ANNUAL DEPARTMENT REPORT

2010-2011

for the

Mathematics and Business Department

Submitted by
Clayton K. Akatsuka, Chairperson

November 7, 2011

Part I. Executive Summary
In the AY2009-2010 Annual Department Report, the Mathematics Area Goals and Objectives and Intended Student Learning Outcomes, the Math Discipline Intended Student Learning Outcome, the Math Discipline Foundation Symbolic Requirement Student learning Outcomes, the Business Area Goals and Objectives and Intended Student Learning Outcomes, and the Business discipline Intended Student Learning Outcomes were submitted. A review of the Overall Mathematics and Business Department Goals for AY2009-2010 is presented here.

The Mathematics and Business department’s overarching goals: “Assess and develop WCC’s math and business courses, modes of instruction, services and enrichment opportunities to increase student success in subsequent courses and certificate/degree attainment especially in business or STEM fields.”

A definite strength of the department is its senior faculty because of their sustained work over many years. They are passionate, professional, demonstrate a high level of expertise in their area, and represent an aggregate of more than one hundred sixty-five years of teaching at WCC! They facilitate every aspect of the department, including the promotion of our overarching goals, to ensure that our students receive a quality education in the areas of accounting, business technology, developmental mathematics, information and computer science, and transfer level mathematics. They ensure our students’ success by being well prepared, well informed, current and attentive to emerging trends in their areas. They also provide leadership in various areas of the College.

A weakness is simply not having the necessary amount of time and energy to timely meet the increasing demands of assessment, record keeping and reporting, and accreditation-related activities while maintaining excellence in our primary duty, teaching.

The data reveals the growth and increasing demands on faculty as we struggle to do more with less. Personally, I see the tremendous stress shouldered by faculty, especially the senior faculty, in the Mathematics, Business and ICS disciplines. This may be directly attributed to the heavy and seemingly growing reliance on adjunct faculty. By the nature of their appointment, they quite often have very little involvement with governance, curriculum development, and the day-to-day issues faced by full time faculty, and in fact, the number of adjunct faculty adds more work to the full time faculty in terms of mentoring, training, evaluations, and student complaints. In addition, the Business discipline faculty are heavily burdened with the uncertainty of suitable facilities at a time when growth in this area is at an all-time high.

The data also reveals that we need to continually monitor, assess, and reevaluate our courses, curriculum, and programs to better serve our students resulting in better persistence and successes. Towards this end, the department reviewed and discussed its immediate goals for the ensuing academic year.

The immediate goals for AY2011-2012 are stated below by disciplines.

The Business Discipline’s goals:
1. Research industry needs and develop curriculum (program and courses) for a CA in Information Management for Business.
2. Seek funding for additional tutoring and SI support for ACC 201 students.
3. Assess current lecturer pool and determine if recruitment efforts are needed.
4. Offer a workshop on how to present materials to students so that they are accessible to students with learning disabilities.
5. Reassess the space needed to effectively teach ICS and BUSN computer courses.
6. Assess Web Support Certificate of Competence and replace ICS 124, which is no longer offered at Maui College, with another course.

The Mathematics Discipline’s goal:
1. Develop and implement the use of a common Final Exam for Math 103.
3. Develop a combined Math 20 and Math 22 course.
4. Prepare for the new Kapiko Learning Center.
5. Continue to support Supplemental Instruction in mathematics.
6. Revise the Math 24 Chapter 3 departmental test.
7. Develop and offer Math 232-calculus IV.
8. Plan the transition of the Math Lab (Mana 113) to the Math Center.
9. Secure a class set of computers for the Math Center.
Part II. Mission and Student Learning Outcomes

College Mission Statement

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment – inspiring students to excellence.

General Education Student Learning Outcomes

I   Students will be able to understand the importance of ethical conduct and practice it in their daily lives.
II  Students will be able to communicate through speaking, writing and listening effectively individually and in teams.
III Students will be able to think critically and solve problems by finding, analyzing and evaluating information engaging in informed debate.
IV  Students will be able to use technology to access, maintain, and analyze data and information.
V   Students will be able to make choices for a healthy mind, body, and spirit.
VI  Students will be able to pursue life-long learning and share learning with others.
VII Students will be able to apply specialized skills for employment.
VIII Students will be able to appreciate and/or express themselves artistically, creatively, and culturally.
IX  Students will be able to contribute to the community through active participation and support.
X   Students will develop life skills to fulfill their personal and professional potential.

Associate of Arts Student Learning Outcomes

AA1 Draw on knowledge from the liberal arts to succeed in upper division courses.
AA2 Recognize and respond to the wonders and challenges of the natural environment, both biological and physical.
AA3 Use research and technology skills to access information from multiple sources.
AA4 Use critical thinking and problem-solving skills to evaluate and synthesize information to form conclusions, ideas, and opinions.
AA5 Express ideas clearly and creatively in diverse ways through the fine and performing arts, speech and writing.
AA6 Recognize one’s role in community and global issues with a respect for diverse cultures and differing views while embracing one’s own cultural values and heritage.
AA7 Engage in civic activities with a sense of personal empowerment.
AA8 Enter and perform effectively in the work force.
AA9 Develop skills that improve personal well-being and enhance professional potential.
AA10 Use knowledge and skills to maintain and improve mental and physical well-being.
AA1 Pursue lifelong learning.
Part III. Departmental Analysis

A. Quantitative Indicators

The quantitative indicators are shown by subgroup and academic year. For this report an academic year starts in the fall, and ends in the summer. For example, AY 2006-2007 is Fall 2006, Spring 2007, and Summer 2007. The data also include indicators for yearly change and a 5 year change. Those indicators are in percent, and represents the percent increase or decrease from year to year and from AY 2006-2007 to AY 2010-2011.

Demand

1. Number of Classes Taught

Table A. Number of Classes Taught by Subgroup

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<tbody>
<tr>
<td>ACC</td>
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<td>8</td>
<td>0.0%</td>
<td>8</td>
<td>0.0%</td>
<td>9</td>
<td>12.5%</td>
<td>12</td>
<td>33.3%</td>
<td>50.0%</td>
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<tr>
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<td>-100%</td>
<td>1</td>
<td>-100%</td>
<td>3</td>
<td>200.0%</td>
<td>4</td>
<td>33.3%</td>
<td>100.0%</td>
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<tr>
<td>DEV</td>
<td>27</td>
<td>29</td>
<td>7.4%</td>
<td>32</td>
<td>10.3%</td>
<td>45</td>
<td>40.6%</td>
<td>47</td>
<td>4.4%</td>
<td>74.1%</td>
</tr>
<tr>
<td>ICS</td>
<td>14</td>
<td>17</td>
<td>21.4%</td>
<td>20</td>
<td>17.6%</td>
<td>27</td>
<td>35.0%</td>
<td>35</td>
<td>29.6%</td>
<td>150.0%</td>
</tr>
<tr>
<td>TRANS</td>
<td>25</td>
<td>24</td>
<td>-4.0%</td>
<td>25</td>
<td>4.2%</td>
<td>33</td>
<td>32.0%</td>
<td>34</td>
<td>3.0%</td>
<td>36.0%</td>
</tr>
</tbody>
</table>

(1) concurrent and cross-listed classes are combined in the primary class with data adjustments; does not include data for secondary classes
(2) data were captured using the CENSUS freeze date from lro_Socad
Table A. Number of Classes Taught by Subgroup
2. Enrollment by Subgroup

Table B. Enrollment by Subgroup\(^{(1)/(2)/(3)}\)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>170</td>
<td>168</td>
<td>-1.2%</td>
<td>152</td>
<td>-9.5%</td>
<td>165</td>
<td>8.6%</td>
<td>222</td>
<td>34.5%</td>
<td>30.6%</td>
</tr>
<tr>
<td>BUSN</td>
<td>21</td>
<td>0</td>
<td>-100%</td>
<td>19</td>
<td>59</td>
<td>210.5%</td>
<td>77</td>
<td>30.5%</td>
<td>266.7%</td>
<td></td>
</tr>
<tr>
<td>DEV</td>
<td>703</td>
<td>801</td>
<td>13.9%</td>
<td>887</td>
<td>10.7%</td>
<td>1009</td>
<td>13.8%</td>
<td>1061</td>
<td>5.2%</td>
<td>50.9%</td>
</tr>
<tr>
<td>ICS</td>
<td>246</td>
<td>309</td>
<td>25.6%</td>
<td>361</td>
<td>16.8%</td>
<td>515</td>
<td>42.7%</td>
<td>632</td>
<td>22.7%</td>
<td>156.9%</td>
</tr>
<tr>
<td>TRANS</td>
<td>517</td>
<td>524</td>
<td>1.4%</td>
<td>520</td>
<td>-0.8%</td>
<td>664</td>
<td>27.7%</td>
<td>726</td>
<td>9.3%</td>
<td>40.4%</td>
</tr>
</tbody>
</table>

(1) concurrent and cross-listed classes are combined in the primary class with data adjustments; does not include data for secondary classes
(2) data were captured using the CENSUS freeze date from Iro_Socad
(3) enrollments are adjusted registrations in the class, derived by first summing the number of students enrolled (including those with "W" grades), then adjusting for associated classes
3. Student Semester Hours by Subgroup

Table C. Student Semester Hours (SSHs) by Subgroup

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>510</td>
<td>504</td>
<td>-1.2%</td>
<td>456</td>
<td>-9.5%</td>
<td>495</td>
<td>8.6%</td>
<td>666</td>
<td>34.5%</td>
<td>30.6%</td>
</tr>
<tr>
<td>BUSN</td>
<td>21</td>
<td>0</td>
<td>-100%</td>
<td>57</td>
<td>210.5%</td>
<td>231</td>
<td>30.5%</td>
<td>3183</td>
<td>5.2%</td>
<td>63.1%</td>
</tr>
<tr>
<td>DEV</td>
<td>1952</td>
<td>2228</td>
<td>14.1%</td>
<td>2499</td>
<td>12.2%</td>
<td>3027</td>
<td>21.1%</td>
<td>3183</td>
<td>5.2%</td>
<td>63.1%</td>
</tr>
<tr>
<td>ICS</td>
<td>738</td>
<td>914</td>
<td>23.8%</td>
<td>1081</td>
<td>18.3%</td>
<td>1582</td>
<td>46.3%</td>
<td>1956</td>
<td>23.6%</td>
<td>165.0%</td>
</tr>
<tr>
<td>TRANS</td>
<td>1846</td>
<td>1872</td>
<td>1.4%</td>
<td>1778</td>
<td>-5.0%</td>
<td>2191</td>
<td>23.2%</td>
<td>2405</td>
<td>9.8%</td>
<td>30.3%</td>
</tr>
</tbody>
</table>

(1) concurrent and cross-listed classes are combined in the primary class with data adjustments; does not include data for secondary classes

(2) data were captured using the CENSUS freeze date from Iro_Socad

(3) SSH counts are adjusted student semester hours for classes, derived by first summing semester hours of all students enrolled in the class, then adjusting for associated classes.
Analysis of demand indicators

**Accounting (ACC)**

The demand for accounting courses remains healthy. Data supplied by the College’s Institutional Research office indicates that for the last five academic years the total number of classes taught have been 8 (2006-07), 8 (2007-08), 8 (2008-09), 9 (2009-10) and 12 (2010-11) which reflects a 5-year change of +50%. The enrollment numbers of 170 (2006-07), 168 (2007-08), 152 (2008-09), 165 (2009-10) and 222 (2010-11) also support a healthy and seemingly growing demand for classes in this area. Although the data indicates a dip over two academic years, the enrollment surge in AY2010-2011 reflects a +34.5% change and an overall +30.6% 5-year change. Further evidence is the equivalent Student Semester Hours (SSHs) for these same years: 510, 504, 456, 495 and 666, respectively. Over the indicated five years, the SSHs reflect a +30.6% change. The primary reason for the steady demand for accounting courses is that ACC201 (Financial) and ACC202 (Managerial) are mandatory prerequisite courses for entrance into the business programs at all four-year universities in the UH system, as well as at other local universities including Hawaii Pacific University, Brigham Young University in Laie, and Chaminade University. The accounting courses offered at WCC also fulfill requirements for the Business-related Associate Degrees at UH Community Colleges system campuses at Kapiolani, Leeward, Maui, Kauai and Hawaii.

**Business Technology (BUSN)**

The demand for business technology courses has been healthy over the past two academic years. The number of classes taught for the last five years have been 2 (2006-07), 0 (2007-08), 1 (2008-09), 3 (2009-10) and 4 (2010-11) which reflects a 5-year change of +100%. The enrollment numbers of 21 (2006-07), 0 (2007-08), 19 (2008-09), 59 (2009-10) and 77 (2010-11) also shows a growing demand reflecting a 5-year changes of +266.7%. Further evidence is the equivalent Student Semester Hours (SSHs) for these same years: 21, 0, 57, 177 and 231, respectively. Over the indicated five years, the SSHs reflect a +1000.0% change!

Introduction to Word Processing, BUSN 121, was offered for the first time in fall 2008. Out of 19 registrants, 14 students completed the course with a “C” or higher; there were two official withdrawals. This course counts toward the Business Technology Certificate of Competence, which was approved in 2008-2009. BUSN 121 was offered in a second time in fall 2009 with 21 registrants. BUSN 191, Veterinary Office and Computer Skills, was offered for the first time in fall 2009 with 21 registrants and with 17 registrants in spring 2010. This reflects a 100% increase in demand for BUSN courses. It should be noted that BUSN 191 originally was planned to be offered once a year but it popularity shows a demand for offerings each semester.

**Developmental Mathematics (DEV)**

The demand for developmental level math continues to be healthy. Data supplied by the IR office indicates that for the last five academic years, the total number of classes has been 27(2006-07), 29 (2007-08), 32 (2008-2009), 45 (2009-10) and 47 (2010-11) reflecting a 5-year change of +74.1%. The
strong demand is also evidenced by the enrollment numbers for these same years: 703, 801, 997, 1009 and 1061 respectively, reflecting a 5-year change of +50.9%. Further evidence is the equivalent Student Semester Hours (SSHs) for these same years: 1952, 2228, 2499, 3027 and 3183, respectively. Over the indicated five years, the SSHs reflect a +63.1% change.

One reason for the steady increase in demand for Developmental math courses is that MATH 25 is the prerequisite course for entrance into MATH 100, 103, or 115. MATH 100 and MATH 103 both satisfy the Foundations Symbolic Reasoning requirement for the A.A. degree. MATH 25 is also the prerequisite course for Math 101 and Math 111, courses required for the Veterinary Assistant Certificate program and prospective elementary education majors, respectively. Furthermore, completion of MATH 25 with a C or better is one way to satisfy a graduation requirement for the A.A. degree.

**Information and Computer Sciences (ICS)**

The demand for ICS courses is healthy and continues to increase. The data indicates that for the last five academic years the total number of classes taught have been 14 (2006-07), 17 (2007-08), 20 (2008-09), 27 (2009-10) and 35 (2010-11) which reflects a 5-year change of +150%. The growing demand is also evidenced by the enrollment numbers for these same years: 246, 309, 361, 515 and 632 respectively, reflecting a 5-year change of +156.9%. Further support is evidenced by the equivalent SSHs for these same years: 738, 914, 1081, 1582 and 1956 respectively. Over the indicated five years, the SSHs reflect a +165% change.

ICS 111, Introduction to Computer Science, was re-introduced at WCC after not being offered in over a decade on our campus. ICS 115, Advanced Microcomputer Applications, was taught for the first time and was offered as an online course in spring 2008 and offered again in spring 2009 with continued success. Another online offering was ICS 100, Computer Literacy and Applications. ICS 141, Discrete Mathematics for Computer Science was offered for the first time in fall 2010 with 17 registrants.

Future semesters will offer ICS 197, Introduction to 3D Animation Programming and the reintroduction of ICS 113, Database Fundamentals.

**Transfer Level Mathematics (TRANS)**

The demand for transfer level math continues to be moderately healthy. Data supplied by the IR office indicates that for the last five academic years, the total number of classes taught has been 25, 24, 25, 33 and 34, which reflects a 5-year change of +36%. The enrollment numbers for these same years have been 517, 524, 520, 664 and 726 reflecting a 5-year change of +40.4%. Further evidence is the equivalent SSHs for these same years: 1846, 1872, 1778, 2191 and 2405 respectively. Over the indicated five years, the SSHs reflect a +30.3% change.
Efficiency

1. Average Class Size

Table D. Average Class Size by Subgroup\(^{(1)(2)(3)(4)}\)

<table>
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</thead>
<tbody>
<tr>
<td>ACC</td>
<td>21</td>
<td>21</td>
<td>-1.2%</td>
<td>19</td>
<td>-9.5%</td>
<td>18</td>
<td>-3.5%</td>
<td>19</td>
<td>0.9%</td>
<td>-12.9%</td>
</tr>
<tr>
<td>BUSN</td>
<td>11</td>
<td>0</td>
<td>-100%</td>
<td>19</td>
<td>3.5%</td>
<td>19</td>
<td>-2.1%</td>
<td>23</td>
<td>0.7%</td>
<td>83.3%</td>
</tr>
<tr>
<td>DEV</td>
<td>26</td>
<td>28</td>
<td>6.1%</td>
<td>28</td>
<td>0.4%</td>
<td>22</td>
<td>-19.1%</td>
<td>23</td>
<td>0.7%</td>
<td>-13.3%</td>
</tr>
<tr>
<td>ICS</td>
<td>18</td>
<td>18</td>
<td>3.4%</td>
<td>18</td>
<td>-0.7%</td>
<td>19</td>
<td>5.7%</td>
<td>18</td>
<td>-5.3%</td>
<td>2.8%</td>
</tr>
<tr>
<td>TRANS</td>
<td>21</td>
<td>22</td>
<td>5.6%</td>
<td>21</td>
<td>-4.7%</td>
<td>20</td>
<td>-3.3%</td>
<td>21</td>
<td>6.1%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

(1) concurrent and cross-listed classes are combined in the primary class with data adjustments; does not include data for secondary classes
(2) data were captured using the CENSUS freeze date from Iro_Socad
(3) average class size is obtained by adding all adjusted registrations in the course, and then dividing that by the number of classes offered
(4) average excludes courses numbered -93 (cooperative education) and -99 (directed studies)
### 2. Average Class Fill Rate by Subgroup

#### Table E. Average Class Fill Rate by Subgroup

<table>
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</thead>
<tbody>
<tr>
<td>ACC</td>
<td>71</td>
<td>70</td>
<td>-0.9%</td>
<td>63</td>
<td>-9.5%</td>
<td>59</td>
<td>-7.1%</td>
<td>61</td>
<td>3.3%</td>
<td>-13.9%</td>
</tr>
<tr>
<td>BUSN</td>
<td>53</td>
<td>0</td>
<td>-100%</td>
<td>95</td>
<td>3.5%</td>
<td>96</td>
<td>-2.1%</td>
<td>83.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEV</td>
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<td>99</td>
<td>6.2%</td>
<td>100</td>
<td>1.3%</td>
<td>90</td>
<td>-9.5%</td>
<td>91</td>
<td>0.1%</td>
<td>-2.5%</td>
</tr>
<tr>
<td>ICS</td>
<td>88</td>
<td>91</td>
<td>3.4%</td>
<td>90</td>
<td>-1.4%</td>
<td>90</td>
<td>0.1%</td>
<td>87</td>
<td>-3.4%</td>
<td>-1.3%</td>
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<tr>
<td>TRANS</td>
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<td>5.9%</td>
<td>78</td>
<td>-1.9%</td>
<td>76</td>
<td>-2.6%</td>
<td>81</td>
<td>5.6%</td>
<td>6.9%</td>
</tr>
</tbody>
</table>

(1) concurrent and cross-listed classes are combined in the primary class with data adjustments; does not include data for secondary classes
(2) data were captured using the CENSUS freeze date from Iro_Socad
(3) weighted average of all class sections in an alpha/number; i.e., a course with two sections counts twice as much as a course with one section
(4) data are in percent, and are the average of Percent fill or "fill ratio" for the class (ratio between the registrations in the class and the maximum enrollment allowable in the class), multiplied by 100. ratios computed after adjusting for associated classes.
(5) average excludes courses numbered -93 (cooperative education) and -99 (directed studies)
3. Percent of Classes Taught by Faculty and Lecturers

Table F. Percent of Classes Taught by Faculty and Lecturers by Subgroup (5 year average) \(^{(1)(2)}\)

<table>
<thead>
<tr>
<th>Sub Group</th>
<th>Type</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Faculty</td>
<td>56%</td>
</tr>
<tr>
<td></td>
<td>Lecturer</td>
<td>44%</td>
</tr>
<tr>
<td>BUSN</td>
<td>Faculty</td>
<td>100%</td>
</tr>
<tr>
<td>DEV</td>
<td>Faculty</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>Lecturer</td>
<td>49%</td>
</tr>
<tr>
<td>ICS</td>
<td>Faculty</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Lecturer</td>
<td>49%</td>
</tr>
<tr>
<td>(blank)</td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>TRANS</td>
<td>Faculty</td>
<td>66%</td>
</tr>
<tr>
<td></td>
<td>Lecturer</td>
<td>34%</td>
</tr>
</tbody>
</table>

(1) concurrent and cross-listed classes are combined in the primary class with data adjustments; does not include data for secondary classes

(2) data were captured using the CENSUS freeze date from Iro\_Socad, and unfrozen data from Instructional Assignment which contains all instructor assignments for scheduled offerings of a course (subject) for the academic period or faculty contract time frame
### Table F. Percent of Classes Taught by Faculty and Lecturers by Subgroup (5 year average)

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Faculty</th>
<th>Lecturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>56%</td>
<td>44%</td>
</tr>
<tr>
<td>BUSN</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>CIL</td>
<td>51%</td>
<td></td>
</tr>
<tr>
<td>DEV</td>
<td>50%</td>
<td>49%</td>
</tr>
<tr>
<td>ICS</td>
<td>49%</td>
<td></td>
</tr>
<tr>
<td>(blank)</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>IS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRANS</td>
<td>66%</td>
<td>34%</td>
</tr>
</tbody>
</table>
Analysis of efficiency indicators

Accounting (ACC)

The class size for accounting has averaged about 20 students for the last five academic years with an average class fill rate of 64.8%. In comparison to other business courses, which have average fill rates in the 80’s, the accounting class fill rate appear to be lowered. However, it should be noted that other business fill rate computations are based on maximum class size of 20 to 24, while for accounting the maximum class size used in computing fill rate is 30. In the accounting area, all of the classes were taught by a lecturer from spring 2010 on following the retirement of the accounting professor in December 2010. ACC 201 (summer 2010), ACC 201 (summer 2011) and ACC 202 (summer 2011) were taught for the first time as summer classes in this 5-year period. The three summer offering contributed to the lowered average class size in the 5-year period because summer classes are typically lowered enrolled due to higher tuition costs. Taking into account these factors, the efficiency indicators are moderate.

Business Technology (BUSN)

The average class size over the past five years is reflected by a +83.3% change. The average class fill rate over this same five-year period is 83.3%. Lastly, over the past five years, all classes in this area were taught by full time faculty. The efficiency indicators for this area are very good.

Developmental Mathematics (DEV)

Based on recommendations from the UHCC Developmental Education Group to better meet students’ needs, the maximum class size for developmental math courses was reduced to 25 beginning in summer 2009.

The average class size of developmental mathematics classes in 2009-10 was 22 with a fill rate of 90%, and in 2010-11, the average class size was 23 with a fill rate of 91%. In the past five years, 51% of the developmental mathematics classes were taught by full time faculty while 49% of the classes were taught by lecturers. The developmental mathematics program goal is to have lecturers teach no more than 30% of the program classes. This goal was last met in AY2006-2007.

The average fill rate for Developmental math courses have been 93% (2006-07), 99% (2007-08), 100% (2008-09), 90% (2009-10) and 91% (20010-11) with an averaged 94.6% over the last five years which is very healthy.

Information and Computer Sciences (ICS)

The class size for ICS has averaged 19.6 students over the past five years with an average class fill rate of 89.2%, which is moderately healthy. Over the same time period, 50% of the ICS courses were taught by full time faculty and 49% by lecturers. Even though more classes are offered in ICS, there is
still growth in class size. The online offerings increased from two courses in 2007-08 to six courses in 2009-2010. With this steady trend, it is believed that more ICS courses would fill if offered.

**Transfer Level Mathematics (TRANS)**

The average class size for classes in transfer level mathematics courses over the past five year period is 21 with an average fill rate of 78% which is moderately healthy. The majority of transfer level courses are taught by full time faculty (66%) with 34% taught by lecturers.
Effectiveness.

1. Success Rate by Subgroup

Table I. Success Rate by Subgroup

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>46%</td>
<td>52%</td>
<td>14.2%</td>
<td>39%</td>
<td>-25.4%</td>
<td>51%</td>
<td>30.4%</td>
<td>63%</td>
<td>23.8%</td>
<td>37.4%</td>
</tr>
<tr>
<td>BUSN</td>
<td>57%</td>
<td>68%</td>
<td>14.2%</td>
<td>74%</td>
<td>8.4%</td>
<td>75%</td>
<td>1.2%</td>
<td>75%</td>
<td>31.3%</td>
<td>31.3%</td>
</tr>
<tr>
<td>DEV</td>
<td>62%</td>
<td>57%</td>
<td>-7.6%</td>
<td>63%</td>
<td>9.2%</td>
<td>58%</td>
<td>-7.5%</td>
<td>60%</td>
<td>3.0%</td>
<td>-3.8%</td>
</tr>
<tr>
<td>ICS</td>
<td>74%</td>
<td>72%</td>
<td>-2.2%</td>
<td>69%</td>
<td>-5.0%</td>
<td>64%</td>
<td>-7.1%</td>
<td>66%</td>
<td>3.9%</td>
<td>-10.3%</td>
</tr>
<tr>
<td>TRANS</td>
<td>56%</td>
<td>62%</td>
<td>11.1%</td>
<td>56%</td>
<td>-9.3%</td>
<td>68%</td>
<td>20.1%</td>
<td>67%</td>
<td>20.1%</td>
<td></td>
</tr>
</tbody>
</table>

(1) concurrent and cross-listed classes are combined in the primary class with data adjustments; does not include data for secondary classes
(2) data were captured using the CENSUS freeze date from Iro_Socad
(3) weighted average of all class sections in an alpha/number; i.e., a course with two sections counts twice as much as a course with one section
(4) data were captured using the CENSUS and EOS freeze dates from Iro_Regs and the CENSUS freeze date from Iro_Socad
(5) data for AY 2010-2011 are fall and spring rates only; data for summer not yet available

\[ Table I. Success Rate by Subgroup \]
Analysis of effectiveness indicators

**Accounting (ACC)**

The following is taken from the 2008-09 Math and Business Annual Department Report, written by accounting professor Marvin Yoshida, to better understand and assess the health of the accounting area:

> Traditionally, throughout the UH System, the accounting courses have experienced lower than normal retention and passing rates due to the rigor of the courses and the lack of preparedness on the students part. In the past, a one credit, three hour lab/help section was offered but students did not sign up for because the credits earned for the lab sections were not transferable. As such it is often difficult to measure the effectiveness of the course by comparison to other courses offered at the college. The most telling method of effectiveness would be some measure of success at the next level of academics or on the job work. Unfortunately, this type of data, I have been told by the IRO, is not available or is too costly to obtain.

> In conversation with my accounting colleagues throughout the UH system, I can only report that the completion rates that I have experienced at WCC are similar to what they have experienced at their respective colleges. These include higher than normal withdrawal rates, non-completers, and unsuccessful completers. Although these factors are worrisome, when compared to other accounting programs throughout the system and other disciplines within the department, I would rate our effectiveness as moderately healthy.

The data indicates that for the past five years the success rates have been 46% (2006-07), 52% (2007-08), 39% (2008-09), 51% (2009-10) and 63% (2010-11) which reflects an average of 50.2% with a 5-year change of +37.4%. The effectiveness of the accounting area is moderate.

**Business Technology (BUSN)**

The success rates over the past five years reflect an average of 68.5% with a 5-year change of +31.3%, which is healthy.

**Developmental Mathematics (DEV)**

The success rates for developmental math courses over the past five years have been 62%, 57%, 63%, 58% and 60%. This reflects an average success rate of 60% with a 5-year change of -3.8%. The drop in the success rate from AY2008-09 to AY2009-2010 is probably due to the department’s decision to raise the benchmark for passing a unit test from 60% to 70% and from 50% to 60% for the final exam. This decision was made in an effort to have students better prepared for their next course by requiring a higher level of demonstrated mastery. The UHCC system’s Developmental Education Group has established a benchmark for success at 70%. WCC’s developmental mathematics area is below this benchmark.
Information and Computer Sciences (ICS)

The success rates for ICS over the past five years have been 74%, 72%, 69%, 64% and 66%, reflecting an overall average of 69% which is a healthy indicator.

Transfer Level Mathematics (TRANS)

The success rates for transfer level mathematics over the past five years have been 56%, 62%, 56%, 68% and 67% reflecting an average of 61.8% with a 5-year change of +20.1%, which is moderately healthy.
Academic Subject Certificate (ASC)

1. Business ASC Indicators by Academic Year

<table>
<thead>
<tr>
<th>Demand</th>
<th>Indicators</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of new majors</td>
<td>11</td>
<td>26</td>
<td>22</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Number of majors (total)*</td>
<td>14</td>
<td>39</td>
<td>40</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Number of classes offered**</td>
<td>60</td>
<td>68</td>
<td>77</td>
<td>205</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>% Majors persist from fall to spring***</th>
<th>100.00%</th>
<th>93.94%</th>
<th>75.76%</th>
<th>85.92%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of graduates</td>
<td>12</td>
<td>5</td>
<td>2</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

| Graduation rate****    | 85.71%                                 | 12.82%  | 5.00%  | 20.43% |

*=includes new majors and continuing students
**=see table below
***=must have been enrolled in the fall semester to have been included; students who graduated in the fall are not included
****=Number graduated/number of majors

<table>
<thead>
<tr>
<th>Class</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Grand Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 201</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>17</td>
<td>5.67</td>
</tr>
<tr>
<td>ACC 202</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>3.00</td>
</tr>
<tr>
<td>ECON 130</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>15</td>
<td>5.00</td>
</tr>
<tr>
<td>ECON 131</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>4.00</td>
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<tr>
<td>ENG 100</td>
<td>24</td>
<td>26</td>
<td>34</td>
<td>84</td>
<td>28.00</td>
</tr>
<tr>
<td>ENG 209</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>14</td>
<td>4.67</td>
</tr>
<tr>
<td>ICS 101</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>16</td>
<td>5.33</td>
</tr>
<tr>
<td>SP 151</td>
<td>11</td>
<td>14</td>
<td>13</td>
<td>38</td>
<td>12.67</td>
</tr>
<tr>
<td>Grand Total</td>
<td>60</td>
<td>68</td>
<td>77</td>
<td>205</td>
<td>68.33</td>
</tr>
</tbody>
</table>
2. Analysis of Business ASC indicators

The retirement of the full time accounting faculty member in December 2009 was a tremendous loss in terms of experience, expertise, and dedication to the program as well as the department. The accounting courses are currently being taught by a lecturer. Despite having no full time faculty member directly responsible for the program, the department has been able to maintain the program.

The program continues to be rated as “Healthy” in the two categories of Demand and Effectiveness.

Demand

The overall program has strong demand as indicated by the number of majors, from 14 in 2009 to 40 in 2011, reflecting a 185.7% increase.

To quote from the 2009-10 Annual Department Report:

"The Oahu and State-wide job openings for those trained in the program’s business fundamentals remains high. The reason for the decrease in the number of applicants in 2008 is due to the college’s inability to identify those students who are pursuing the certificate program. Currently, the application form used by the system does not have a selection box for those students pursuing the ASC in Business. The institutional researcher is working on ways to identify which students are seeking to major in the certificate program prior to the students’ second year in college."

As further proof that the demand for the program has remained high is the number of Business ASC Program classes offered over last three years, numbering 60 in 2009 to 77 in 2011, reflecting an increase of 28.3%.

Effectiveness

The program’s effectiveness is defined by the percentage of majors that persist from fall to spring, the number of graduates and the graduation rate over the past three years. The program has a three-year persistence rate of 85.92% and 19 graduates with a graduation rate of 20.43%.

A year-to-year analysis of the data reveals that in 2009 there were 14 majors and 12 graduated reflecting a graduation rate of 85.71%. In the following year there were 26 new majors with a total of 39 majors in this area. The graduation rate of 12.82% in 2010, seemingly low, makes sense given the number of graduates in the preceding year and the number of new majors. It is a similar situation in 2011 which posts a graduation rate of 5%. The greater number of majors is also reflected in the increased number of classes offered in the prescribed courses for the Business ASC. The lowered graduation rates in 2010 and 2011 are well reflected in the three-year graduation rate mentioned above. Keeping in mind that from 2009 to 2011 the number of new majors increased by 185.7% and that the cycle of course offerings allows students to finish the program in two years, greater number of graduates and higher graduation rates are anticipated in a few years.
Plan of Action

The following is revised a Plan of Action which was originally included in the 2008-2009 Department Annual Report. This plan is worthy and is therefore included in this report. However, without a full time faculty member responsible for the program, carrying out this action plan at this time is not feasible.

Work with the college’s Institutional Researcher and/or the IEC on the following items involving the ASC in Business:

1. Continue to work with the IRO and the IEC to ascertain ways to produce more and relevant data to help assess demand and effectiveness of the program.
2. It is difficult to identify and track the students who are seeking the ASC because there is not a section on the application form that students can select designating them as ASC majors. However, faculty will continue to be mindful of these identifying and tracking issues.
B. Evidence of Quality Within the Department

- Fall 2010  The department celebrated Wei-Ling Landers’ promotion to Professor.

- Fall 2010  Emi Troeger serves as Interim Chairperson of the Hawaiian, Asian, and Pacific Board (HAP).

- Fall 2010  Supplemental Instruction (SI) serves students in gatekeeper courses with the primary purpose of increasing retention and improving student grades. The main goal and objective of this program is to have students successfully pass their class by increasing their knowledge of the course content through attendance in SI sessions.

In Fall 2010, all full time faculty and 2 lecturers worked with SI Leaders in nineteen classes. In Spring 2011, seven instructors worked with SI Leaders in 14 classes, and in Summer 2011, three instructors worked with SI Leaders in seven classes.

- Fall 2010  Math 111 continues to be offered as a Writing Intensive course by Clayton Akatsuka, which provides the opportunity for students to take a mathematics course and satisfy one of the two required Writing Intensive courses for graduation.

- Fall 2010  Clayton Akatsuka offered a series of workshops for Math 24 and Math 25 students for TRiO clients, including one on Word Problems.

- Fall 2010  Students enrolled in ICS 107 – Web Development course taught in a 6-week format passed web certification exams.

  The HTML Developer Certificate proves fundamental knowledge of web development using HTML. The following students passed this certification exam which can be found at http://w3schools.com/cert/cert_html.asp: Moke Galletes, Kirsten Holbrook, Daniel Kilgore, Taylor Radmore, Christopher Soloma-Cadavid, and Sandra Wong.

  The CSS Developer Certificate proves fundamental knowledge of web development using advanced CSS and can be found at http://w3schools.com/cert/cert_css.asp. The following students passed this certification exam: Moke Galletes, Kirsten Holbrook, and Sandra Wong.

- Fall 2010  BUSN 191 has students who have reached accredited statuses in Veterinary Technician programs at Bel-Rea Veterinary Institute and at San Juan College. About 75% of students who graduate or complete the second semester classes (including internship) obtain employment within a semester, many at their internship locations.

- Fall 2010  Casey Blu Judd and Hylie Santos, both currently at UH Manoa, were each awarded a Disney College Internship award to work at Disney World in Orlando, Florida for six months. Judd received both the Certificate of Completions for ABIT and Web Support at WCC, and presently serves as a SI Leader for two Mathematics classes. He attributes his success for this internship to his symbolic reasoning abilities acquired at WCC in both the ICS and mathematics programs. Santos is also a former WCC ICS student.
August 9-10, 2010   WCC Learn-to-Learn (L2L) Institute and fall collaboration was a professional development workshop for instructors to develop student success strategies. Stipends were awarded to participants to look at strategies to enhance students’ skills in learning, discuss how student success strategies can be integrated into courses, and design curricular modifications to increase student success through the application of learning/study skills. First-year L2L cohort participants from the department were Clayton Akatsuka, Young-Choi, Wei-Ling Landers, Navtej (Johnny) Singh, and Jean Okumura.

September 2010   The SLOs to intertwine the FS Hallmarks were revised for the following courses – Math 103 (Young-Choi and Clayton Akatsuka), Math 100 (Young-Choi and Jean Okumura), Math 112 (Clayton Akatsuka and Jean Okumura), Math 203 (Johnny Singh and Wei-Ling Landers) and Math 205 (Young-Choi and Wei-Ling Landers).

September 2010   Course Level Assessments were conducted for Math 111 (Clayton Akatsuka), Math 115 (Judy Dill and Young-Choi), Math 203 (Johnny Singh) and Math 231 (Wei-Ling Landers).

October – November 2010   A discussion of the Course Level Assessment report results was conducted for Math 24, Math 25, Math 103, Math 135 and Math 140.

December 2010   The Mathematics Discipline addressed concerns about the Math Graduation Requirement in an Open Forum. In light of the results of the faculty poll conducted by the Faculty Senate that supported the requirement, Chancellor Dykstra affirmed the math graduation requirement for the AA degree.

Fall 2010, Fall 2011   Johnny Singh serves as the Aloha United Way coordinator for WCC.

Fall 2010, Fall 2011   Jean Okumura serves as Accreditation Standard II chairperson, and as the chairperson of the Foundations Board. Jean continues to serve as co-chairperson of the Judging and Scoring subcommittee and a member of the Steering Committee for Math Counts.

Fall 2010, Fall 2011   Clayton Akatsuka serves as the WCC Developmental Education Group chairperson. He also continues to serve as the Problem Selector for the Oahu Mathematics League (22nd year).

Fall 2010, Fall 2011   Emi Troeger serves as the Aloha Committee chairperson.

Fall 2010, Fall 2011   Wei-Ling Landers serves as Accreditation Standard II-B Sub-Standard chairperson.

Fall 2010, Fall 2011   Wei-Ling Landers serves as the Math Area Coordinator. She continues to work with Pearsons Publishing and custom textbooks to better serve the needs of students enrolled in these mathematics courses.

Fall 2011   Anuhea Jumawan and Matthew Maneha are mathematics students serving as Supplemental Instruction Leaders in mathematics. They were recipients of $1,000 Windward Ho‘olaule‘a scholarships. Anuhea is also a second year recipient of the American Association of University Women – Windward Branch scholarship.
Fall 2011 Lecturer Linda Kodama continues to serve American Mathematical Association of Two-Year Colleges (AMATYC) as its Conference Roommate Coordinator, an appointed position. She attends the national conferences each year. Linda also continues to support local professional organizations, Hawaii Council of Teachers of Mathematics (HCTM) and Pacific Islands Mathematics Association of Two-Year Colleges (PIMATYC) by attending their conferences.

August 7–12, 2011 Hawaii National Great Teachers Seminar is a high energy summer retreat that brings teachers together to learn from each other and exchange teaching innovations and solutions to teaching problems. The seminar is based on the principle that teachers are the experts in teaching and learn best form one another. Young-A Choi was selected as a WCC participant this year through funds from the Chancellor’s Office.

Summer 2011 Pre-Engineering Education Collaborative (PEEC) is now called Indigenous Knowledge in Engineering (IKE) is a pre-engineering program for UH Manoa’s degrees in Civil, Electrical and Mechanical Engineering. One of the main goals is to create a quality, online core curriculum that effectively integrates calculus in preparing Native Hawaiian students for higher-level courses. A WCC mathematics student participated in the summer program at Maui College.


January 19 and 20, 2011 The Mathematics Discipline attended a SmartBoard Training Workshop by a representative from the company.

February 2011 A review of the currently used textbooks was conducted to determine the currency, availability of newer editions or the need to search for an alternate text for Math 231, Math 205 and 206, Math 135 and 140, Math 103 and Math 24 and 25.

March 3, 2011 Kay Beach and Ellen Nagaue conducted the More Power to You workshop on Study Skills targeting the developmental math students but open to all interested students. Some instructors offered “extra credit” to motivate their students to attend.
C. Evidence of Student Learning

The only data available from the College’s Institutional Research office is success rates by subgroup (Table 1, Appendix B).

Accounting (ACC)
The success rates for the last five years have been 46% (2006-07), 52% (2007-08), 39% (2008-09), 51% (2009-10), and 63% (2010-2011) which reflects a 5-year average success rate of 50.2%. The numbers indicate a pattern of increasing student success from AY2008-2009 to AY2010-2011.

Business Technology (BUSN)
The success rates for the last five years have been 57% (2006-07), no data (2007-08), 68% (2008-09), 74% (2009-10), and 75% (2010-2011) which reflects a 5-year average success rate of 68.5%. There is a clear pattern of increasing student success from year to year.

Information and Computer Sciences (ICS)
The success rates for the last five years have been 74% (2006-07), 72% (2007-08), 69% (2008-09), 64% (2009-10), and 66% (2010-2011) which reflects a 5-year average success rate of 69%.

Developmental Mathematics (DEV)
The success rates for the last five years have been 62% (2006-07), 57% (2007-08), 63% (2008-09), 58% (2009-10), and 60% (2010-2011) which reflects a 5-year average success rate of 60%.

Transfer Level Mathematics (TRANS)
The success rates for the last five years have been 56% (2006-07), 62% (2007-08), 56% (2008-09), 68% (2009-10), and 73% (2010-2011) which reflects a 5-year average success rate of 61.8%.

The data suggests that the BUSN and ICS areas are very healthy, while the DEV, TRANS and ACC areas are moderately so. Clearly, there is room for improvement especially in the ACC, DEV and TRANS areas. In the ACC area, only a lecturer is teaching the courses since the retirement of the full time accounting faculty. The Business ASC which was overseen by the retired full time faculty, needs to be reassigned to another faculty member to insure the currency of courses as well as the articulation of the program with that of transfer campuses.

In the developmental mathematics area, the department continues to have a very heavy dependence on lecturers teaching developmental courses. There have been a few lecturers that were effective with the developmental students, but there have also been problems with ineffective ones. Lecturers, due to the limited nature of their appointments, are often inaccessible to students needing out-of-class assistance, not available to provide long-term career guidance or advising. Another concern is the turnover of lecturers from semester to semester which impacts students’ familiarity and continuity of instructors. They are not able to develop long-term relationships with lecturers, and the department often needs to train and monitor new lecturers each semester, rather than being able to focus on improving the quality of teaching and student success. The American Association for University Professors calls on institutions to work towards the benchmark of limiting reliance of non-tenure track faculty to no more than 25 percent of the total institution within any given department.
D. Resource Sufficiency.

The following items are presented in no particular prioritized order:

1. **Math Center.**

Mana 113 currently house the Math Lab whose services include drop-in tutorial assistance in mathematics, access to math lab resources and references, and assessment/advising in mathematics. The tutoring component of the Math Lab will be transferred to the new Library Learning Commons facility. Following this move of the tutoring component of the Math Lab and the anticipating need for a computer lab to service the needs of students enrolled in a redesign initiative, Mana 113 will be transformed into a computer lab staffed with an instructor and student tutors and renamed the Math Center. A preliminary inspection of Mana 113 conducted with Computing Services Coordinator Michael Tom, reveals no additional electrical work needing to be done. Thirty computers need to be secured along with related telecom supplies. A printer currently located in Mana 103 will be moved to the new Math Center and networked to service the needs of students in both Mana 103 and Mana 113.

Currently, the Math Lab is managed by an instructor with one-credit assigned time. This instructor screens, hires, trains and supervises the student tutors/Helpers. Additionally, the instructor serves as a resource instructor in the Math Lab. The current schedule provides drop-in mathematics tutoring for students Monday through Friday from 8:00 am to various afternoon hours (equivalent to 38.5 hours each week). The department is requesting a full time mathematics instructor position to staff the Math Center. This position will allow the department to explore an independent study program offered through the Math Center as well as the flexibility of having this instructor teach courses reducing the heavy reliance of lecturers.

The budget proposal in figure 1 was prepared in part with consultation with Michael Tom.

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Cost</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers</td>
<td>30 @ $1,100</td>
<td>$33,000.00</td>
</tr>
<tr>
<td>Telecomm supplies</td>
<td>$2,000</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Mathematics Instructor, 1.0 FTE</td>
<td>$60,000</td>
<td>$60,000.00</td>
</tr>
<tr>
<td>Student Tutors/Helpers</td>
<td>$9.00 per hour x 10 hours/week x 16 weeks x 4 students</td>
<td>$5,760.00</td>
</tr>
<tr>
<td><strong>Budget Total</strong></td>
<td></td>
<td><strong>$100,760.00</strong></td>
</tr>
</tbody>
</table>

Figure 1. Math Center Budget Proposal.
The Math Center request is linked to the following system and college priorities and goals.

(1) University of Hawai‘i System Strategic Outcome #1: To position the University of Hawaii as one of the world’s foremost indigenous-serving universities by supporting the access and success of Native Hawaiians.

Community College System Action Outcomes
1.3 Increase the number and percent of Native Hawaiian students who, if assigned to a developmental intervention, successfully complete that sequence and move on to college-level instruction.

Windward Community College Action Outcomes
1.3 Increase the number of Native Hawaiians that complete developmental math (from 29 to 51) classes to between 83% and 86% by 2015.
1.5 Increase by 5% the number of Native Hawaiian students (from 96 to 142) who reenroll in the Spring semester and persist until Fall each year.
   • Enhance tutoring and mentoring activities
   • Develop an incentive program to improve student persistence

(2) University of Hawai‘i System Strategic Outcome #2: To increase the educational capital of the state by increasing the participation and completion of students, particularly Native Hawaiian, low-income students and those from underserved areas.

Community College System Action Outcomes
2.3 Increase the number and percent (to 80%) of students who, if assigned to a developmental intervention, enroll in and successfully complete that sequence and move on to degree applicable instruction and increase CCSSEE Active and Collaborative Learning Benchmarks.

Windward Community College Action Outcomes
2.3 Increase the number of students that complete developmental math (105 to 178) classes by 84% by 2015.
2.5 Increase the number of students who reenroll in the Spring semester and persist until Fall (from 315 to 465) by 5% per year.

The 1.0 FTE Math Lab faculty position has been repeatedly requested for through the PBC and written up in the AY2007-08, AY2008-09, and AY2009-10 Annual Department reports. Although highly ranked and recommended for funding in the PBC process in AY2008-09, the position was never filled. This Math Center request encompasses the 1.0 FTE Math Lab position in an immediate and current circumstance.

2. Mathematics Instructor, 1.0 FTE

Currently, the mathematics discipline consists of three tenured, full-time professors and two probationary, tenure-track instructors. Over the 5-year period from AY2006-07 to AY2010-11, developmental mathematics classes had risen from 27 to 47 and transfer level classes from 25 to 34. Overall, the number of mathematics classes taught grew from 52 in AY2006-07 to 80 four years later reflecting an increase of over 53%. In this same time period, developmental mathematics classes had Class Fill Rates of 93%, 99%, 100%, 90% and 91%, respectively, and those of the transfer level mathematics classes were 75%, 80%, 78%, 76% and 81%, respectively. So the number of class taught increased and the Class Fill Rates remained fairly constant over the past five years.
Over the past five years, there grew a heavy reliance on lecturers to meet the growing and sustained demand for mathematics classes. The department had 30% of developmental mathematics classes and 25% of transfer level mathematics classes taught by lecturers in AY2006-07 which grew to 49% and 47%, respectively, in AY2010-2011. In AY2007-08 there were three new lecturers, in AY2008-09 there were 2 new lecturers, in AY2009-210 there were 3 new lecturers, and in AY2010-11 there were 6 new lecturers. In Spring 2011, the mathematics discipline had nine lecturers!

The problem is not the lecturers who remain with the department for several semesters or years as they provide continuity for our students and they tend to make themselves available beyond their class time and office hours. They develop relationships with students, students feel comfortable working with them, and students look forward to continue their studies with them. Lectures of this sort are effective teachers that conduct themselves professionally and we are very fortunate to have them despite the nature of their appointment. On the other end of the spectrum are lecturers that must leave once their required amount of time is over on this campus to rush off to their other obligations. Often they are not available to students needing outside-of-class assistance, not able to provide long-term advising and guidance, or not available or able to write recommendations for students. Perhaps they are less committed and see their appointment here as temporary until something permanent comes up.

The full time faculty expend tremendous time and effort to train new lecturers, mentor them throughout their initial semester, conduct peer evaluations, and address related student concerns. It is drain of our time and energy to have to continually do this semester after semester as new lecturers are hired.

Figure 2 below gives the length of time, in semesters, that lecturers have taught for the department over the past five years.

![Duration of Lectureship](image)

**Figure 2.** The duration of lectureship, in number of semesters, for the Math discipline adjunct faculty over the past five years indicate the overwhelming number of lecturers work for one semester only. This reflects the high turnover rate of lecturers.
Lastly, to firmly establish the need of a full-time, tenure-track mathematics instructor position, an analysis of the number of classes taught by lecturers over the past three academic years in the developmental as well as transfer level areas was conducted and is presented in figure 3:

<table>
<thead>
<tr>
<th>Number of Mathematics Classes Taught by Lecturers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Developmental</td>
</tr>
<tr>
<td>Transfer Level</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Figure 3. The heavy reliance of adjunct faculty over the past three years are displayed semester by semester to show a demonstrated need for a full time instructor’s workload.

A full-time instructor will likely teach 5 classes in the fall semester and 4 classes in Spring. In each academic year over the past three years, there are at least 5 classes in fall and 4 classes in spring. In AY2008-09, a total of 24 classes were taught by lecturers, in AY2009-10 a total of 29 classes were taught by lectures, and a total of 33 classes were taught by lecturers in AY2010-11. The data is compelling and justifies the need for a full-time, tenure-track faculty position in mathematics.

The Math Instructor request is linked to the system and college priorities and goals (1) and (2) mentioned in the Math Center request for its developmental focus, and to the priorities and goals listed below.

(3) University of Hawai‘i System Strategic Outcome #4: Address critical workplace shortages and prepare students (undergraduate, graduate, and professional) for effective engagement and leadership in a global environment.

Community College System Action Outcomes
4.3 Increase by 3% per year the number of degrees and certificates awarded in Science, Technology, Engineering, and Math (STEM) fields.

Windward Community College Action Outcomes
4.5 Promote the knowledge, skills, and opportunities that support current and emerging STEM fields and careers by increasing credit and noncredit STEM course enrollments by 3% per year.
4.8. Increase the number of degrees and certificates awarded in Science, Technology, Engineering, and Math (STEM) fields. (includes both credit and noncredit) by 3% per year.

(4) University of Hawai‘i System Strategic Outcome #5: To acquire, allocate, and manage public and private revenue streams and exercise exemplary stewardship over all the University’s resources for a sustainable future.

Windward Community College Action Outcomes
5.5 Based on data submitted in the Annual Assessments/Program Reviews, equip all personnel and college facilities with appropriate technologies and tools for effective communication, teaching, learning, and other professional work and scholarly activities.

3. ICS and Business Facilities
The ICS and Business facilities presently consists of computers labs/classrooms in Noeau 123 and Noeau 124, and faculty offices in Alakai 131, Alakai 132, and Noeau 117. Lecturers in the Business discipline share offices Hale Na`auao. The renovation of Hale No`eau for the Social Science department will displace the Business discipline’s facilities in that building. This occurs at a time when the indicators for demand in the Business discipline areas are very high. The data for Number of Classes Taught over the past five years reflects at 50% increase in the accounting area, 100% increase in the business technology area, and 150% increase in the information and computer science area. Enrollment data over the same five-year period shows an increase of 30.6% in the accounting area, 266.7% increase in the business technology area, and an increase of 156.9% in the information and computer science area. Lastly, in terms of Student Semester Hours, the data shows a 30.6% increase in the accounting area, 1000% increase in the business technology area, and 165% increase in information and computer sciences.

The Business discipline has been offered two classrooms in Hale Alakai to replace the Noeau 123 and Noeau 124 computer labs/classrooms.

Both the Media Coordinator and the Computing Services Coordinator have stated that Alakai 101 and 102 are not ideal for computer instruction as the previous situation. Five reasons given by the Computing Services Coordinator are:

- Power/data lines must be placed on the floor which must be covered by to prevent tripping.
- Irregular room shape forces computer stations to be configured with three long rows which can cause many issues – instructor proximity to student needing assistance, instructor voice projection over a long row, instructor monitoring student work, etc.
- Visibility of projection screen. Due to the shape of the room, students will not be able to view the projection screen from the 7th desk in the back row. A second dual projection screen will be needed to alleviate this so that both front row seats and back seats can see the screen.
- Acoustics. The room is not designed as a lab and acoustics as well as visibility may present problems in the 7th back seat.
- Appropriate electrical capacity. It is not determined if the power is sufficient to handle the extra computer stations. Electricians may be needed to correct this situation after the lab is installed and power issues begin.

Noteworthy is the fact that Alakai classrooms have approximately 12.4% less space than the previous labs, not to mention the usable square footage in the new lab. Therefore, furniture and computers may need to be purchased to maximize the space usage. With a growing computer program, the department does not want to downsize the lab capacity. See figure 4 below.
### Classroom Spaces

<table>
<thead>
<tr>
<th></th>
<th>Width</th>
<th>Length</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noeau 123</td>
<td>22</td>
<td>43.5</td>
<td>957</td>
</tr>
<tr>
<td>Noeau 124</td>
<td>22</td>
<td>38.5</td>
<td>847</td>
</tr>
<tr>
<td>Pala 122</td>
<td>29</td>
<td>30</td>
<td>870</td>
</tr>
<tr>
<td>Alakai 101</td>
<td>40</td>
<td>19.5</td>
<td>780</td>
</tr>
<tr>
<td>Alakai 102</td>
<td>40</td>
<td>20</td>
<td>800</td>
</tr>
<tr>
<td><strong>%age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noeau Total</td>
<td>1804</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Alakai Total</td>
<td>1580</td>
<td>87.58%</td>
<td></td>
</tr>
<tr>
<td><strong>Difference</strong></td>
<td></td>
<td>12.42%</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4. A comparison of classroom space, in square feet, of present Business discipline facilities and proposed facilities shows the reduced area the discipline is being asked to relocate to.

**Possible Solutions**

- One alternative for the Business discipline is to create one large classroom by combining the two adjoining Alakai classrooms into one. This one larger Alakai classroom could also be spacious enough to house a storage area for the discipline’s equipment and supplies.

- Another solution would be to provide two projection areas rather than the normal one, so that students can view the computer screen from the non-rectangular shaped room.

- A last solution would be to convert the already established lab in Palanakila 122 to a computer lab. Palanakila 122 is computer-wired; it is a logical solution.

- It was also suggested that Alakai 106, which is currently the site of the Testing Center, be assigned to the Business discipline for a faculty workroom, office space and mini-lab, storage space, and a discipline conference room.

- It is hoped that once the new Language Arts building is renovated, space will become available in Palanakila for more suitable computer instruction solutions.

The ICS and Business discipline facilities request is linked to the following system and college priorities and goals.

1. **University of Hawai‘i System Strategic Outcome #4**: Address critical workplace shortages and prepare students (undergraduate, graduate, and professional) for effective engagement and leadership in a global environment.

**Community College System Action Outcomes**

4.3 Increase by 3% per year the number of degrees and certificates awarded in Science, Technology, Engineering, and Math (STEM) fields.

**Windward Community College Action Outcomes**

4.5 Promote the knowledge, skills, and opportunities that support current and emerging STEM fields and careers by increasing credit and noncredit STEM course enrollments by 3% per year.

4.8 Increase the number of degrees and certificates awarded in Science, Technology, Engineering, and Math (STEM) fields. (includes both credit and noncredit) by 3% per year.
The Business/ICS area has ten STEM courses. Multiples sections of ICS 100, ICS 101, ICS 107, ACC 201, and ACC 202 are offered every semester. In addition, it is known that Business/ICS students transfer to four-year colleges and the University of Hawaii, adding to one of the success indicators for the College.

WCC GE SLO VII: *Students will be able to apply specialized skills for employment.* Computer courses provide students with skills and tools that are integral to successful job placement. The Business/ICS area has enjoyed tremendous growth in number of students. The deliberate selection of one department over the established needs and roots of another, albeit smaller, faculty unit was puzzling and appalling. Although the Social Sciences department may have thought that Business/ICS instructors were to be housed in Mana’opono with the Math faculty, that was not true. If this was a factor in the decision made, then it could have easily been verified. Computing, business, and accounting are key areas tied to workforce development and higher paying careers. In terms of course SLOs, SLOs specific to each course that uses a computer could be cited; however, all Business/ICS courses are directly tied to workplace and career success. Providing an environment conducive to computer learning and instruction is integral to a successful college experience.

WCC’s Institutional Objective 5 which involves “making choices for a healthy mind, body, and spirit,” is applicable to this request. The use of Alakai 101 and 102 in their present configuration is not conducive to learning due to eyestrain, the limited arrangement of computer tables and computers, and safety concerns over running cables and cords over the floor.

4. **ICS/Business Instructor, 1.0 FTE**

The data cited in item 3 above provides the evidence for a full time tenure-track ICS instructor (49% lecturers). The Business discipline anticipates increasing their course offerings in addition to developing an Information Management for Business Certificate of Achievement with several tracks to meet the needs of students.

The Business area is supported by 1.2 Business Technology (BUSN) position, a 0.5 accounting (ACC) position and a 1.5 Information and Computer Science (ICS) position. Business Technology and ICS classes require five lecturers to support the curriculum offered at present. The full time faculty are teaching full loads and therefore are unable to develop new curriculum and update outdated ICS courses that change rapidly. To meet the demands for students and industry needs, it is imperative that new curriculum be developed and existing curriculum be updated due to rapidly changing technology. In order to grow in the technology area, the department has had to rely on adjunct faculty. Problems that occur are: Retention of good faculty, maintaining quality instruction, availability to meet with students, participate in campus committees, maintain a department presence as well as develop curriculum.

Presently, the Business discipline must recruit lecturers outside of the WCC community who have the skills to offer the latest technologies such as cloud computing, social networking, and audio and video editing. Because these lecturers cannot maintain a respectable standard of
living with one or two classes, they must often work outside of the education system. The discipline have had great lecturers leave because we could not offer a position to sustain a decent standard of living in Hawaii. Therefore our department does not have the on-campus Business discipline support to help students, to share discipline and department responsibilities or to develop curriculum. Curriculum is often at the bottom of the discipline’s action list, which is not the best scenario for a technology area.

A solution the department relies on is to offer more online courses. The Business discipline to date has the highest number of online courses at WCC. This is good for the online community, but it means the instructor is often not present to develop relationships with students, serve on committees, and handle the on campus day-to-day routines. These tasks are often left for the full time faculty to assume in addition to their workload. Therefore, a new full time ICS position could help the discipline in many of these tasks as well as to help coordinate online teaching assignments – a priority item for WCC.

Further rationale for this request is based on four Strategic Plan Objectives:

4.3 *Expand the curriculum that prepares students for nursing, social work, information technology, and other critical workforce shortage areas by adding at least one new course per year.*

WCC needs continued growth in the technology area but still needs to maintain its base curriculum. An additional faculty position in this area will allow the discipline to develop new curriculum and maintain its curriculum base.

4.5 *Promote the knowledge, skills, and opportunities that support current and emerging STEM fields and careers by increasing credit and noncredit STEM course enrollment by 3% per year.*

A Business Information management CA will provide a three tiered certificate offering with a traditional option for transferring to UH at Manoa, a cyber-security option and an entrepreneurial option for students. At present, a web design option may be added or may replace one of the aforementioned options.

4.6 *Increase the number of degrees awarded, and/or transfers to UH baccalaureate programs that lead to occupations where there is a demonstrated state shortage of qualified workers and where the average wage is at or above the U.S. average ($38,651 YR2006) by 3% per year.*

As stated above, the CA would offer the traditional option with all courses as transfer level to UH at Manoa. The Transfer Option would transfer into the Shidler Business College at UH. The entrepreneurial option follows UH’s President Greenwood’s initiative to offer entrepreneurial curriculum.

4.8 *Increase the number of degrees and certificates warded in Science, Technology, Engineering, and Math (STEM) fields, (includes both credit and noncredit) by 3% per year.*

The Certificate of Achievement that the Business faculty is creating is a Certificate of Business Information Management and this would add a technology certificate for WCC students. At present the two full time faculty are teaching full workloads and are unable to create curriculum successfully in addition to their workloads. Another position would allow faculty to do
research for creating this certificate. An important Business discipline goal is to develop curriculum for a CA in Information Management for Businesses and this objective can be addressed if full time faculty are available to assist with its development.
E. Recommendations for improving outcomes.

The quantitative indicators for demand have been steadily increasing in each area of the department. The number of classes taught, enrollment, and student semester hours are each at a much higher level in AY2010-2011 than AY2006-2007. However, the quantitative indicators for efficiency shows that the department is not faring as well in the accounting and developmental mathematics areas where the AY2010-2011 average class size in lower than that of AY2006-2007, and the AY2010-2011 average class size is lower than that of AY2006-07. Lastly, the success rates for developmental mathematics and ICS are lower in AY2010-2011 than in AY2006-2007. Comparatively, the quantitative indicators for the other areas of the department have remained at least the same level if not higher.

It should be noted that the areas with lower numbers or rates in AY2010-2011 than in AY2006-2007 are the areas with the highest number of lecturers teaching in those areas. The concern with a heavy reliance of lecturers has already been discussed elsewhere in this report. While these educators are typically selected for their content knowledge (met minimum qualifications), they are rarely provided the time to develop and hone pedagogical skills, learn new skills or to participate in institutional program or professional improvement activities.

**Recommendation #1**

Reduce the heavy reliance on lecturers to teach mathematics classes especially in the developmental area by hiring a full-time, tenure-track mathematics instructor (1.0 FTE).

To address unique learning needs and styles of WCC students, the mathematics faculty with the support of Vice Chancellor of Student Services, Lui Hokoana, through a Title III grant, had the opportunity to develop a developmental mathematics curriculum redesign during summer 2011, pilot the project in Spring 2012 with full implementation in Fall 2012. The redesign will involve a modularization of content topics from Math 20 to Math 25, and the utilization computer-aided instruction. The courses will be self-paced courses that allow students to individualize a program of study based on their strengths and weaknesses as indicated by diagnostic testing. These courses should allow students to move quickly through material or spend extra time learning difficult concepts. The team anticipates working with the Office of Admissions and Records to allow “late starts” or “open entry” that allow students who are struggling in the regular developmental courses to switch into the redesign courses. Students who accelerate their studies and complete more than one course in the semester will receive credit and a grade for the higher course. There will be capstone assessment opportunities with portfolios of students’ written work, modular pre- and post-tests, and exit exams for each course.

In Spring 2012, one class of each course will be piloted. These classes will be taught in the computer classroom Manaopono103. Other times in Manaopono 103 will be set aside to provide students the opportunity to continue their outside-of-class work and for SI sessions. However, when the redesign project is fully implemented in Fall 2012, Manaopono 103 will be completely booked for the instruction of the redesign classes. At the same time, the tutoring component of the Math Lab in Manaopono113 will be moved to the new Library Learning Commons facility. The department plans to transform Manaopono 113 into a computer lab and rename it the Math Center. The Math Center will provide students in the redesign courses the opportunity to continue their outside-of-class work.
and to attend SI sessions in a staffed computer lab. The anticipated number of computer stations in the Math Center (28) may not be adequate for all the students. The availability of other computer labs on campus will be made known to the students.

The department will be able to explore other uses for the Math Center such as independent study for transfer level courses with the student working under the supervision of the instructor staffing the Math Center. Another idea is to develop 0.5 credit or 1.0 credit module courses offered through Math Center for students needing a focused study for a particular area in mathematics. For example, a module on Geometry – Plane or Solid in areas other than those included as part of other courses. Other modules may be for selected topics in Trigonometry such as Trigonometric Identities or Equations, or selected topics in Algebra such as Word Problems. The Math Center instructor would be able to develop other modules to meet the needs of our students. These module “courses” provide the opportunity for students to take classes at any time when the Math Center is open; work independently in a self-paced, computer-based course; and be able to study topics not normally covered in a regular course.

**Recommendation #2**

Support the Math Center with the purchase of the computers, 1.0 FTE mathematics instructor position and student help to staff the Math Center. The instructor position is necessary to not only manage and provide a resource instructor for the redesign students, but it also allows the department to expand the services of the Math Center as described above. Additionally, this instructor will be available to teach classes further reducing the reliance on lecturers.

**Recommendation #3**

Support the ICS/Business 1.0 FTE position to meet the growing demand in the business and ICS related areas. A new full time ICS position will facilitate the accomplishment of several goals:

- Develop a Certificate of Achievement in Information Management for Business with 3-4 options (transfer, security, entrepreneurial and web development).
- Create the web development track for online offerings. See figure 5.
- Develop more timely courses in the technology area.
- Focus of the Science, Technology, Engineering and Math (STEM) initiative that is a UH and WCC Strategic Plan objective.
- Track business students’ graduation, employment, and successes.
- Coordinate the online web development curriculum and Distance learning courses.
Figure 5. Draft for the ICS Certificate of Achievement in Information Management for Business with Transfer, Security, Entrepreneurial or Web Development options.

**Recommendation #4**

Support the Business/ICS facilities Request:
Part 1 of this request is for smaller tables to allow for flexibility in room arrangements. This PBC request is for $12,000 to purchase 46 smaller computer tables. This purchase is dependent on where the computer classrooms will be ultimately placed.

Part 2 is a request for two computer classrooms equivalent in size to No’eau 123 and 124 in an environment conducive to computer instruction. One such room, which was designed for computers, is Palanakila 122. The space is currently used for speech classes and a speech lab. Wiring for a computer lab is in place. In its last annual report, the Business/ICS faculty requested that dual-boot Mac computers be purchased in the replacement cycle. Since we now have ICS courses in which the industry standard is a Macintosh platform, such as for video editing, Dreamweaver, and Photoshop software, this move will allow flexibility in scheduling. Also, there are other similar spaces in Palanakila, which would be more desirable than either Alaka‘i 101 or 102 for computer instruction. Both Alaka‘i 101 and 102 will also require renovations to develop two 21st century computer learning spaces. A recent e-mail mentioned the possibility of Hale Alaka‘i being scheduled for renovations in the near future. With the Language Arts classes slated to move into their newly renovated building in a year or so, more stability would be gained by moving two computer labs into Palanakila in one move, rather than require two moves in the next two to four years.

Part 3 is a request for space equivalent to the former No’eau 121 Computer Lab, which was once assigned to the Business/ICS area. This space will be used for faculty offices, equipment storage of items such as video cameras, and a small tutoring area where faculty can work with colleagues or with small groups of students. Having a safe place to store equipment is a major concern of the Business/ICS faculty. The present Test Center in Alakai 106 would fit the needs of the Business/ICS area in the short term and serve as a needed mini-lab requiring four computers, a laser printer, and an
optical drive ($6,500). Hopefully, if a new Master Plan is developed, there will be a long-term solution for this space need.

A brief history of the Business discipline’s struggle with its facilities is presented here to better understand the discipline’s frustration and deep concern. The Business/ICS area had six rooms: Haloa 117, a computer lab in No‘eau 121, offices in No‘eau 111 and No‘eau 117, and two No‘eau computer classrooms. Haloa was vacated by Windward Community College (WCC), the computer lab space was taken over by Computing Services, and No‘eau 111 was turned into a photocopy room.

In spring 2010, it was announced in a public meeting that the Master Plan would be modified and that Hale No‘eau, once renovated, would become the home of the Social Science Department. Prior to the public meeting, there had been no discussion or hearing involving either of the two Business/ICS faculty, even though the two No‘eau classrooms had been "home" to the Business/ICS area for 38 years. At the MaPSAC meeting in spring 2010, the Business/ICS area asked for the two larger Alakai classrooms, two offices, and a lab. With the exception of the lab space, this request was approved.

In spring 2011 in a meeting held in Alaka‘i 101 and attended by Dean Brian Richardson, Computing Services Coordinator Michael Tom, Peggy Regentine, and Emi Troeger, Mike Tom stated that the rooms were not ideal for the type of instructional activities for the following reasons: room configuration, the need to run cords and cables over the floor, the possibility of inadequate electrical power, poor acoustics, the possible need for two LCD projectors due to the blocked sight lines to a projection screen or white board. He recommended that other space be investigated that would be more conducive to computer instruction. Media Specialist Elizabeth Ratliff also stated her reservations about the rooms, especially the need for a second projector for dual-signal projections to accommodate students who would not be able to see the screens and the difficulty of screen placement. Note: having computer desks that span the length of the room rather than desk/chair combinations widens the viewing angle, interferes with sight lines, and may cause eyestrain.

In January 2011 when ETC merged with the Kaneohe campus, a change in personnel which ultimately resulted in a new faculty member with mixed duties being assigned to the Business/ICS area. In summer 2011, two half-time faculty members were hired, resulting in an increase from two to five faculty in need of office space.

Due to the manner in which space is historically managed, planning has been difficult. Following the October 13 announcement by John Morton that renovation funds had been released, it was learned via Peggy Regentine's attendance at an Aesthetics Committee meeting that No‘eau renovations could begin as early as May 2012. VC of Administrative Services Clifford Togo stated on two occasions that the assignment of classrooms is the purview of the VC of Academic Affairs. Because there are classroom spaces more suitable for computer instruction than Alaka‘i 101 and 102, it was hoped that negotiations could take place with respect to classroom space allocation.
Recommendation #5

Support the request for $3495.00 for Supplemental Instruction and release time for course material development. These items, presented in figure six, were the recommendations made as a result of Course Level SLO assessment conducted for Math 100 and Math 206.

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<thead>
<tr>
<th>Course Assessed:</th>
<th>Item Description:</th>
<th>Amount Requested:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 100</td>
<td>Supplemental Instruction to provide added assistance for students outside of class time</td>
<td>$1275.00</td>
</tr>
<tr>
<td>Math 100 (On-line)</td>
<td>Release time for course material development</td>
<td>$1200.00</td>
</tr>
<tr>
<td>Math 206</td>
<td>Supplemental Instruction to provide added assistance for students outside of class time</td>
<td>$1020.00</td>
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<tr>
<td><strong>Total:</strong></td>
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<td><strong>$3495.00</strong></td>
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</tbody>
</table>

Figure 6. Budget for the recommended items resulting from the Course Level Student Learning Outcomes Assessment reports.
Part IV. Student Learning Outcome Assessment

A. Courses on which assessment was completed this year.

The College’s 5-year Department Assessment Plan requires that 20% of the department courses be assessed in each of the academic year. The following courses scheduled for assessment this academic year are Math 100, Math 112, Math 206, ICS 123 and ICS 214.

B. Courses due to be assessed next year.

The courses scheduled to be assessed next year: Math 20, Math 25, Math 101, BUSN 121 and ICS 101.

C. Assessment of courses.

The Course Level Student Learning Outcomes Assessment reports for Math 100, Math 112, Math 206, ICS 123 and ICS 214 are attached.

The results of these Course Level SLO Assessment reports were reviewed and discussed in a department meeting and are included here:

- Math 100. Jody is requesting $1275 to support Supplemental Instruction for Math 100 to provide added assistance for students outside of class time. Although attendance at SI sessions is low, strategies to increase attendance are making attending sessions a required part of the course or awarding extra credit. It is felt that using SI sessions to strengthen lessons related to SLO #3: *Employ symbolic/mathematical techniques to solve applied problems* will improve the success level of this SLO (65%).

- Math 100 Online. Jody is requesting one credit ($1200) release time towards course development to create additional PowerPoint presentations and/or video clips to supplement the MyMathLab program. The focus will be on concise steps to graphing functions and identifying key points, and illustrating the steps to solving an applied problem. In the assessment of SLO #1: *Construct diagrams that will facilitate the visual conception of a phenomenon or problem*, 73% of the students earned ratings of 2 or 3 with only 45% earning a 3. 68% of the students earned ratings of 2 or 3 with 48% earning a 3 for SLO #3: *Employ symbolism/mathematical techniques to solve applied problems*.

- Math 112. The proposed actions will cost the department/college only in related duplication expenses which are covered by the department’s budget.

- Math 206. Young-A is requesting $850 for student helper or $1020 for Supplemental Instruction support. It is felt that students need outside of class time help at more variable hours.
o ICS 123. No funds will be sought for a higher-level course until sufficient enrollment is reached for this course.

o ICS 214. Maui College had deleted this course from their ABIT degree, therefore the status of this course at WCC is currently “on hold.” No funds are being requested.
**Part V. Curriculum Revision**

<table>
<thead>
<tr>
<th>Added</th>
<th>Deleted</th>
<th>Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. BUS 164-Career Success is a three-credit course to fulfill a need of turning out students with soft skills such as proper work ethic, attitude and a desire to do a good job. Also addresses the AA degree SLO: <em>Enter and perform effectively in the work force.</em></td>
<td>1. ICS 105-Computer and Information Literacy Exam Preparation was a three-credit course designed specifically to prepare students for the CIL exam to fulfill the AA degree CIL graduation requirement. Since the College favored the removal of the CIL requirement in December 2010, students were no longer required to meet this requirement. Therefore, ICS 150 was no longer needed.</td>
<td>1. Math 101-Math for Veterinary Assistants and Technicians was a one-credit course and modified to become a three-credit course to better meet the needs of the students by allowing greater coverage of required topics. Although the success rate for AY2009-10 was high, the average fill rate was 39% for the same year. Anecdotally, although interest was high more students did not enroll because they did not meet the pre-requisite for this course.</td>
</tr>
<tr>
<td>2. BUS 120-Principles of Business is a three-credit course designed for students wanting to pursue a career in business. Introduced to be in sync with the growing interest in accounting and business technology as evidenced by the increasing enrollment from AY2008-09 to AY2009-10.</td>
<td>2. Math 206L-Calculus Computer Lab was a one-credit course. Since many of the computer skills required for this course are embedded in the course material for Math 206 or Math 231, this lab course was no longer necessary. Additionally, it was very difficult to schedule this course for students.</td>
<td>2. Math 112-Mathematics for Elementary Teachers II is a three-credit course. The proposed modification was to have the catalog description better reflect the course content and to align it with that of UHM.</td>
</tr>
<tr>
<td>3. ICS 50-Basic Computer Skills is a three-credit course to meet the needs of students who have never used a computer which was identified in online discussions and at the Open Forum held in fall 2012 on the Computer and Information Literacy requirement.</td>
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Part VI. Appendices

Appendix A. Five Year Summary Tables of Quantitative Indicators.

Appendix B. Course Level Student Learning Outcomes Assessment Reports and Artifacts

Appendix C. PBC Request Forms