals, Gateway Middle; Jessica Johnston, Wydown Middle; Heather Frey, Meramec Valley Middle; Cathy Green, Riverview Gardens Middle. Support for the Outreach partnership is provided by a Science Education Partnership Award from the National Institutes of Health.

Cathy Green, teacher at Danforth Elementary School, experiments with yeast during the Outreach partnership genetics pilot testing workshop, held at the St. Louis Science Center.

Students in Claudia Wall’s and Sandy Sermos’ classes at Wydown Middle School discuss their environmental observations at the Missouri Botanical Garden’s Shaw Nature Reserve. Wall and Sermos are pilot testers for the Outreach partnership unit on ecology.
Modern Genetics at Hazelwood East

Students in Loran Franklin’s biology class put together Reebops with help from Gary Corbin, Modern Genetics coordinator (far right). The imaginary Reebops help students understand dominant and recessive alleles, and how traits are inherited from each parent. Hazelwood East is a Modern Genetics partner through support from Monsanto.
Teaching Teams bring hands-on science, new views to grades 2-8

Washington University undergraduate science majors bring hands-on science activities to classrooms all over metro St. Louis through the Teaching Teams program. An activity may involve one or two visits, depending on class period length.

Many of the topics are nearly full for this school year, so be sure to call soon if you are interested. The Simple Genetics and Dissection programs have more dates available than the others; the Chemistry team is no longer accepting dates for 2001-02.

Carole Ann von Eschen, gifted education teacher at Nathaniel Hawthorne and Barbara Jordan elementary schools, has used the Simple Genetics team with the various classes and teachers. “Our student had little containers for everybody, to emphasize how small DNA is and how it comes out as a thread. The kids were fascinated by that!” she says. Von Eschen also believes the Teaching Teams bring a valuable perspective on science to precollege classrooms. “Having two young people come in is another added point for the program, because it gives kids an opportunity to see that science can be a career,” she says.

To learn more about Teaching Teams topics, visit the website at www.nslc.wustl.edu/so. The Teaching Teams are a free service made possible through funding from the Howard Hughes Medical Institute. To schedule a visit, call Elaine Alexander, coordinator, (314) 935-7170 or e-mail elaine@biology.wustl.edu.

Science Outreach at conferences

If you’re planning to attend any of these conferences, be sure to attend sessions by Science Outreach. We’d love to see you!

Gary Corbin, Modern Genetics coordinator, and Mark Kalk, program coordinator, will present “Detection of a Genetic Disease” at Interface, Feb. 24, 2002 at Tan-Tar-A.

Corbin will present a short course on Modern Genetics for All Students at the National Science Teachers Association convention, March 27-30, 2002, in San Diego.

Winter ecology with the Tyson Field Science Program

Winter is a wonderful time to study field ecology. The staff at the Tyson Field Science Program has a lineup of programs that takes advantage of the unique conditions offered by the cold weather. To learn more about these programs, or to arrange a visit with your class, call Susan Ianke-Mueth, coordinator, at (314) 935-8437 or e-mail simueth@biology.wustl.edu.

- Animal Classification K-12, November-February
- Bats K-12, September-March
- Birds and Bird-Banding 5-12, December-February
- Predator/Prey Relations K-12, November-February
- Bats pre-K, September-March
- Paleontology for Preschoolers, September-May
- Tracks and Traces pre-K, September-May

Spring 2002 Hands-On Science K-8 course registration

Please register me for (check one or both). I understand the $200/course registration fee will be collected on the first class day.

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Home phone  School phone  E-mail

Mail to: Washington University, Science Outreach Course Registration, One Brookings Drive, Campus Box 1137, St. Louis, MO 63130.
Fax to: (314) 935-4432, or send an e-mail containing the above information, including name of course(s) to obrien@biology2.wustl.edu.
Keeping Busy

Congratulations to these teachers who have just been accepted as fellows in Science Outreach’s graduate certificate in science education program: Gloria J. Hardrict-Ewing, 5th grade teacher at Twillman Accelerated Elementary; Lynn Tripoli Young, kindergarten teacher at Flynn Park Elementary; and Joycelyn Pugh, 4th grade teacher at Moline Elementary.

Tom Cradick, biology teacher at Parkway North High School, is the 2001 Outstanding Biology Teacher of the Year. Elaine Childress, state OBTA director and biology teacher at John Burroughs School, presented the award at the Oct. 7 Parkway board meeting.

Larry Wegmann, biology teacher at Crystal City High School, is the author of “An Interdisciplinary Approach to Teaching Dihybrid and Multifactoral Crosses,” which will appear in the November/December issue of American Biology Teacher.

Elmer Kellmann, biology teacher at Parkway Central High School, and Patti Laird, biology teacher at Brentwood High School, presented the Science in the Real World: Microbes in Action program at the National Association of Biology Teachers convention in Montreal. Victoria May, Science Outreach director, presented the Modern Genetics program, also at NABT.

Valerie Mertz, biology teacher at Marquette High School, accompanied Victoria May, Science Outreach director, to Southern Illinois University-Edwardsville this summer to present the AAI Food Forensics lesson to teachers in a summer research program. Mertz also is scheduled to present at the fall teacher education conference at SIUE on Nov. 19.

Ann McMahon, science coordinator for Riverview Gardens; and Jack Wiegers, instructor in physics, presented on science curriculum derived from the Edu 6000 courses at the Science Teachers of Missouri meeting in October. Wiegers also presented information about the Hands-On Science K-8 courses to the American Association of Physics Teachers at Southeast Missouri State University.

Pat Gibbons, professor of physics, is a member of the review panel for the National Science Foundation’s Teacher Enhancement Program.

Sarah Elgin, professor of biology, will present the Hands-On Science K-8 courses at two poster sessions at the American Society of Cell Biologists convention in Washington, D.C., in December.

Teacher Resources

Freebies

Howard Hughes Holiday Lectures: The Meaning of Sex and Gender. Lecture one: Deciphering the Language of Sex, Nov. 29, 10-11 a.m. EST. Lecture two: Hermaphrodites: The Safer Sex, Nov. 29, 11:30 a.m.-12:30 p.m. EST. Lecture three: Sex and Death: Too Much of a Good Thing, Nov. 30, 10-11 a.m. EST. Lecture four: Sexual Evolution: From X to Y, Nov. 30, 11:30 a.m.-12:30 p.m. EST. Live webcasts Nov. 29-30 at www.holidaylectures.org; broadcast on Channel One Jan. 16 and Jan. 23; and available free on video and DVD in spring 2002. Free teacher guides, biographies of lecturers Barbara Meyer and David Page, questions, discussion points, and activities available at www.holidaylectures.org. Recommended for advanced high school biology students.

The Olympic Torch Run educational program for middle school students invites middle school teachers and students to join in the excitement of the Olympic Torch Run as it goes through St. Louis on Jan. 8, 2002. The program involves in-depth study of one of the countries participating in the 2002 winter games. Visit http://olympic.torchrelaystlouis.org/teachers, or contact John T. Sutton, Ph. D., senior director, McREL, jsutton@mcrel.org.

Grants


St. Louis Science Center

Teacher resources available from the Science Center include a teacher workshop series at the Science Center, workshops that can be held at your location, on your time frame, and kits that can be checked out and used in the classroom. To learn about teacher workshops, call Alice Walker, (314) 286-4617 or e-mail awalker@slsc.org. To inquire about the kits, call Melinda Frillman at (314) 533-8282 or e-mail mfrillman@slsc.org.

Saint Louis Zoo

Educators can register for the Zoo workshops by calling (314) 768-5466 and requesting the registration form. For more information, visit www.stlzoo.org.
Teacher Resources

(continued)

Biodiversity Basics, grades 5-12, Jan. 12, 26, 8:30 a.m.-4:30 p.m., $40
The Diversity of Vertebrate Life, grades 1-4, Feb. 16, March 2, 8:30 a.m.-4:30 p.m., $40
Lions & Tigers & Bears, Oh MY!, grades pre-K and K, April 6, 9-11:30 a.m., $7

Free Science Seminar Series at the Zoo, Wednesday evenings, 7:30-9 p.m., Jan. 23-April 17 on a variety of topics.

Kenya Educator Safari 2002, departs June 7; $3,250 inclusive round trip from St. Louis. Join the Zoo education staff for this exciting 14-day trip to east Africa. For more information, call Jim Jordan, associate curator of education, (314) 781-0900, ext. 340, or e-mail Jordan@stlzoo.org.

Missouri Conservation Department

Project W.E.T., Dec. 17-18, 9 a.m.-4 p.m., August A. Busch Conservation Area in St. Charles County. Contact Nancy Snider, conservation education consultant, (636) 441-4554, ext. 245, or e-mail sniden@mail.conservation.state.mo.us.

Maple Sugaring 2002, for teachers and youth leaders, Feb. 6, 4-6 p.m., Rockwoods Reservation (meet at the education center). Learn how to set up a maple sugaring program. To register, contact David Bruns, conservation education consultant, (636) 458-2236.

Missouri Botanical Garden

MBG offers a range of courses and workshops in botany, biology, ecology, environmental issues, technology, math and science education. For more information on teacher programs, call (314) 577-5144 or visit www.mobot.org.

Summer Research

The Summer Research and Curriculum Enrichment Program is open to high school teachers in the St. Louis Public Schools. It is designed to develop a sustained partnership and collaboration with SLPS teachers. Teachers conduct research at Washington University School of Medicine, and develop curriculum projects that include a hands-on component. Teachers receive a $5000 stipend and are reimbursed for classroom supplies. Application deadline is Dec. 1. Call Jennifer Mosher, (314) 362-4841 or e-mail mosherj@dbbs.wustl.edu for an application.

The Frontiers in Physiology summer research program provides an $8,500 fellowship for middle and high school life science teachers accepted to do a seven-to-eight week internship. Teachers are matched with research sites close to their homes. Program includes a week-long workshop on inquiry-based science, use of animals in research, equity in classroom issues, and web-based technology in science education, followed by an intensive lab experience. Application deadline is Jan. 11, 2002. For more information, visit the American Physiological Society website, www.the-aps.org, e-mail awalling@the-aps.org, or call (301) 571-0692.

For Students

Encourage your juniors in high school to apply for the eight-week Summer Focus internship program at Washington University School of Medicine. Students experience the investigative environment of a lab, and conduct an independent research project with the guidance of a mentor. Application deadline is Jan. 14, 2002. Call Jennifer Mosher, (314) 362-4841 or e-mail mosherj@dbbs.wustl.edu for an application.
Ellen Reilly, science teacher at Whiteside School in Belleville, Ill., explains the behavior of naked mole rats to her students. More than 90 students and teachers from Whiteside visited the Saint Louis Zoo in September as part of the Outreach Partnership animal behavior unit.