ASNS Program

2019
ANNUAL REPORT OF PROGRAM DATA

LEEWARD COMMUNITY COLLEGE

UNIVERSITY OF HAWAI'I®
1. Program Description

The Natural Science program at Leeward CC offers the Associate in Science in Natural Science (ASNS) degree with Concentrations in Life Science, Physical Science, Pre-Engineering, and Pre-Computer Science. The mission of the program is to provide a clear two-year pathway toward baccalaureate STEM degrees at UH Manoa and other 4-year institutions.

The program achieves this mission through a variety of goals:
1. Ensure students can complete the program on time by eliminating course scheduling conflicts.
2. Ensure smooth articulation of our courses within the UH System.
3. Create, host and promote STEM events and undergraduate research opportunities.
4. Foster strong collaboration with the Hālau ʻIke o Puʻuloa to increase the number of Native Hawaiians pursuing 4-year STEM degrees.

2. Analysis of the Program

The overall program health of the ASNS program is determined by the demand, efficiency, and effectiveness indicators. Based on the ARPD data and rubric, the ASNS program demand indicator is categorized as “unhealthy” due to the drop of 4% in the number of program majors. Even though the number of program majors had remained consistent since 2016. There is a decrease of 15 students from 406 to 391 which represents the drop during this past year. It may be directly related to the annual declines in the overall enrollment at Leeward CC for the past three years. On the other hand, there is a significant growth of 17% in the number of Native Hawaiian students (i.e. from 86 to 101). This is a remarkable increase when compared to the previous calendar years. In addition, there is a record high in the number of ASNS courses offered from 108 to 133 (i.e. a 23% increase) and we have seen this number growing steadily since the program was created. Hence, it is a positive sign that both program-majors and non-program majors are taking more ASNS classes as it is shown in the 13% increase of Full Time Equivalent (FTE) enrollment from 172 to 195.

In terms of the efficiency indicator, the ASNS program is categorized as “healthy” based on the class fill rate and the student to faculty ratio. For this year, our fill rate is at 77.3%. Although this number is higher than the benchmark of 75%, there is a concern as we see a trend of declining fill rates. Since 2016, the fill rates had been decreasing from 84.4% to 79.5% and down to the current 77.3%. This may be directly related to the overall decline of student enrollments at Leeward CC for the past few years. Further data analysis will be needed to determine if this is a direct impact to the fill rate or if certain courses are the cause of this decline. On the other hand, the number of Board of Regents (BOR) appointed faculty assigned to the program has been updated from 11 to 21. In addition, we were able to hire a full-time Engineering faculty in August of 2019 and this faculty is now teaching a variety of engineering courses at Leeward CC. Hence, it is notable that our average class size has remained small and it has decreased from 19 to 18. From an instructional quality standpoint, that is a desirable metric since it provides a smaller student-to-teacher ratio thus giving faculty more ability to interact with each individual student. It would be of interest to identify the low-enrolled classes and to have a discussion with our STEM faculty on how to improve the fill rates for these courses.

As for the effectiveness indicator, the program has been categorized as “cautionary” based on persistence, which indicates the percentage of program majors that remained during the past academic year. In fact, the
percentages of persistence had been steady in the range of 67% to 68% for the past three years. For this year, we have a successful completion rate at 71% where active program majors received the final grades of C or higher and this number has also remained consistent for the past three years. This is encouraging considering that these ASNS courses are very challenging. Overall, the number of withdrawals is down again from 155 to 147. For this past year, the program has awarded 55 students with the ASNS Associate Degrees. On the other hand, we have 76 students who transferred to the 4-year UH campuses. Of those 76 students, it is notable that we observe an increase of students who transfer without the ASNS degree (i.e. from 46 to 54). It would be of interest to identify the specific concentration of those students who transferred without the degree.

For the distance indicators, it is observed that the number of DE courses (i.e. completely online) has grown from 4 to 6 courses. As a result, the enrollments in the DE courses increased from 94 to 132. However, student successful completion has dropped from 83% to 69%, and the number of withdrawals has increased from 5 to 18. This indicates that our students are not performing well in these DE courses. It would be of interest to identify these courses and to have a discussion with our STEM faculty on how to support them with teaching tools and how to improve the learning experiences for students.

The last indicator of our program takes a look at the program performance. Based on the data, the number of degrees that were awarded remains consistent from the previous year (from 58 to 55) and 11 degrees were awarded to Native Hawaiian students. The data is in line with previous trendline analysis.

### 3. Program Student Learning Outcomes

For the program year of 2018 – 2019, the following P-SLOs were not yet reviewed. The new ASNS Coordinator will be working with OPPA on ways to accomplish this for the future.

Table 1. Assessment of Program Student Learning Outcomes

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<thead>
<tr>
<th>P-SLOs</th>
<th>Program Student Learning Outcomes</th>
<th>Assessed this year?</th>
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<tbody>
<tr>
<td>1</td>
<td>Analyze data effectively using current technology.</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Communicate scientific ideas and principles clearly and effectively.</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Analyze and apply fundamental mathematical, physical, and chemical concepts and techniques to scientific issues.</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>Apply fundamental concepts and techniques in their chosen field of study, such as biology, chemistry, engineering, computer sciences, etc.</td>
<td>No</td>
</tr>
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4. Action Plan

The data from AY 18-19 clearly demonstrates the continuous demand, efficiency, and effectiveness of the ASNS program despite the overall declining enrollments at Leeward CC for the past few years. Considering the program reaches its 10th year milestone in 2019, this is a testament to the student need for our program.

During fall of 2019, the new ASNS Coordinator and the STEM counselor completed the action plan and we submitted a proposal to the Curriculum Committee that included minor curricular changes to broaden the electives and to streamline the pathway for students obtaining the ASNS degrees. These changes include: a) updating GG to ERTH, b) accepting ICS 111 for EE 160 (i.e. specifically for CE and ME students), c) updating foreign languages requirement from 2 to 4 semesters, and d) changing FS to FQ for Math 241.

In order to sustain and increase the strength of the program, the following Action items are planned for the future.

1. Create and administer a survey on program effectiveness and success to ASNS program majors and graduates.
2. Strengthen PLO-to-SLO course assessment for all ASNS core courses. The ASNS Coordinator will be in discussions with OPPA on ways to accomplish this.

5. Resource Implications

1. Funding for ASNS promotional media. In order to further grow the program, we are requesting $2,000 for the creation and purchase of promotional items. These will include items such as pens, pencils, flyers, and posters. The program hosts numerous outreach activities and on-campus events which would be greatly benefited by these items. They will help promote the program to potential STEM students. No funding to the program for this need has been given for at least five years.

2. Increased classroom allocation. With the growing number of students in the program, the number of ASNS courses has risen year-over-year from 108 to 133. In order to accommodate this rise in enrollment, more classrooms and accommodations will be needed by the program. With the planned remodeling of several classrooms in the PS and BS buildings, the M&S Division faculty will need to have addition lecture rooms available as we work through this transition.