### Conference Schedule:

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>8:45-9:00am</td>
<td>Registration, packet pickup, breakfast</td>
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<tr>
<td>9:00-9:30am</td>
<td>Welcome</td>
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<tr>
<td>10:00-10:10</td>
<td>Workshop Period I</td>
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<tr>
<td>10:10-11:00</td>
<td>Workshop Period II</td>
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<tr>
<td>11:00-12:00</td>
<td>Lunch</td>
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<tr>
<td>12:00-12:45</td>
<td>Workshop Period III</td>
</tr>
<tr>
<td>12:45-1:15pm</td>
<td>Keynote Speaker, Dr. Melyni Worth</td>
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<tr>
<td>1:15-2:20pm</td>
<td>Workshop Period III</td>
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<tr>
<td>2:20-3:00pm</td>
<td>Chemistry Demo</td>
</tr>
<tr>
<td>3:00-3:15pm</td>
<td>Closing Remarks, Conference Evaluation</td>
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</tbody>
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### Conference Location:

All EYH activities will take place in Memorial Hall on the JMU campus. Parking is free, and signs will be posted. For more information and directions, please see the website.

Please pick up your conference information packet (containing your workshop assignments) between 8:45 and 9:30am on the day of the conference in the Memorial Hall lobby.

### Keynote Address: Dr. Melyni Worth, PhD, PAS

Originally from Great Britain, by way of Kenya, Dr. Worth has a Bachelors degree in Agricultural Biochemistry from Newcastle University, a Masters in Equine Nutrition from University College of Wales, and a Ph.D. in Equine Nutrition and Exercise Physiology from Virginia Tech.

Dr. Worth founded a nutrition company, Foxden Equine, in 1996. She has written articles in numerous national equine publications. Her book, *The Horse Nutrition Handbook*, has been used in equine nutrition courses across the country.

Dr. Worth holds a British Horse Society Assistant Instructors certification (BHSAI) and an International Trainers License (II) from the European Union. She has trained horses and taught riders for 28 years.

### Other Information:

Student responsibility – if you attend this conference, you must act maturely and follow the directions and instruction provided by the faculty, JMU students, and facilitators of the conference. You must attend all of the events scheduled for you, including lunch. You must remain on the JMU campus from 9:30am until the end of the conference at 3:15pm.

Photography release – a photographer may take pictures of you or your child. These photos may appear on our website or in publications. If you register yourself or your child, you have given us permission to use your/her photos.

There are no conference registration fees. Breakfast and lunch are provided to registered attendees. PLEASE contact us if you cannot make it to the conference after registering.

(Registration is available online at www.jmu.edu/mathstat/eyh or by submitting the attached registration form.)

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*Contributing Sponsors: MAA – Tensor Grant Programs, JMU College of Science & Mathematics, JMU Department of Mathematics & Statistics, AAUW Harrisonburg Chapter, JMU Outreach & Engagement*
EYH Workshops Offered 2014

STUDENT WORKSHOPS

1. 3D Printing: The Wave of the Future This workshop will include 3D printers and samples of 3D printed objects. Participants can even take a little bit of the future home.

2. Code with Scratch In this session, you will have hands-on experience with programming invasion of animation and games with the help of the free computer programming language “Scratch”.

3. Anatomy and Physiology of the Human Heart In this workshop, we will examine the structure of the heart and discuss how it actually works. We will also learn how to read EKGs and discuss common heart conditions.

4. Breaking Pasta We’ll do experiments, make predictions, and use a high-speed camera to catch every instant not seen with the naked eye to reveal the mathematics behind pasta noodles breaking.

5. Coding with Finch Robots Using Finch robots and Python code, you and a partner will program the Finch to do a dance, avoid obstacles, or follow a light. No experience necessary...anyone can do it!

6. Engineering Candy Bridges This workshop will explore the engineering principles related to bridges. Workshop participants will design, build, and test candy bridges in teams.

7. Estimating the Unseen We will do a mark-recapture experiment on ladybugs and then estimate population size based on the proportion of individuals we capture and then recapture.

8. How Do Wind Turbines Work? Come to this workshop and learn how wind turbines work. After understanding how they work, you will have the opportunity to design, create, and build your own blades for a wind turbine!

9. How Likely are You to Develop Type II Diabetes This session will explain how probability theory is used to examine how different epidemiologic factors affect the odds of developing Type II Diabetes.

10. STEM Applications to Health and Wellness Join faculty and students from the Health Sciences for fun hands-on activities that explore how math and science knowledge is applied in the health sciences.

11. Let’s Make a Deal: The Monty Hall Problem In the Monty Hall problem, a contestant chooses from three doors, one of which has a prize. We will find the best strategy to maximize the odds of winning.

12. Oceans and Our Climate Come join us as we explore climate questions by creating water solutions that mimic the real ocean current system.

13. Smartphones and Cyber Alerts This workshop provides a simulated demonstration of how smartphones share information, such as your location, date/time, and travel patterns.

14. The Kinetics of Gross Guacamole Have you ever noticed food left on your plate too long turns an unappetizing brown color? We will discover why this happens in a kitchen chemistry experiment.

15. Tour of the Solar System Using JMU’s Science on a Sphere exhibit, we will take a virtual tour of the Solar System. Science on a Sphere (SOS) is a sphere-shaped, visualization tool developed by NOAA.

16. Watching Worms Wiggle Did you know there are itty-bitty worms living pretty much everywhere in your environment? We will attempt to answer the burning questions: How fast can a worm wiggle?

17. Where in the World is Carmen Chemistry? The chemistry of cooking can help determine where someone may be located. See if you can solve the mystery of where Carmen Chemistry may be.

18. Who’s the Person in the Picture? In this facial recognition workshop, we will learn algorithms to identify faces from a digital image or a video frame. These techniques are used in security systems.

ADULT WORKSHOPS

1. Helping Your Daughter Prepare for a STEM Career Help your daughter navigate middle and high school with the intent of preparing for a future in STEM (science, math, technology and engineering). Meet other like-minded parents and gain insights from this open discussion workshop lead by a high school counselor and university math professor.

2. Admissions and Financial Aid Attend this presentation by the JMU Dean of Admissions to find out what a school like JMU is looking for in terms of college preparation and to learn about financial aid and scholarships. Bring your questions!

Full descriptions of the workshops are available on the EYH website: www.jmu.edu/mathstat/eyh

EYH 2014 Registration Form

You may also register online (preferred form of registration) at: www.jmu.edu/mathstat/eyh

Student Registration Form

Name: ____________________________
Address: ____________________________ City: __________ Zip: __________
Phone: ____________________________ Email: ____________________________
Grade: __________ School: ____________________________
Student t-shirt size (circle one): S M L XL XXL

Check one: I give my permission for my child to receive emergency first aid while attending the EYH conference at JMU.
YES __________ NO __________

Parent/Guardian Signature (required)

Student workshop choice: Write the numbers of the workshops you would like to attend in order of preference. You will be assigned to 3 workshops. Please contact us immediately if you have registered, and your child can no longer attend.

1st _______ 2nd _______ 3rd _______ 4th _______ 5th _______ 6th _______ 7th _______ 8th _______

Adult Registration Form

Name: ____________________________
Address: ____________________________ City: __________ Zip: __________
Phone: ____________________________ Email: ____________________________

Are you a parent or a teacher? (circle one) Parent Teacher

Do you plan on attending the adult workshops? (circle one) Yes No

Please register if you are staying, even if you do not attend the adult workshops, so that we have an accurate count for food and space.

Parents not attending adult workshops are encouraged to accompany their daughters/students to their workshops.

Complete the above form and return by mail or email to the following address: Expanding Your Horizons, Department of Mathematics and Statistics, MSC 1911, James Madison University, Harrisonburg, VA 22807 or e-mail to eyh@jmu.edu