



**To: NM MESA Advisors**  
**From: Anita Gonzales, NM MESA Program Coordinator**  
**Re: Professional Development Conference Session Information**  
**Date: December 9, 2019**

Enclosed is information on all possible sessions for the *NM MESA Professional Development Conference, January 21-22, 2020 at the Embassy Suites Albuquerque*. You are reminded that registration is required to attend. **Registration is open and will close January 7 at 5PM**. Sessions have a limited capacity so it is encouraged to register early to ensure your first choice of workshops. Also note that some sessions will be offered multiple times. Registration link will be available on the NM MESA Website: <http://www.nmmesa.org>

### **GENERAL AGENDA: MODIFIED 12/2019**

#### Tuesday, January 21, 2020:

11:00-11:30 Advisor Registration  
11:30-12:45 Lunch-General Session A\*

- Welcome and Region/Staff Introductions
- What's New at NM MESA?
- MESA Day/MESA USA 2019 Handbook Overview
- Joint Science and Technology Institute Programs

1:00-2:00 Breakout Session 1  
2:15-3:15 Breakout Session 2  
3:30-4:30 Breakout Session 3  
4:30-5:00 Partner Workshop Session  
4:30-5:30 Partner Open House-Snack Break\*  
5:30 Dismissal (Dinner on Own)  
5:30-6:00 MESA USA Competition Rubric and Judging Review (Optional)

#### Wednesday, January 22, 2020:

7:00-8:00 Day 2 Sign In and Breakfast\*  
8:00-9:30 General Session B-Day 2 Welcome

- Dr. Arthur H. and Joan Guenther Advisor Achievement Award Recognition
- Teacher Advisor Introductions
- Teacher Best Practice Panel

9:45-10:45 Breakout Session 4  
11:00-12:00 Breakout Session 5  
12:00-12:30 Hotel Check Out-Lunch Pick Up  
12:30-2:00 Regional Breakout Meetings-Box Lunch\*  
2:00 Advisor Dismissal  
2:30-5:00 Staff Meeting  
5:30 Staff Dinner-Meeting Wrap Up

\*-Meal/Food Provided. All sessions per day are required to receive each daily stipend unless marked as optional.

### **GENERAL WORKSHOP DESCRIPTIONS:**

#### **NM PED-MATH AND SCIENCE BUREAU: CURIOUS ABOUT ENERGY?**

*Presenter(s):* Christy Krenek and/or Shafiq Chaudhary

*Sessions Available:* 1, 2, 3, 4, 5

Are you curious how energy as a Disciplinary Core Ideas relates to the Crosscutting Concept of Energy and Matter?

This session's experience will allow participants to support students' understanding of energy and energy transfer that can be used to build upon for the upcoming MESA Day Challenge. Learning about energy and energy transfer through an interactive conceptual way provides students' sense-making opportunities to build conceptual understanding. This session will mirror student-centered sense-making learning by attendees engaging and interacting in a meaningful way with ratios and proportions through productive hands-on activities. **Limited to 24 participants per session.**

### **NM PED-MATH AND SCIENCE BUREAU: ENGINEERING IN THE NM STEM READY! SCIENCE STANDARDS?**

*Presenter(s):* Christy Krenek and/or Shafiq Chaudhary

*Sessions Available:* 1, 2, 3, 4, 5

How can engineering in the NM STEM Ready! Science Standards support students? We will dive into the role of engineering in the NGSS- including what engineering looks like in action, how it can be used during science investigations and examples of engineering and design structures. **Limited to 24 participants per session.**

### **UNM STEM-H CENTER: PROJECT MANAGEMENT TOOLS**

*Presenter(s):* Karen Kinsman

*Sessions Available:* 2, 3

This workshop will present the foundations of Project Management as used by millions of professionals in business and industry...BUT, with a twist! We will approach the principles of Project Management and their application in terms of STEM education professionals. Effective Project Management can be used in all facets of our lives... in classrooms, business, at home...you name it! These skills are transferrable and highly marketable across all career fields AND parallel the use of project-based learning in the classroom, so teaching students PM skills as part of your project-based learning practices is a great way to equip them with valuable skills they can take into their careers. **Limited to 50 participants per session.**

### **COMPUTER CODING AND PROCESSING**

*Presenter(s):* Nicholas Kunz, NM MESA

*Sessions Available:* 1

Take your STEAM education skills to the next level. Create beautiful images with computer coding! Participants will learn the basics of *Processing*, a “flexible software sketchbook and a language for learning how to code within the context of visual arts”. This workshop will provide some basic language and procedures to get you and your students started, plus hands-on examples and a lot of resources for further exploration. **Limited to 16 participants per session.**

### **ENMU-ROSWELL AVIATION PROGRAMS**

*Presenter(s):* Jenna Secrist and Ty Whatley

*Sessions Available:* 2, 3, 4, 5

Help your students “Fly High” in their future careers. Aviation & Aeronautics industries need students who want options instead of a traditional college track. This session will provide an overview of industry needs and how ENMU-R Aviation Programs provide career and technical training for students seeking fast tracks to vocational certification and/or Associates degree in Applied Sciences. We will discuss and demonstrate multiple components of the training. Need for and pathways for young people to fill job needs in the Aviation Maintenance Technology and Pilot professions in the US and worldwide. **Limited to 25 participants per session.**

### **EXPLORA: CREATIVE CODING**

*Presenter(s):* Kevin Dilley

*Sessions Available:* 1, 2, 3

Learn simple and fun activities to develop coding skills in you and your students. This workshop is designed for all skill levels – no previous coding experience required. Participants will learn how to incorporate physical computing into their classrooms using micro:bit microcontrollers. Participants will leave with a kit with a micro:bit and accessories. **Limited to 20 participants per session. Session Requirements: Sample computers will be available but it is suggested to bring personal laptop.**

### **EXPLORA: ARCHITECTURE**

*Presenter(s):* Anthony Salvagno, Explora Educator

*Sessions Available:* 2

Need assistance in the Prepared Design Challenge? Come learn about architecture and scale design in a fun and engaging workshop. **Limited to 20 participants per session.**

### **NM EXPLORA: CIRCUIT CITY**

*Presenter(s):* Anthony Salvagno, Explora Educator

*Sessions Available:* 1

Participants will engage in a hands on program that will give an introduction to electricity, energy, and circuitry. Use graphite to create a circuit that is both functional and artistic. The basic circuitry principles will help prepare you for the upcoming MESA Competitions. **Limited to 20 participants per session.**

### **EXPLORA: ARDUINO 101**

*Presenter(s):* Anthony Salvagno, Explora Educator

*Sessions Available:* 4, 5

Are you a new advisor? Are you a veteran advisor that needs help with Arduino fundamentals? Come learn the basics of Arduino software and hardware to get started on your MESA USA Project – no previous coding experience required. Regional Coordinators will provide take home materials for their registered advisor participants. **Limited to 20 participants per session. Session Requirements: Sample computers will be available but it is suggested to bring personal laptop with Arduino Software installed.**

### **DUMPSTER DIVE WITH STEM AND TI TECHNOLOGY**

*Presenter(s):* Alejandra Olivas, NM MESA

*Sessions Available:* 4, 5

In this session high school teachers will be using Texas Instruments Technology and tools to connect the human impact of trash pollution to engineering design. Learn how to get your students thinking critically and creatively as they collaborate in real-world problem-solving. Learn how to incorporate computer science into your classroom using a graphing calculator. **Limited to 20 participants per session.**

### **MESA TIME, NOW WHAT? NEW ADVISOR MID YEAR CHECK IN**

*Presenter(s):* Terry Ramirez, NM MESA

*Sessions Available:* 1

So you signed up to be a MESA Advisor? Great! Now what? Are you on track? Need ideas and activities to make sure you are on track for MESA Day/MESA USA on your first year? Do you need help with how to structure your MESA Time? What do you do in your MESA Time after competition is over? If you need some answers to these questions and more, than this workshop is for you! **Limited to 25 participants per session.**

### **NM AGRICULTURE IN THE CLASSROOM**

*Presenter(s):* Traci Curry

*Sessions Available:* 1, 2, 3, 4, 5

New Mexico Agriculture in the Classroom has engaging STEM related resources, lessons, and hands-on activities that will help you find unique ways to connect students to real-world problem solving. This session will save you energy and help you make out of the box connections with agriculture, natural resources, and renewable energy. Let us give you an edge on the competition. **Limited to 25 participants per session.**

### **WHAT'S AN ONSITE COMPETITION?**

*Presenter(s):* Terry Ramirez, NM MESA

*Sessions Available:* 3

Have you participated in an onsite competition? Do you need to know how to prepare your students to do one? Come and participate in a fun competition MESA Day style to get ready! Participants will learn strategies to building a successful competition team and will learn what to expect at an onsite competition. **Limited to 25 participants per session.**

### **FUN WITH SPHERO-MINI**

*Presenter(s):* Kim Scheerer and Shawndean Smith, NM MESA

*Sessions Available:* 4, 5

Come experiment with Sphero Mini Technology. Participants will run a course using a Sphero Mini and the Sphero Play App. Attendees will also learn how to incorporate Sphero into your classroom and MESA time with an introduction to the education portal, how to order, and the Sphero Education Applications. **Limited to 25 participants per session.**

## **PARTNER PROGRAM WORKSHOP SESSIONS:**

### **NM AGRICULTURE IN THE CLASSROOM: JOURNEY 2050 TEACHER RESOURCES**

*Presenter(s):* Traci Curry

*Sessions Available:* Partner Workshop Session

The year 2050 is a key moment in time – the world’s population will be a projected 10 billion. Food production needs are expected to rise by 60-70% and changing agronomic conditions will put pressure on agricultural yields. Journey 2050 is a FREE agriculture education program especially for middle and high school students that challenges participants to answer the question “How will we sustainably feed 9 billion people by the year 2050?” **This workshop has no participation limit.**

### **UNM STEM-H CENTER**

*Presenter(s):* Karen Kinsman

*Sessions Available:* Partner Workshop Session

Come learn about our programs. The *UNM STEM-H Center* manages the largest International Science & Engineering Fair (ISEF) “affiliated fair” in New Mexico called the Central NM STEM Research Challenge (4th-12th Grades) as well as the Central NM Science Olympiad (6th-12th Grades) and SW Region Junior Science & Humanities Symposium (9th-12th Grades) which are all STEM-H academic competitions focused on middle and high school students. The Center offers a number of in-person and online Professional Development Training for K-12 STEM-H Educators as well as Student Researcher Training for 4th-8th Grade students annually. **This workshop has no participation limit.**

### **NMSU COLLEGE OF ENGINEERING**

*Presenter(s):* Clara Welles, Mario Garcia, Madi Burns

*Sessions Available:* Partner Workshop Session

NM BEST, NM PREP, NM TSA and so much more. Come learn about all of our program offerings the NMSU College of Engineering has to offer, and how these intracurricular and extracurricular programs can enhance your classroom and your MESA program. **This workshop has no participation limit.**

### **INNOVENTURE-ARROWHEAD CENTER, NMSU**

*Presenter(s):* Amanda Bradford and Lydia Hammond

*Sessions Available:* Partner Workshop Session

The Innoventure Challenge is a free competitive event open to all middle and high school students throughout New Mexico. Think like an entrepreneur and design a simple prototype out of an approved list of materials – all in a short timeframe that challenges you to put your team’s ideas to the test quickly and create an innovative product. Each round will have its own theme – and you won’t find out the theme until the round starts. The surprise is all part of the challenge! Winning teams from each round will be invited to the final Innoventure Challenge at New Mexico State University in Las Cruces for a special one-day product design challenge that builds on what you’ve learned in the preliminary rounds. Participation is free, and most travel costs to the final competition at NMSU will be reimbursed by Arrowhead Center, thanks to generous support from our sponsors. **This workshop has no participation limit.**

### **SCIENCE OLYMPIAD**

*Presenter(s):* Kala Scarafiotti, Ruidoso High School MESA Advisor

*Sessions Available:* Partner Workshop Session

Come learn the basics of Science Olympiad including: 1. How to start a team; 2. Engineering and Building projects; 3. Biological competitions; 4. Chemistry and Physics Competitions; 5. Cost and Supplies; 6. Planning and Preparation; 7. Logistics and Travel. A starter kit will be provided for all teacher participants that will include all you need to get ready for Science Olympiad: Balsa wood, glue, Goggles and lab coats, Study guides and internet tools; Recruiting tools and posters, and Supplies/Materials for the routine competitions (Write it/Do it or Experimental Design). **Limited to 20 participants.**

### **PARTNER OPEN HOUSE ORGANIZATIONS:**

- Rio Mora Conservation Science Center
- UNM STEM-H Center
- STEAM New Mexico
- Innoventure
- NM Agriculture in the Classroom
- Science Olympiad
- NMSU College of Engineering & Technology Student Association

**PERSONAL AGENDA PLANNER:**

Online Registration will officially register you for each session. You are only able to attend the sessions for which you are officially registered for as there are supply and workshop capacities. In the event any advisor cancels attendance and a spot(s) open during a session, changes can be made at onsite registration. Sign in Sheets will be collected during each session. As there are many sessions available, please use the planner below to help you ready for online registration.

**My Top Choices of General Sessions are:** *The ones you REALLY want to attend the most and you may have to attend during a time where there is capacity.*

1.) \_\_\_\_\_: It is available during sessions: 1 2 3 4 5

2.) \_\_\_\_\_: It is available during sessions: 1 2 3 4 5

3.) \_\_\_\_\_: It is available during sessions: 1 2 3 4 5

**My Top Choice of a Partner Program is:**

1.) \_\_\_\_\_ OR

2.) None, I want more time to explore the other programs at the Open House

**My ideal conference schedule looks like this:**

Tuesday, January 21, 2020:

- 11:00-11:30 Advisor Registration
- 11:30-12:45 Lunch-General Session A\*
- 1:00-2:00 Breakout Session 1: \_\_\_\_\_
- 2:15-3:15 Breakout Session 2: \_\_\_\_\_
- 3:30-4:30 Breakout Session 3: \_\_\_\_\_
- 4:30-5:00 Partner Workshop Session: \_\_\_\_\_
- 4:30-5:30 Partner Open House-Snack Break\*
- 5:30 Dismissal (Dinner on Own)
- 5:30-6:00 MESA USA Competition Rubric and Judging Review (Optional): YES or NO

Wednesday, January 22, 2020:

- 7:00-8:00 Day 2 Sign In and Breakfast\*
- 8:00-9:30 General Session B-Day 2 Welcome
- 9:45-10:45 Breakout Session 4: \_\_\_\_\_
- 11:00-12:00 Breakout Session 5: \_\_\_\_\_
- 12:00-12:30 Hotel Check Out-Lunch Pick Up
- 12:30-2:00 Regional Breakout Meetings-Box Lunch\*
- 2:00 Advisor Dismissal

***Any Additional Questions on any Information in this Memo Please Contact Anita Gonzales:  
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