



## 2019-2020 Memorandum of Understanding between Arizona MESA and Partner School

Mathematics, Engineering, Science Achievement (MESA) is a low-cost program designed to increase access to Science Technology Engineering and Mathematics (STEM) pathways and encourage college readiness for low-income, minority or first-generation college-bound students in grades 6-12. Arizona MESA's approach is based on four pillars:

- **Active Learning** – students learn and implement the MESA Engineering Design Process through numerous highly-engaging, relevant, hands-on activities in which their experience of project-based learning, while supported by the teacher, is driven mainly by student teams. Such learning reinforces Common Core and NGSS practices like:
  - Collaborative problem solving
  - Building and testing of prototypes
  - Collecting and analyzing data
  - Consideration of design variables
  - Communicating design choices
  - Visual models, both hand drawn and computer-aided
- **Exposure to STEM** - through college and career mentors and university campus events.
  - **Mentoring** –students meet and learn from university students and STEM professionals who can share their experiences and strategies on pursuing a STEM major and career. Our partners from Higher Education and Industry include but are not limited to: Raytheon, Salt River Project, General Motors, Quantum Energy and Sustainable Solar Technologies (QESST), American Society for Civil Engineers (ASCE), and the Society for Hispanic Professional Engineers (SHPE).
  - **Campus Events** – students explore unique STEM fields/majors like computer engineering, civil engineering, and aerospace and mechanical engineering while connecting with undergraduate and graduate students.
- **College Readiness** – through activities, resources and events developed by the UA Office of Early Academic Outreach as part of its *Start Now* college knowledge campaign (<http://startnow.arizona.edu>) including:
  - **College Knowledge Resources** – our Start Now website provides various resources including our popular 3-Minutes for College video series which offers short summary videos in Spanish and English about the paths to college, the Sweet 16 courses required for admission, and how to pay for college.
  - **College Knowledge for Parents** - a high school transition event for 8<sup>th</sup> grade families
  - **College Knowledge for Counselors** – a one-day conference to assist k-12 staff in creating a college going culture
  - **Unique Scholarship Opportunities** – access to the College Success Arizona Scholarship program and dedicated UA scholarships for MESA participants.
  - **School-Wide Impact.** While MESA supports teachers in effective methods for growing college-bound cultures within MESA, MESA also works with interested schools to support school-wide approaches.
- **Peer Support** – by supporting the development of college-minded peer groups that support and encourage each other throughout the K-16 pipeline.

When submitted to Arizona MESA, this Memorandum of Understanding indicates your commitment to supporting a strong partnership to provide Mathematics, Engineering, Science Achievement (MESA) at your school. This document will outline the responsibilities of Arizona MESA, the school based MESA Advisor, and the school principal or designated administrator as relates to the administration of MESA. The signatures of all invested parties are required.

### I. Arizona MESA commits to:

1. **STEM DESIGN COMPETITIONS.** MESA hosts a statewide MESA Day competition enabling youth to compete and be recognized for their achievements. Our competitions areas reflect a variety of STEM fields and always includes the MESA USA National Engineering Design Challenge. MESA provides competition guidelines to each registered site. MESA also hosts regional events to help students prepare for MESA Day. All campus events aim to provide opportunities to envision their futures at Arizona universities.
2. **CONNECTIONS WITH STATE UNIVERSITIES.** In addition to hosting MESA Competitions at university campuses, MESA works with university partners to provide high-quality STEM opportunities, inform schools about on-campus events and opportunities, and connect teachers with youth-mentorship opportunities.
3. **INDUSTRY LINKS.** MESA partners with Industry to provide additional college readiness and STEM major and career exposure, and connect schools with STEM mentor opportunities.

4. **PROFESSIONAL DEVELOPMENT FOR TEACHERS.** MESA provides teacher in-service or Saturday training events. These events will provide attendees with information and resources to further college readiness, STEM exposure, and guidance of student implementation of the engineering design process.
5. **STEM LEARNING RESOURCES & MATERIALS.** MESA provides materials/kits needed to support STEM inquiry in activities and competitions. Material costs are subsidized by MESA partners to reduce cost to schools. See example below.
6. **ONGOING SUPPORT FOR TEACHERS.** MESA provides guidelines for successful implementation of MESA to all registered site advisors and be available for consultation when needed. MESA staff publish common answers to any questions submitted around competition specifications.
7. **ACCESS TO OUR PROFESSIONAL LEARNING COMMUNITY OF STEM EDUCATORS.** MESA utilizes its social media, email lists, website, and other online resources to inform advisors about voluntary opportunities on the university campuses or in the community to increase knowledge and experience with relevant math, science and engineering concepts.
8. **COLLEGE READINESS RESOURCES.** Incorporated into the MESA model is an emphasis on helping students aspire, plan and apply for colleges and universities. We achieve this goal through utilizing our college access tools (videos and teaching aids from [startnow.arizona.edu](http://startnow.arizona.edu)), as well as social media to inform advisors and students about college readiness opportunities (i.e. college fairs, summer programs, scholarships) and help grow their STEM knowledge base (i.e. college events, industry events, internships, summer programs).

## II. The MESA Advisor commits to:

1. Recruit 15 or more students in support of **MESA's mission to serve students who are low-income, would be the first in their families to graduate with a bachelor's degree, or who come from ethnic minority backgrounds.** These are not criteria for exclusion, as MESA welcomes all interested students at designated MESA schools, but rather should be kept in mind as criteria for inclusion. Advisors should strive for a 3 to 1 ratio of target students to non-target students.
2. Engage students on a weekly basis in activities related to hands-on STEM activities, college readiness and/or preparation for MESA competitions. Schools will be responsible for obtaining their own supplies and materials beyond what is provided as needed. Arizona MESA staff will be available to assist advisors with questions about appropriate materials and possible materials sources.
3. Distribute, collect, review and submit the Student Information Form, the official enrollment form, for each student participating in MESA, and assist MESA staff in conducting program assessment by administering assessments and returning them to the MESA staff.
4. Encourage and/or support college and STEM exposure through field trips and/or guest speakers from technical industry or institutions of higher education. MESA staff will support the advisor in identifying appropriate mentors, guest speakers and field trips.
5. Facilitate student introduction and use of the Engineering Design Process through the use of the Engineering Design Notebook.
6. Share best practices with the MESA Advisor community.
7. Register students to participate in Arizona MESA Day Engineering Design Competition, and accompany students as the chaperone or find chaperones for MESA Day, Regional Design Day and other optional MESA events.
8. Work with MESA staff to build a college going culture by incorporating monthly activities and/or messages relating to college readiness, and counsel students to help them progress toward admission to a four-year college or university.
9. Maintain open and professional communication with UA MESA staff, school administrators, students and parents of participating students.

## II. The School Administrator commits to:

1. Identifying someone to act as the MESA advisor at their school in a timely manner. In the event that a selected advisor is unable to continue the administrator would take immediate steps to replace them.
2. Secure funding for the selected MESA program fees outlined in the application below.
3. Maximize opportunities to access any funds that can be used to support the advisor in program implementation
4. Make every effort to ensure Advisor is fairly compensated for their efforts in support of MESA at the school. Recommended stipend of \$1500 (\$25/hour for 60 hours)
5. Support and encourage advisor participation in MESA related professional development, including identifying sources to support release time of advisors for MESA related professional development.
6. Assist Advisor in making arrangements for district transportation to MESA Day, if necessary.
7. Assist in identifying school facilities in addition to the advisor's classroom that may be necessary.
8. Support the advisor in recruiting MESA students in whatever way possible.
9. Support Advisor and MESA Staff in gathering data for program evaluation.

## **MESA Program Description and Fee Options:**

In order to further develop the necessary resources to properly support the administration of MESA, professional development of MESA advisors, and skill development of MESA students, we are instituting the following fee structure for school participation.

### **1. Full Program Option - \$550 (Early Bird Option, save \$190 over the A La Carte options) or \$600 (save \$140)**

Includes:

- a. MESA STEM Resource Kit** – materials and equipment needed to provide featured curriculum and/or support student participation in MESA Day engineering design challenges.
- b. MESA Advisor Training Institute (MATI)**  
Guaranteed spots for 2 MESA Advisors per school. MATI provides advisors with 14 hours of professional development.
- c. MESA Day Registration** – allows school to send 1 team for each engineering design challenge. That is a total of 9 teams comprised of 40 plus total students who can actively participate at MESA Day.

At \$600, Arizona MESA provides schools, teachers, and students the most affordable, comprehensive and rigorous long-term STEM initiative in the state.

### **2. A La Carte Options**

- a. \$100 - MESA Advisor Training Institute (MATI) with MESA STEM Resource Kit**  
MATI - Registration for 1 MESA Advisor, includes one **MESA STEM Resource Kit**. An additional attendee from same school pays an additional \$100 registration fee. Only one STEM Resource Kit per school.
- b. \$100 - MESA STEM Resource Kit ONLY** – this kit will provide the materials and equipment needed to provide featured curriculum and/or support student participation in MESA Day engineering challenges.
- c. \$60/team - MESA Day Registration only (Max \$540)**  
– \$60/team participating in each of the 9 engineering design challenges. Maximum of \$540 if school registers a team for all of the challenges. Registration and payment will occur during the spring semester and is due by **Friday, March 20**.

**MESA STEM Resource Kit** – materials and equipment needed to provide featured curriculum and/or support student participation in MESA Day engineering design challenges. Below is an example of some materials that have been provided in the past.

- Tools – for example, Cordless Drill, Bar Clamps, Hacksaws, Screwdrivers, Pliers, Levels, Protractors, Tape Measures, Glue Guns, Scissors, Hammers, Safety Goggles
- Consumables – for example, Duct Tape, Masking Tape, Glue Sticks, Craft Sticks, Sandpaper, Paper, Clay, Straws, Pipe Cleaners,
- Competition specific materials – for example,
  - Solar Car Kit – including Solar Panels and motor
  - PVC Bridge Kit – including PVC pipe
  - Golf Balls
  - Plastic Totes
  - Rocket Launchers

### **Deadlines:**

- **August 23 – Early Bird Discount for Full Program and MATI Registration Due**  
Payment must be received or post-marked by this date to receive the Early Bird Discount and receive the full program for \$550.
- **September 6 – Payment due for MATI Participation.**
- **February 7 – Full Program Deadline**  
Payment must be received or post-marked by this date to receive the full program for \$600.
- **March 20 – MESA Day Registration and Payment Due**  
A registration of \$60/challenge (maximum of \$540) must be received or post-marked by this date to participate in MESA Day.



Memorandum of Understanding
between
Arizona MESA and MESA School

School: \_\_\_\_\_

Principal or Supporting Administrator: \_\_\_\_\_

Administrator Phone: \_\_\_\_\_ Administrator Email: \_\_\_\_\_

Teacher(s) assigned to be MESA Advisor(s): \_\_\_\_\_

Advisor Phone: \_\_\_\_\_ Advisor Email: \_\_\_\_\_

Co-Advisor Phone: \_\_\_\_\_ Co-Advisor Email: \_\_\_\_\_

Classroom Number: \_\_\_\_\_ MESA Meeting Day & Time: \_\_\_\_\_

District: \_\_\_\_\_ Grades Serving: \_\_\_\_\_

Size of Student Body: \_\_\_\_\_ Is your school designated a Title 1 school? YES NO

Percentage of students that qualify for free or reduced lunch? \_\_\_\_\_

Percentage of student that part of an ethnic minority? \_\_\_\_\_

Percentage of students that would be first generation college-bound students? \_\_\_\_\_

Program Fee Options\* (please use attached invoice to submit payment):

- Program fee options including \$550 - Full Program (Early Bird), \$600 - Full Program, \$100-\$200 - MATI Registration, \$100 - STEM Resource Kit, and MESA Day Only.

Our school agrees to the Memorandum of Understanding and agrees to pay the fees associated with program options selected above.

AGREED TO AND SIGNED:

Signature of Rudy McCormick, Director, Arizona MESA, dated 7/30/18.

School Principal or Designated Administrator (please print name clearly and sign) Date

MESA Advisor(s) (please print name clearly and sign) Date

Please return this document and payment by September 8, 2018. Mail to the address below or fax to 520.626.2307.

Office of Early Academic Outreach
Attn: Arizona MESA
University Services Building Suite 501
PO Box 210158
Tucson, AZ 85721-0158



School: _____ Contact: _____ Phone: _____ Email: _____	Ship to: Arizona MESA Office of Early Academic Outreach The University of Arizona P.O. Box 210158 Tucson, AZ 85721-0158
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Quantity	Description	Unit Price	Amount
	<b>EARLY BIRD Full Program Option (Payment due 8/23) - \$550 includes:</b> <ul style="list-style-type: none"> <li>• <b>MESA Advisor Training Institute</b> Guaranteed spots for 2 teachers per school.</li> <li>• <b>MESA STEM Resource Kit</b> – materials and equipment needed to provide featured curriculum and/or support student participation in MESA Day engineering challenges.</li> <li>• <b>MESA Day Registration</b> – allows school to send 1 teams for each engineering design challenge. That is a total of 9 teams that can actively participate at MESA Day.</li> </ul>	\$550.00	
	<b>Full Program Option (Payment due 2/07)- \$600 includes:</b> <ul style="list-style-type: none"> <li>• <b>MESA Advisor Training Institute</b> Guaranteed spots for 2 MESA Advisors per school.</li> <li>• <b>MESA STEM Resource Kit</b> – materials and equipment needed to provide featured curriculum and/or support student participation in MESA Day engineering challenges.</li> <li>• <b>MESA Day Registration</b> – allows school to send 1 teams for each engineering design challenge. That is a total of 9 teams that can actively participate at MESA Day.</li> </ul>	\$600.00	
<b>OR</b>			
	<b>MESA Advisor Training Institute 1<sup>st</sup> staff member (Payment due 9/6)*</b> The registration fee is \$100.00 and includes the MESA STEM Resource Kit (1 kit per school).	\$100.00	
	<b>MESA Advisor Training Institute 2nd staff member (Payment due 9/6)*</b> The registration fee is \$100.00 and <u>DOES NOT</u> include the MESA STEM Resource Kit.	\$100.00	
<b>OR</b>			
	<b>STEM Resource Kit Only, not attending MATI (1 per school)</b>	\$100.00	
		Total Due	
		Amount Paid	
		Remaining Due	

\* If attending MATI registration must be received by **August 23, 2019.**

Make checks payable to: UA Foundation  
 If you have any questions concerning this invoice, call (520) 626-2300.  
 These fees are not Tax Deductible.