Great addition to the prompts: Note, however, that the transfer rates increase rapidly with longer attendance at Hartnell up to a certain point but then the transfer rates begin to plateau.
Questions Regarding Degree and Certificate Programs

A.1 Core Outcome I - Completion

Observing the number of students who got Awards in your program(s) using the Program Award Tool, compared to the College historical trends what insights can you share?

Notes: Is your program an awards producer or a “feeder” program? If you have multiple degrees and/or certificates, please analyze and compare the trends among them.

<table>
<thead>
<tr>
<th>Category</th>
<th>2012-3</th>
<th>2013-4</th>
<th>2014-5</th>
<th>2015-6</th>
<th>2016-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total awards by the college</td>
<td>966</td>
<td>1218</td>
<td>1320</td>
<td>1664</td>
<td>1669</td>
</tr>
<tr>
<td>Total degrees by the college</td>
<td>604</td>
<td>746</td>
<td>787</td>
<td>989</td>
<td>958</td>
</tr>
<tr>
<td>Total certificates by the college</td>
<td>362</td>
<td>472</td>
<td>533</td>
<td>675</td>
<td>711</td>
</tr>
<tr>
<td>Program awards</td>
<td>4</td>
<td>14</td>
<td>14</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td># Number of students declared program (during year)</td>
<td>412</td>
<td>402</td>
<td>450</td>
<td>456</td>
<td>580</td>
</tr>
<tr>
<td># Students active in program (total)</td>
<td>965</td>
<td>1071</td>
<td>1184</td>
<td>1198</td>
<td>1274</td>
</tr>
<tr>
<td># students successful in 1+ core courses</td>
<td>343</td>
<td>369</td>
<td>426</td>
<td>410</td>
<td>336</td>
</tr>
<tr>
<td>Successful in at</td>
<td>216</td>
<td>240</td>
<td>264</td>
<td>255</td>
<td>225</td>
</tr>
</tbody>
</table>
According to the report, the number of biology students has increased steadily, if gradually, over the reporting period, whether measuring the number of declared majors or the number of students active in the program. In the different categories delineated in the analysis, the number of students was quite stable in 2014-5 and 2015-6. In 2016-7, there was an uptick in newly declared majors as well as number of active students, but a decline in the number of successful course completions. This may indicate that students are still in the process of completing prerequisites and general education courses, and have not yet completed a core course.

The number of awards is a stable, and consistently low, number. For the time period shown, all of the degrees would have been the A.S., not the AS-T, degree.

Analysis of these data includesthe following quesitons:

- What are the core courses?
- Are students completing the core courses but not applying for the degree?
- What is the enrollment capacity for the core courses?
- Do self-declared active majors include students planning to enter the allied health program?

* Since no program has more than 60 core units, this number should be zero and is included as a data control.
• What are the core courses?
Currently, the biology department offers an AS-T degree as well as an AS degree. The requirements are quite similar except for differences in the math requirement. Note that neither degree program includes required major electives. We do know, however, that many biology majors take advanced courses in chemistry, physics, and mathematics while at Hartnell—possibly contributing to a high average number of units to completion, which is discussed elsewhere.

• Biology AS-T degree required courses (source: 2017-8 Hartnell Catalog of Courses):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO-1</td>
<td>Fundamental Biological Concepts</td>
<td>5.0</td>
</tr>
<tr>
<td>BIO-2</td>
<td>General Zoology</td>
<td>5.0</td>
</tr>
<tr>
<td>BIO-3</td>
<td>General Botany</td>
<td>5.0</td>
</tr>
<tr>
<td>CHM-1A</td>
<td>General Chemistry</td>
<td>5.0</td>
</tr>
<tr>
<td>CHM-1B</td>
<td>General Chemistry</td>
<td>5.0</td>
</tr>
<tr>
<td>MAT-3A</td>
<td>Analytic Geometry and Calculus I</td>
<td>4.0</td>
</tr>
<tr>
<td>PHY-2A and 2B, College Physics, or PHY-4A and 4B, General Physics/Mechanics; Electricity and Magnetism</td>
<td>8.0</td>
<td></td>
</tr>
</tbody>
</table>

Subtotal 37.0 units

The A.S. degree is also offered, and during the reporting period, was the only degree awarded by the Biological Science Department (and, therefore, A.S. degrees comprise all of the program awards to date). The biology, chemistry, and physics requirements for the two degrees are identical, except that students who elected to take the PHY-4 series were expected to complete all three classes. The A.S. degree, however, requires MAT-13 (elementary statistics, 5.0 units) and MAT-25 (precalculus, 4.0 units), and calculus is a recommended elective. Thus, the A.S. degree encompasses 5-9 more units than the AS-T; the lesser number of units required for the AS-T may encourage more completion.

The number of core units thus ranges from 37 to 46 units, depending on the degree. Students who have been “successful in at least 30 core units but less than 60” can be presumed to have substantially completed the requirements for a biology degree. The number of students in that category ranges from 56 in 2017-8 to 103 in 2014-5. However, the
Program Awards are a small fraction of that. Biology faculty have long hypothesized that students tend to transfer as biology majors without formally petitioning for the associate’s degree, and these data seem to support that.

• If nearly 600 students declared as biology majors in 2016-7, what is our capacity in any one year to enroll them?

Typically, the breakdown of core classes and their contractual limits are as follows*:

<table>
<thead>
<tr>
<th>Course Sections offered</th>
<th>Maximum number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>(or group of courses)</td>
<td>in fall/spring</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>1. CHM-1A 5-6 sections</td>
<td>135-162 students</td>
</tr>
<tr>
<td>1. PHY-2A, 2B1 sequence</td>
<td>27 students each section</td>
</tr>
</tbody>
</table>

*Numerous additional sections of MAT-13 (statistics) and MAT-25 (precalculus); these are not limiting factors

1. Since these are sequences, this presumes duplication of students from the first course in the sequence.

All classes are offered in both fall and spring semesters, except PHY-2A (fall only) and PHY-2B (spring only).

The science faculty have gone to great lengths to avoid conflicts in the scheduling of these classes so that students can combine them and complete their coursework in a timely manner. The classes fill consistently, frequently with waitlists, but students can generally be accommodated when they register.

More detailed analysis might (or might not) reveal schedules that
promote more timely completion and/or greater success. Possible schedules that optimize timely completion for college-ready students are discussed elsewhere.

- The number of “Students Declared Program” and the “Number of Students Active in Program” seems quite high compared to the number of students who complete courses. Some questions to consider: Does this number include students taking allied health courses? They are not biology majors in the strict sense, but are taking prerequisite courses in the biology department, and might be considered active members of the program. They are certainly actively enrolled in biology classes and might account for the large numbers. Anecdotally, students tend to take their various general education and prerequisite courses in their early years and leave the biology classes until their final semesters. Is it possible that many of these “active” students have yet to take their biology courses?

How do you inform potential students about your program? How do students know which courses they should take for your program and in what sequence?

Depending on their status, students might develop their education plans with a STEM/general counselor, a TRiO counselor, or an EOPS counselor. Biology faculty often advise students informally about the course sequence or proper preparation as well- certainly while students are actually enrolled in the courses. Biology faculty also attempt to meet with counselors on a regular basis with counselors to discuss changes in the program or general concerns.

Biology faculty also participate in events such as Panther Prep, the majors fair in the fall, and community events such as Expanding Your Horizons. Faculty routinely provide literature about the programs at these events.

Biology faculty are heavily involved with the STEM Internship program. Several faculty teach in the SCI-124 internship preparation course (Drs. Edens, Hughey, and Wright) and participate in various ways to assist students with internship placement. This interaction often results in wide-ranging discussions that help students develop their transfer and career goals. Furthermore, in our classes biology instructors regularly
share information with students about internship opportunities.

A.2 Core Outcome II - Time and Units to Completion

Observing the Time & Units data, what insights do you get from the data in general?

The benchmark for these data are 3 years and 60 units to degree completion. The five-year cumulative data at Hartnell College for transfer (4.3 years) and first-time students (4.5 years) are similar and show a median time of 4.4 years to degree completion. The number of units to complete the degree for the same five-year cumulative comparison however are dissimilar. First-time students earn 92 units, while the transfer students graduate with 74 units. The median units to degree for all students is 88.5.

Analysis of first-time biological science students (n=15) found higher numbers compared to those reported for the college. The time to degree completion for first-time students was 4.8 years and the units to completion was 119. For transfer students (n=7), those numbers were slightly lower at 3.8 and 112.5, respectively. For both first-time and transfer students, the number of units to completion are much greater than those college-wide. This is likely due to the greater number of required mathematics and physical science courses in the biology discipline (CHM 1A/1B- 10 units, CHM 12A/12B- 10 units, MAT 13- 5 units, MAT 25- 4 units, MAT 3A/3B/3C- 12 units, PHY 2A/2B- 8 units or PHY 4A/4B/4C- 12 units). Although not all of these courses are required for the biology degree, they are recommended major electives at Hartnell because they are required at the university after transfer. The students are likely opting to take all or most of these lower-division courses here before transferring to the university. The median time to degree completion in biology is 4.6, and this is roughly similar to those reported college-wide.

Observing the Subject Analysis tool, and focusing on the percentage of capacity of your program, is the college offering enough sections or too many sections of the courses in your program?
The biology faculty offer the required major courses on a routine basis (BIOs 1/2/3- 15 units), and in addition, semester by semester, revise these offerings to meet demands as communicated by the students and counselors. To meet these demands, additional sections are offered of the three courses and the scheduling of the courses are frequently revised to reduce conflicts with the major’s series and the mathematics and physical science courses listed above in A.2.1.

Over the course of five years, the capacity of the biology program has ranged from a low of 86.43% in 2013-4 to 93.67% in the current year. The department has been very stable in its number of section offerings, typically 35 or 36 each semester. In fall 2017, we offered 42 sections, and still filled at 90.06% of scheduled capacity.

As noted above, all three major classes are offered each semester and, at various times, have offered additional sections of these classes to meet demand. Biology course offerings meet a broad array of needs: required courses for the biology degree, prerequisite classes for allied health programs, and general education electives. Thus, our program offerings are necessarily quite diverse. Many classes are offered during the evening as well as daytime, and a limited number of classes are offered online. A laboratory section of General Botany is currently offered in the evening, however, due to limitations in space and technical support at night none of the others are scheduled during this time.

Our program analysis suggests that, in aggregate, we are meeting these demands.

Does the way the courses in your degree and certificate program are scheduled enable students to take courses when they need them, plan their lives around their classes from one term to the next, and complete their program on time? If it does not, are there any obvious fixes?

In consultation with the science technicians, Dean Shannon Bliss, and the STEM (Brook Foley) and other counselors, the biology faculty developed an educational plan that can theoretically meet the 60 units and 3 years benchmark, but requires the student to enter the program college-ready. The plan:

| Fall Year 1 | Spring Year 1 | Fall Year 2 | Spring Year 2 |
Students taking the PHY-4A/4B series instead can still finish the AS-T in two years, if they adhere strictly to the calculus schedule and take PHY-4A in the fall and PHY-4B in the spring of Year 2.

As noted above (A.2.2), the biology program continues to adjust its offerings to accommodate scheduling conflicts and demands, as well as regularly and predictably offer the courses above for students to be able to complete the degree on time.

How do you work with underprepared students? How do you share the educational resources that are available on campus with all your students? Please give examples of when these resources have worked well and when they have not.

Students come to Hartnell underprepared in basic mathematics, reading and writing, and study skills. Faculty share resources by announcing them in class, posting them on their websites and on Canvas. Examples of resources include:

1. **Supplemental Instruction (SI).** A student that successfully completed the course with an ‘A’ or ‘B’ assists the currently enrolled students using peer-lead sessions. The SI works with the students in small groups and one-on-one and has them compare notes, discuss readings and concepts, works on handouts, and gives practice quizzes. Students who attend the sessions gain a greater understanding of the course content, learn helpful strategies, earn higher grades, and are more likely to successfully complete the course.

2. **Directed Learning Activities (DLAs).** The biology program developed twenty DLAs that introduce and quiz students on biological concepts that students find challenging to learn. These DLAs are hosted on the college website and used by all biology faculty.

3. **Online links to textbook resources.** The biology faculty direct students to online textbooks resources that provide study guides, flashcards, quizzes, summaries and outlines of their course textbooks.

4. **Online links to PowerPoint lectures.** The biology faculty present the
lectures to students as freely available materials for study to all students.

5. **Videos of lectures.** Several faculty have their lectures available for study and review by students.

6. **materials and communication.** Students have access to additional faculty materials via *Canvas*, an integrated online course learning management system. They use this for study materials, but also for communicating with each other, forming study groups, asking questions about the course content.

### A.3 Core Outcome III - Transfer

Observing the number of transfer students from the transfer volume data, what insights do you get from the data in general?

The most obvious trend in the transfer volume data is a general increase in the number of students who successfully transferred from Hartnell into the CSU and the UC systems. During the years of the study, there was only one anomalous year of decrease in transfers from Hartnell to CSU and UC systems (2012 for CSU and 2013 for UC). But other than these years, there has been a steady increase in successful transfers from Hartnell into UC and CSU universities.

On the other hand, there was a decreasing trend in the number of Hartnell students who transferred into in-state private universities and out of state universities. However, inspection of the data from seven neighboring colleges (Cabrillo, Cuesta, De Anza, Foothill, Gavilan, and Chabot/Las Positas College) generally shows a similar decrease in transfer, especially to in-state private universities.

Although not directly part of this PPA question, it is very interesting to also inspect Hartnell’s transfer rates (the percentage of our students who transfer, as opposed to the transfer volume, which is number of our students who transfer). Note that the transfer rates are calculated for students who stated intent to transfer when they enrolled at Hartnell. The transfer rate data are divided into cohorts of Hartnell students, based on the year that a student first enrolled at Hartnell College. For each cohort-year, the general cohort transfer rate is provided, as well as the transfer rate for the transfer ready sub-cohort (the transfer ready sub cohort are the members of the cohort-year that,
at the time of the survey, completed at least 30 units, including transfer level English or transfer level math). Also provided is the transfer rate of the full time sub-cohort (the members of the cohort-year that were full time students). For each of these cohorts (the full cohort-year, the two sub-cohorts described above), the transfer rates were calculated as the percentage of the initial cohort that successfully transferred to a four year institution by six or fewer years from their initial year of attendance at Hartnell.

One trend that clearly emerges from the above transfer rate data is that, in general, the more time that has passed since a student first attends Hartnell College, the greater the chance that that student will successfully transfer to a four year institution. This is evidenced by the fact that the cohorts where there has been sufficient time to track the cohort for six full years (the cohorts of years 2008, 2009, 2010, and 2011) generally had the highest transfer rates, whereas the cohorts where there has not yet been sufficient time to track for six years (the cohorts of 2012, 2013, 2014, and 2015) generally had lower transfer rates, with the transfer rates declining with fewer years in attendance at Hartnell.

The longer-attendance-time-equals-higher-transfer rate trend described above is not surprising. It simply reflects the fact that the longer length of time a student spends at Hartnell, the more opportunities that student has to complete the courses required for transfer. Note, however, that the transfer rates increase rapidly with longer attendance at Hartnell up to a certain point but then the transfer rates begin to plateau. For example, in the transfer ready cohort-years, the transfer rate for the cohorts who have had time to complete all six years of the six year analysis (the cohorts of years 2008, 2009, 2010, and 2011) all had transfer rates within the range of 61 – 69%. The transfer rates of cohorts who have not had time to complete all six years of the six year analysis (the cohorts of years 2008, 2009, 2010, and 2011) all had transfer rates below 60%, declining sharply to the lowest transfer rate of the study, 29%, for the most recent cohort-year that was analyzed (2015). The above trends, taken together, suggest that transfer rates increase with longer time in attendance at Hartnell, but beyond a certain length of attendance, there are not significant further increases in transfer rate with increased time.
Even though the trend described above is not a surprising one, it does raise two important questions: (1) How does Hartnell’s transfer rate compare to the national average for community colleges, and (2) Why does it take many more than two years for Hartnell students to achieve transfer rates above 60%?

The first of these questions is somewhat difficult to answer, despite the fact that several state and national studies have been done on community college transfer rates. The difficulty arises because the cohorts in these national and state studies were not chosen by the same criteria as the cohorts in our Hartnell transfer analysis. For example, one California study used for their cohort criteria community college students who had completed 12 units at community college (whereas our Hartnell study used a 30 unit criterion for our “transfer ready” cohort). Another study didn’t define criteria for their cohorts, other than enrolling in a community college (whereas our Hartnell study cohorts only included our students who stated an intention to transfer).

But despite these differences in cohort criteria, most studies showed a community college transfer rate of 30% to 40%. This is roughly consistent with our transfer rates for our general cohorts (the cohorts with only the criterion of stating an intention to transfer). So, in summary, it appears that our transfer rates are roughly consistent with the national average.

The second question, why does it take many more than two years at Hartnell to achieve an average transfer rate above 60%, probably has many different answers. Some possible answers to this question are listed below.

(a) Students taking remedial courses before they begin their transfer level course work. The Salinas School District ranks below the state average in English and math scores. It seems likely that this results in many Hartnell students having to take remedial courses before they can begin taking transfer level courses.

(b) Students taking more courses than required for transfer due to the students not understanding transfer requirements for the system they plan to transfer into (for example, the CSU system has different requirements than the UC system, and requirements vary from one UC to
another) or students not understanding their ed plan.

(c) Students taking fewer courses each semester than called for by their ed plan because of personal issues such as child care and employment to support their family, or raising tuition and book costs.

(d) Students not taking all of the courses on their ed plan for a given semester due to the courses being filled or two required courses that are scheduled at the same time period (scheduling conflicts).

(e) Students delaying transfer due to raising costs of tuition at their intended four year institution or due to the four year institution changing transfer requirements or even ceasing to accept transfer students (as did San Jose State University in 2009 in its effort to deal with the statewide financial crisis).

Possible remedies for the above causes of slow and low transfer will be discussed in section A5, below.

What interactions do you have with students about transfer options? Please give examples.

The biology department does not have a formal system of discussing transfer with our students. Most instructors make the assumption that our students have developed an ed plan of courses by their counselors, that the students are following that ed plan when they enroll in our biology courses, and that successfully passing our courses will lead to our students transferring to four year institutions in a timely manner.

Although the biology department does not have any formal system of discussing transfer options with our students, instructors do discuss transfer options during informal conversations with individual students. For example, when an instructor and a student are discussing the student's future education and career plans, an instructor might recommend that the student apply to certain four year institutions that have a particularly strong reputation in the field of interest of the student.

Another indirect way that biology instructors interact with students in regards to transfer is by introducing students to programs that
facilitate transfer. One such program is ACCESS. The ACCESS program is a federally funded program (based at UC Santa Cruz) that provides community college students who are interested in biomedical research careers with opportunities and skills that increase the student's transfer eligibility. Biology instructors and other STEM faculty at Hartnell regularly encourage students to join the ACCESS program.

Another indirect way that biology instructors help students think about transfer options is through clubs activities and biology seminars. For example, Hartnell’s SIMA (Students Interested In Medicine Association) club has organized club trips to four year institutions that have medical schools. One purpose of these trips is that the SIMA students can learn about the pre-med programs that they would pursue after transfer to these institutions. In regards to seminars, the biology department on occasion hosts seminars by researchers from four year institutions. These speakers, who are usually graduate students pursuing their PhD, often describe to our students their own educational pathway, including how they completed their undergraduate degree. These seminar speakers thereby serve as role models to our students in regards to successful transfer and completion of a four year degree.

How are program learning outcomes aligned with the skills and knowledge students will need to succeed in transferring to baccalaureate degree programs?
The Biology department has the following six program learning outcomes (PLOs).
(1) Apply the scientific method to problem solving, devising a research plan, and evaluating data and findings.

(2) Describe the structure and function of biological molecules, cells and organelles, and tissues and organ systems of plants and animals.

(3) Apply the principles of heredity at the molecular, cellular, and organismal levels.

(4) Explain the mechanism and evidence of evolution through natural selection.

(5) Apply taxonomic principles to the classification of organisms.
(6) Describe the flow of energy within organisms and within ecosystems.

Together, these six PLOs represent the core skills and knowledge necessary for success in our majors biology courses, and thereby these PLOs align with our students' success in transferring to four year institutions.

A.4 Core Outcome IV - Employment

Observing the Employment data, what insights do you get from the data in general?
Employment data are not available for our program.

How and when do you inform students about prospective employment opportunities?
Jobs in biology tend to require at least a B.S. degree, so most of our students will not be eligible for employment opportunities until after they transfer and finish their B.S. However, when outside internships or similar positions are available for students, we announce them in class and/or pass the opportunities along to MESA.

How are program learning outcomes aligned with the skills and knowledge students will need to succeed in their future employment?
Our program learning outcomes include some of the major concepts that biology students will need to know as they transfer to a four year university. In addition to those who will seek employment after attaining the B.S., many of our former students will attempt to apply for study in medical or dental school, or go on to graduate school following their B.S. Their future employment opportunities will be quite varied, but they will certainly require knowledge of the concepts defined in our program learning outcomes.

A.5 - Recommendations
Reflecting on your observations and analysis from A.1 through A.4, what recommendations do you have for your program?

(A2) Biology majors are taking almost twice the number of units at Hartnell College before transferring to the four year university system, compared to the median Hartnell College student. The main reason for this is because students are electing to complete all of their mathematics, physical and biological science requirements at the community college, before transferring to the university. If students continue to opt for completing all of these lower division courses at the two-year institution, they will undoubtedly also remain at our institution longer than other disciplines at Hartnell College.

Since many of the biology majors arrive at Hartnell underprepared, and thus require additional prerequisite courses before enrolling in courses that articulate to the university, and since students are then deciding to remain and complete most or all of their lower-division biology requirements, the biology graduation rates and number of units are unlikely to meet the 3 year/60 unit state benchmark.

(A3) In regards to increasing the transfer rate of our biology students to four year institutions, some suggestions are the following.

a) Partnering with local high schools, Hartnell could explore ways to decrease the amount of remedial course work needed when high school students enroll at Hartnell.

b) Providing free on-campus child care could allow students, especially single parents, to take more units per semester. This would decrease the time these students require to become eligible for transfer.

c) Simplifying the transfer requirements and presenting the requirements to incoming students in a more effective way would also be likely to increase the transfer rates of Hartnell students. Until recently, there was no uniform system of transfer requirements for entering into California four year institutions. Each institution had its own set of requirements and Hartnell had to establish equivalency of Hartnell courses with the required courses of each institution on a course by course basis. This produced a bewildering array of transfer requirements for our students. The recent introduction of two year transfer degrees (AS-T degrees) at a
statewide level has greatly simplified this process for transfer into the CSU system. The AS-T degree for a major (for example, the biology AS-T degree) is accepted as equivalent to the first two years of course work in that major at any CSU institution. Therefore, students who wish to transfer to a CSU now have a single list of courses that they must complete to be transfer eligible to any CSU. If and when the UC system develops a similar universal transfer system (or adopts the AS-T degree system) the transfer requirements for our students will become even simpler, which should boost our transfer rates and decrease the transfer times of our students.

Reflecting on your observations and analysis from A.1 through A.4, what commendations do you have for your program?

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Questions About Previous Activities

B - Questions About Previous Activities

Evaluate the success of each completed activity in Section D.1 (Previously Scheduled Activities) from your Spring 2017 PPA. What measurable outcomes were achieved? Did the activities and subsequent dialog lead to significant change in student learning or program success?
Activity- Genomic workshops for Hartnell College students

In the fall of 2017 Dr. Hughey was awarded one of the Hartnell College Innovation grants. The grant titled “Genomics Workshop and Publication” trained Hartnell College students in genomics. The fall workshop focused on teaching students to analyze genomic data and write a professional manuscript. The study involved reading scientific literature, managing and analyzing data, attending a professional talk, participating in a day-long workshop, and drafting a paper for publication in a scientific journal. This type of student opportunity was and still is novel, and is not offered at other community colleges or universities. For this project the participants analyzed the mitogenome of a species of horned lizard. The paper was published and is cited below.

In the spring of 2018 Dr. Hughey incorporated the same type of workshop into his General Botany course, which is one of the three required courses for the biology major. The General Botany spring offering included two sections. This project focused on the mitogenome and chloroplast genome of a marine plant, the rockweed *Fucus spiralis*. This paper was published just this week in April.

It is unclear at this time if there was any significant change in program success as a result of the activities in these two workshops. However, the workshops did satisfy Hartnell’s Priority 2 of the strategic plan, serve three of the four biology Program Learning Outcomes, as well as meet the desired outcome, which was to train Hartnell College students in modern genomics methods. For these reasons, we feel the workshops compliment the instructional material presented in the classroom and the objectives of the college (*= Student authors).


**Activity:** Develop ability to make screencasts of lectures for instructors who opt for it.

In the year since our department’s the last PPA report, the campus professional development center has begun to offer tutorial videos for using Screencast-O-Matic, which is free screen casting software. This software can be accessed via the internet or can be downloaded for free onto any computer.

Although the availability of this free software is certainly an important step in allowing any instructor to screencast their lectures, the free version of the software limits the user to only 15 minutes per recording. This would mean that an instructor must make at least three separate recordings for a typical 50 minute lecture. Furthermore, no wireless microphones have been purchased by the college for the purpose of instructor screencasting. Without wireless microphones, the instructor’s voice could not be part of the screencast unless the instructor stood very near the teaching station computer’s internal microphone during the entire recording process.

As described above, the only measureable outcome from this proposed activity is that the Professional Development Center now offers tutorial videos on how to use the screencasting software. Without longer
recording times and wireless microphones, there is little potential for this to lead to increased student or program success.

**Activity:** AS-T in Environmental Science

Update: Environmental Science (BIO 48) has been revised and approved by the Curriculum committee. It has been submitted for approval as C-ID ENV 100. Once this is approved, we will be ready to submit our proposal for an AS-T in Environmental Science.

**Activity:** Non-Drupal website to host Bio tutorials and any other faculty HTML pages

Update: Since we will be moving to a new content management system, this has not yet been addressed. It is possible that once we move away from Drupal, we will be able to use the old version of the tutorials that didn’t work with Drupal.

**Activity:** STEMART lab

Faculty made substantial progress in the execution of the innovation awards. A “hallway museum” was established in building E, and the group presented a TED talk-style lecture on aesthetics in teaching and classroom design at a campus flex activity. Students in BIO-1 and CHM-12 in particular are experimenting with model building with various media to study molecule structure. Efforts to develop the teaching videos have been stalled somewhat because of Internet connectivity problems in the J building where the STEMART lab is housed, but we continue to attempt creative solutions to work around this. We continue to explore ways to infuse aesthetics into all areas of inquiry and are starting to develop curriculum that does this in a formal way—perhaps as an introductory course.