Non-instructional Guided Pathways Program Review

As Hartnell College is embarking on a journey to join a growing national movement aiming at improving student success called “Guided Pathways,” the Guided Pathways framework is incorporated into the Spring 2018 Program Review. The Guided Pathways framework “creates a highly structured approach to student success that provides all students with a set of clear course-taking patterns that promotes better enrollment decisions and prepares students for future success. The Guided Pathways framework also integrates support services in ways that make it easier for students to get the help they need during every step of their community college experience.” (California Community College Guided Pathways, http://cccgp.cccco.edu/About-Guided-Pathways)


Please note that resource requests will occur in fall 2018.

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<thead>
<tr>
<th>Service/Office/Non-Instructional Program</th>
<th>Date Submitted to VP (Deadline by 4/27/17)*</th>
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<tbody>
<tr>
<td>Science and Math Institute (SMI)</td>
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*Please note that you should work with your colleagues and supervisor/director/dean to ensure that this report is completed, revised as needed, in its final form and submitted no later than April 27, 2017.

List of Contributors, including Title/Position

<table>
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<tr>
<th>Name</th>
<th>Title/Position</th>
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<tr>
<td>Joy Cowden</td>
<td>Director of Science and Math Institute</td>
</tr>
<tr>
<td>Ana Martinez-Aguilar</td>
<td>Program Assistant I</td>
</tr>
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A. **STUDENT SUCCESS**

1. **As Hartnell is a student-focused college, how does your service/office/non-instructional program focus on students?**

   [Enter your response in the table cell below. The box will expand as you enter text:]

   The Science and Math Institute is a student-focused program. SMI serves students through the MESA (Math Engineering Science Achievement) and STEM Internship programs.

   MESA is an academic preparation program that assists educationally disadvantaged students to succeed in math, science, and engineering so they can transfer to four-year colleges or universities and attain four-year degrees in math, engineering, and science fields. This support is especially crucial to students who come from low-performing high schools. Eleven majors are included in MESA: Astronomy, Biology for Transfer, Biology, Chemistry for Transfer, Chemistry, Computer Science and Information Systems, Earth Science, Engineering, Geology for Transfer, Mathematics for Transfer, and Physics for transfer.

   The STEM (Science, Technology, Engineering and Math) Internship Program supports and engages students in undergraduate academic research and/or professional internship experiences. Internships include relevant and innovative projects with regional research institutions, regional governmental organizations (i.e. USDA, Naval Post Graduate School), local industry partners or national REU (research experience for undergraduates) programs. Internships are guided by mentors and supported by training in research, presentation skills, communication skills, professionalism, and transfer preparation for upper division and graduate studies. Students are also given the opportunity to share their work with academic and professional communities through presentations and publications.

   The offices of the SMI Director, Program Assistant and STEM Counselor are all located in the MESA/SMI area to provide easy access for students. This direct, constant contact allows SMI staff to be engaged with students on a daily basis and allows for just-in-time intervention and support.

2. **How does your service/office/non-instructional program interact with prospective students in the community and assist/support students to enroll? Is there more that it can do?**
The Science and Math Institute interacts with prospective students in the community and supports students to enroll through college outreach, community outreach and on-campus tours/demonstrations. SMI participates college outreach events and tabling opportunities: College Night, Counseling Day, Career Day, College Day, Priority Registration Rally, Panther Prep and Panther Cub Days. These activities are primarily intended to inform potential students about the opportunities at Hartnell College and encourage them to enroll in higher education.

Community outreach is another large focus for SMI. The major events are the STEM Runway and Family Science Day. STEM Runway is an outreach event at which students are bussed from district schools to the Salinas airport during the Salinas Air Show. STEM student clubs provide scientific demonstrations for the children to increase their knowledge of and interest in STEM careers. Family Science Day is open to the public and is designed to inform and excite the public about the importance of STEM education.

The STEM programs at Hartnell include 11 student clubs: Society of Physics Students; Society of Hispanic Professional Engineers; Society of Women Engineers, Chemistry Club; Math Club; Robotics Club; Computer Science Club; Students Interested in Medicine; Earth Science and Sustainable Technology; Astronomy; and Engineering Academia. For over 50 years, the planetarium at Hartnell College has hosted group visits, mainly field trips from local schools. The planetarium hosts, on average 88 school programs with over 4,100 visitors. In addition to the planetarium visit, student clubs hold STEM related demonstrations for students to increase their interest in STEM. The STEM club hosts demonstrations for an average 20 schools per year with approximately 1,000 visitors. This is a mutually beneficial program as STEM students are able to practice their skills and provide community service while engaging with local children to build their knowledge and interest in science.

In addition, SMI has implemented a MESA Family Luncheon series in which we inform the family of STEM students about the time commitment required for STEM students and well as the importance of gaining work experience while in school. Though there is more that SMI could do to interact with prospective students in the community and assist/support students to enroll, the program is currently close to capacity related to the number of events staff can attend. The greatest area in which SMI can improve is to increase the number of opportunities current SMI students interact with the public. The role of the MESA Ambassadors is being expanded to include more public interaction and outreach.

3. How does your service/office/non-instructional program support students in choosing their pathway? Is there more that it can do?
The Science and Math Institute supports students in choosing their pathway through career and degree exploration. The earlier in their academic career students participate in experiential learning opportunities, the sooner they can determine that they are on the right path. The STEM Internship program is a great opportunity for students to participate in industry-specific work that contextualizes their coursework and allows them to see the areas in which they want/need to expand. Most of the students that interact with SMI have already chosen a pathway, but it is the goal of SMI to keep them on the pathway and help them continue on the pathway when they transfer. SMI can do more to assist students with determining a pathway with the creating of pathway maps for particular majors to particular schools, these can be aligned with internship programs to provide students with a holistic approach to career development.

4. What does your service/office/non-instructional program do to impact and/or support students’ learning in the classroom? Is there more that it can do?

SMI supports students’ learning in the classroom through a variety of methods. The MESA and SMI Study Rooms: These dedicated spaces are the hub for study, special activities and information sharing. It is a key element in building a close learning cohort. Cohorts are appealing to adult learners because of the peer support they offer. This approach offers student benefits such as greater vitality and in-depth engagement with diverse perspectives because you are able to work together over time with faculty and students in the cohort to infuse the program with your ideas, insights and goals. Studies indicate the benefits of cohorts include enriching members’ learning experiences, and providing social and emotional support. Studies on program completion show that peer relationships, in the form of meaningful professional and personal connections, are associated with increased motivation for learning, persistence in the face of challenges, and success in program completion.

MESA Ambassadors: Between three and six MESA Ambassadors are hired per semester to mentor MESA members. The Ambassadors are from a variety of majors and are able to tutor students in core classes as well as provide advice regarding effective study methods and resources.

Academic excellence workshops: Students are scheduled in the same core math and science classes and taught how to successfully master complex technical ideas
and principles through a collaborative approach. This is an area in which SMI could improve. SMI staff have been working closely with other MESA directors to determine ways in which the AEW program can be improved. Another area for improvement to be implemented during the next academic year is the addition of study and time management skills modules which will be a requirement of MESA students.

5. **How does your service/office/non-instructional program support students to**
   a. Complete their program?
   b. Complete their program on time?

   Is there more that it can do?

[Enter your response in the table cell below. The box will expand as you enter text:]

All SMI activities either directly or indirectly support students to complete their degree and to complete on time. Academic support such as academic excellence workshops, supplemental instruction, MESA Ambassador tutoring and workshops are designed to help students in the classroom to increase success and decrease course withdrawals and retake. Students participate in experiential learning opportunities to contextualize classroom learning, which is a proven technique to increase adult learners’ success. The MESA Speaker Series engages students in STEM topics and allows them to explore the pathways, the speakers have taken to become successful. Workshops for SMI students and parents are designed to help students understand the importance of completing on time, including financial aid and transfer support. Exercises have been developed in which student calculate future value of money, so that they can see the financial impact of completing their degree on time. Students are actively referred (which means the program supports them through the contact) to other programs that can help with barriers. Textbook vouchers and calculator loans help with some of the financial burdens.

SMI can do more, by offering more self-paced success workshop modules, online for students to explore ways to increase study efficiency, test taking skills and cross disciplinary topics. Students are very busy with courses, work, and family which makes it very difficult to find time to host workshops. Online modules will allow students to work on their own time. In addition, study of the SENSE data can help determine what some of the barriers are for students to help determine paths to ameliorate those barriers.

6. **What does your service/office/non-instructional program do to assist students in**
   a. Transferring to a four-year institution (finding the right institution and determining what needs to be done to get there)?
b. Finding employment opportunities in their field (finding the right employment opportunities and determining what needs to be done to get there)?

Is there more that it can do?

[Enter your response in the table cell below. The box will expand as you enter text:]

**Transfer:** Assisting students in transferring to a four-year university is a large focus of the Science and Math Institute; all activities are designed with this goal in mind. SMI provides counseling, workshops and visits to four-year universities. Field trips are geared toward universities with strong STEM programs and include UC Davis, UC Santa Cruz, Stanford, and CSU Monterey Bay. Summer internships are encouraged with universities in which the students intend to transfer. The ACCESS program with UC Santa Cruz is designed to assist students with the transfer process and includes lab tours, Supplemental Instruction and summer research opportunities. The Community College Summer Research programs with Stanford and CSU Monterey Bay are intended to get students excited about continuing their education in the STEM fields. Guest speakers include leaders in the academic world, and don’t discuss only their research but also their path to success. Many of the guest speakers are Harntell alumni which has an amazing impact on the students, when they see students that were in their shoes, not very long ago, succeed.

The SMI can do more to assist with transfer, by being more proactive in assisting students with the transfer process. Timelines are being developed to post around the MESA and SMI rooms with month-by-month actions which should be completed for successful transfer. SMI staff is working closely with the Transfer Center and will offer more support, just-in-time, geared toward the STEM student.

**Employment:** Assisting students with finding employment opportunities is another very large focus of the SMI program. This program is designed to strengthen diversity in STEM while taking on the challenge of meeting our nation’s skilled workforce needs. A new legacy of opportunity for the families of the Salinas Valley is being developed by producing future generations of bright young scientists through innovative and comprehensive STEM programs and initiatives. Over the past several years, the STEM Internship Program has achieved unprecedented success, matching hundreds of community college students with university researchers and industry experts in prestigious laboratories throughout the Central Coast. These opportunities include the Naval Post Graduate School, US Department of Agriculture – Agricultural Research Service and Farm Service Agency, CSU Monterey Bay, UC Santa Cruz, Central Coast Surveying, and IBM. These internships have many benefits beyond the employment, students are able to explore careers and contextualize the information learned in class. This not only helps them attain employment when they graduate, through gained experience, it
also helps them stay on track and graduate. Career development workshops are hosted every Friday, where students can learn about various careers related to STEM and meet with industry professionals to begin practicing their networking skills. Students participate in industry professional organizations such as Society of Women Engineers and attend regional meetings. Students presented their internship posters at the American Society of Agricultural and Biological Engineers meeting. Through workshops and mock job fairs, students learn soft skills, corporate culture, resume writing and interviewing skills.

SMI can do more to support students finding employment by continuing to expand the network of industry contacts.

B. SERVICE AREA OUTCOMES

Each service unit/office/non-instructional program develops its own Service Area Outcomes (SAOs). The outcomes should be directly related to the work of the service unit/office/non-instructional program, challenging but attainable, and measurable. SAOs should articulate what specifically is to be achieved; their measurement should assess how well the service unit/office/non-instructional program is performing.

http://www.hartnell.edu/service-area-outcomes

Please answer the following questions:

1. Which service area outcome did you assess? How did you assess it?

   [Enter your response in the table cell below. The box will expand as you enter text:]

   SAO: number of STEM students will increased. This was assessed in 2017.

2. Describe how service area outcomes were specifically addressed by the service/office/program during the past year.

   Was there review and analysis of the data? How did the staff engage in discussion? Were any interventions conducted? Are there any plans to make changes/improvements in the service/office/program? What did you find?

   [Enter your response in the table cell below. The box will expand as you enter text:]
MESA and STEM Internship Program both work to support and engage STEM students, decreasing attrition.

c. **PREVIOUSLY SCHEDULED ACTIVITIES (Linked to previous PPA)**

1. Evaluate the success of each completed activity since your last PPA. What measurable outcomes were achieved? Did the activities and subsequent dialog lead to significant change in student learning or program success? Your previous PPA can be found through this link: [http://www.hartnell.edu/2017-program-planning-and-assessment-reports-1](http://www.hartnell.edu/2017-program-planning-and-assessment-reports-1)

   [Enter your response in the table cell below. The box will expand as you enter text:]

   Activities have been completed- STEM Internship Program funding has been stabilized for long-term efficacy.