



2021-2022
Arizona MESA
Program Description

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 in order to support greater Equity in STEM. 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 majors and careers. Our partners from Higher Education and Industry include but are not limited to: Raytheon, Salt River Project, General Motors, American Society for Civil Engineers (ASCE), and the Society for Hispanic Professional Engineers (SHPE).
 - **Campus Events** – students explore unique STEM fields/majors like computer science, 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 8th grade families to enter high school with a college admissions plan of action.
 - **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.

Successful implementation of MESA requires a strong partnership between Arizona MESA, the school administration, and the MESA coach. This document will outline the responsibilities of Arizona MESA, the school-based MESA coach, and school administration as relates to the implementation of MESA.

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 colleges and universities.

2. **CONNECTIONS WITH STATE COLLEGES AND UNIVERSITIES.** In addition to hosting MESA Competitions at college and university campuses, MESA works with higher education 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.
6. **ONGOING SUPPORT FOR TEACHERS.** MESA provides guidelines for successful implementation of MESA to all registered site advisors and staff are available for consultation and presentations 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), college access network connections, and 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 Coach 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 MESA events including MESA Day, our Statewide 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 coach at their school in a timely manner. In the event that the selected teacher is unable to continue the administrator would take immediate steps to replace them.
2. Secure funding for the selected MESA program fees outlined below.
3. Maximize opportunities to access any funds that can be used to support the teacher 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 \$1800 (\$30/hour for 60 hours)
5. Support and encourage teacher participation in MESA related professional development, including identifying sources to support release time of advisors for MESA related professional development.
6. Assist teacher in planning for transportation to MESA events, as necessary.
7. Assist in identifying school facilities in addition to the teacher's classroom that may be necessary.
8. Support the teacher in recruiting MESA students in whatever way possible.
9. Support teacher and MESA Staff in gathering data for program evaluation.

MESA Program Level of Service Description and Fee Options:

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

1. Full Program Option - \$600

Includes:

- a. MESA Advisor Professional Development, including the MESA Advisor Training Institute (MATI)**
Guaranteed spots for 2 MESA Advisors per school for all PD offerings. MATI is traditionally a two-day event that provides advisors with about 14 hours of professional development centered around implementing the Engineering Design Process and supporting students in the MESA Design Challenges.
- b. MESA STEM Resource Budget** – in order to support teachers' facilitation of MESA activities and guidance of student engagement in MESA Design Challenges, a materials and equipment budget of \$200 will be provided for each school. MESA staff will work with teachers to acquire these materials. For schools that participate in the National Engineering Design Competition an additional \$100 budget will be provided.
- c. Regional and MESA Day Registration** – allows school to send up to 3 teams per challenge, if space allows, to the Regional Design day and 1 team per engineering design challenge to MESA Day.
- d. Additional Events and Opportunities** – allows school full access to all additional events and opportunities that may be offered over the course of the academic year.

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. MESA Advisor Professional Development, including MESA Advisor Training Institute (MATI) Registration - \$100 per advisor (max of two per school).** MATI is traditionally a two-day event that provides advisors with about 14 hours of professional development centered around implementing the Engineering Design Process and supporting students in the MESA Design Challenges. This option does not include the STEM Resource Budget.
- b. \$75/team - Regional and MESA Day Registration only (Max \$525)**
– \$75 per each of the 7 engineering design challenges. Includes registration for up to three teams per design challenge at Regional Design Day and one team per design challenge at MESA Day. Maximum of \$525 if school registers for all of the challenges. Registration and payment will occur during the spring semester and is due by **Friday, February 11, 2022.**
-Does not include a resource budget or access to any professional development or additional events or offerings from MESA.
- c. \$50/team - MESA Day Registration only (Max \$350)**
– \$50 per each of the 7 engineering design challenges at MESA Day. Includes registration for 1 team per design challenge at MESA Day. Maximum of \$350 if school registers for all of the challenges. Registration and payment will occur during the spring semester and is due by **Friday, April 8, 2022.**
-Does not include a resource budget or access to any professional development or additional events or offerings from MESA.
-Schools choosing this option will be allowed to bring one team per design challenge to the Regional Design Day at no cost.

Dates and Deadlines (visit website calendar at azmesa.arizona.edu/calendar for more details):

- **August 21- MESA Kick-off** – Program Updates and Information for the 2021-2022 school year. Open to all current MESA schools and new schools. No cost.
- **September** – Month of MATI – Professional Development typically happening over two days will be broken down into smaller sessions throughout the month with one Saturday of PD on September 25
- **September 3 – Program Enrollment Form Due** – Enrollment Form is attached below
- **September 13 – MATI Payment due**
- **September 25 – MATI Saturday Session**
- **December 17 – Full Program Registration and Payment Due**
Payment must be received or post-marked by this date to receive the full program for \$300.
- **February 11 – Regional/MESA Day Registration and Payment Due**
A registration of \$75/challenge (maximum of \$250) must be received or post-marked by this date to fully participate in Regional Design Day and MESA Day.
- **April 8 – MESA Day Registration and Payment Due**
A registration of \$50/challenge (maximum of \$250) must be received or post-marked by this date to participate in MESA Day.

MESA Events (dates to be determined):

- **Southern Region Design Day** – events for students in Tucson and Southern Arizona to test MESA Day projects and receive feedback from higher education and industry volunteers to assist in preparing projects for MESA Day.
- **Central Region Design Day** – events for students in Phoenix and Central Arizona to test MESA Day projects and receive feedback from higher education and industry volunteers to assist in preparing projects for MESA Day.
- **MESA Day** - annual statewide competition where teams present their designs in response to the engineering design challenges provided by Arizona MESA. Individual awards are presented to teams that place first through sixth place in each of the design challenges and trophies are presented to the schools that place first through third overall.



2021-2022

MESA Program Enrollment Form

School: _____

Principal or Supporting Administrator: _____

Administrator Phone: _____ Administrator Email: _____

Teacher(s) assigned to be MESA Coach(es): _____

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 are part of an ethnic minority? _____

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

Program Options* (please select a level of service):

Full Program (\$600), includes Professional Development and a STEM Resource Kit, full Regional Design Day, full MESA Day registration, and full access to other events and opportunities

OR (select all that apply)

Professional Development Registration (\$100 or \$200), for 1 or 2 advisors for access to all Professional Development Opportunities (payment must be received no later than September 13, 2021),

Regional and MESA Day Registration (\$75/design challenge), Up to 3 teams per registered challenge at MESA Regional Event and one team per registered challenge at MESA Day. No access to other MESA events and opportunities. Registration and payment will be due Friday, February 11, 2022.

MESA Day Registration Only (\$50/design challenge), limited access to MESA Regional Event and one team per registered challenge at MESA Day. No access to other MESA events and opportunities. Registration and payment will be due Friday, April 8, 2022.

We the undersigned have read and understand the program description provided. We understand that MESA is dedicated to expanding access and inclusion to college and STEM to the target populations listed in the description and commit to have at least 50% of our students involved with MESA be from these target populations. We agree to support the successful implementation of MESA at the above listed school to the best of our abilities.

AGREED TO AND SIGNED:

Rudy McCormick, Director, Arizona MESA 9/1/2021

Arizona MESA, Director (please print name clearly and sign) Date

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

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

Please return this document to azmesa@email.arizona.edu by September 3, 2021.

For questions please email us or call 520.626.2300.



INVOICE

School: _____ Contact: _____ Phone: _____ Email: _____	Ship to: Arizona MESA Office of Early Academic Outreach The University of Arizona USB 501 P.O. Box 210158 Tucson, AZ 85721-0158
---	--

Quantity	Description	Unit Price	Amount
	Full Program Option (Payment due 12/17/21)- \$600 includes: <ul style="list-style-type: none"> MESA Professional Development Guaranteed spots for 2 MESA Advisors per school at all MESA professional development, including MATI. MATI provides advisors with about 14 hours of professional development. MESA STEM Resource Budget – in order to support teacher’s facilitation of MESA activities and guidance of student engagement in MESA Design Challenges, a materials and equipment budget of \$200 will be provided for each school. MESA staff will work with teachers to acquire these materials. For schools that participate in the National Engineering Design Competition an additional \$100 budget will be provided. Regional and MESA Day Registration – allows school to send up to 3 teams per challenge, if space allows, to the Regional Design day and 1 team per engineering design challenge to MESA Day. 	\$600.00	
OR			
	MESA Advisor Professional Development* 1st staff member (Payment due 9/13/21) *Does not include a STEM Resource budget or registration to Regional Day or MESA Day. *Access to other MESA student focused events and opportunities may be limited.	\$100.00	
	MESA Advisor Professional Development* 2nd staff member (Payment due 9/13/21)	\$100.00	
		Total Due	
		Amount Paid	
		Remaining Due	

- Separate Regional Design Day and MESA Day registration and payment will be available in late fall 2021.

Make checks payable to: UA Foundation

If you have any questions concerning this invoice, call (520) 626-2300 or email azmesa@email.arizona.edu.

These fees are not Tax Deductible.