Automatic Degree Pathways

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University of Hawai‘i System

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University of Hawai‘i at Mānoa
“55% of Hawai‘i’s working age adults to have a 2- or 4-year college degree by the year 2025.”

Cumulative Degree Gap: 42,932 degree holders

Source: UH Institutional Research and Analysis Office, NCHEMS, & U.S. Census Bureau, American Community Survey, 1-year estimates, 2006 to 2012
Compounded Annual Growth Rate of UH Degrees Awarded

<table>
<thead>
<tr>
<th>Year</th>
<th>UG Certificates</th>
<th>Associate's</th>
<th>Bachelor's</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2009</td>
<td>341</td>
<td>2408</td>
<td>4440</td>
</tr>
<tr>
<td>FY2010</td>
<td>718</td>
<td>3705</td>
<td>4474</td>
</tr>
<tr>
<td>FY2011</td>
<td>13.0%</td>
<td>3.8%</td>
<td></td>
</tr>
<tr>
<td>FY2012 - FY2014</td>
<td>16.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UH will need a 6% annual growth in Associate and Bachelor's degrees to reach the goal.
University of Hawai‘i Strategic Directions 2015-2021

- Hawai‘i Graduation Initiative
- Hawai‘i Innovation Initiative
- 21st Century Facilities
- High performance mission driven system
- http://hawaii.edu/strategicdirections/
Student Success Strategies
In 2010, created campus scorecards identifying measures that improve graduation rates based on academic literature and updated annually (http://www.hawaii.edu/hawaii.gradinitiative/campus-scorecards/)
Strategies

- Reduced credit requirements for a bachelor’s degree to 120 and 60 for associate degrees
- Developed academic maps
- Created block and cohort scheduling
- Promoted English and math in the first year
- Improved course scheduling and availability (waitlist, monitor gateway courses, track failed registration attempts, etc.)
Strategies

- Undergraduate engagement opportunities
- Outreach to non-returning students
- Veteran’s Taskforce
- Prior learning assessment
- Multiple accelerated developmental education strategies
- Supplemental instruction and course redesign
Strategies

- Financial aid centralization for all CCs
- Reduced summer tuition for CC’s
- Agree to Degree for UHMC
- Provided targeted scholarships for CC’s
- Project Waiʻaleʻale (Kauaʻi) and Paipai o Koʻolau (Windward)
Example UH System-wide processes
Reverse Credit Transfer

- Piloted in Spring 2013 identified 300 eligible students
- Expanded to all seven community colleges in Fall 2013 and identified 600 students
- No cost to the student (100% electronic)
- Reverse Credit Transfer process awards approximately 700 Associate degrees per year
Automatic Admission to Four Year Campuses

- Operationalized in Fall 2010
- Initially offered to all CC students on track to graduate with AA students
- Application fee waived and offer/acceptance all done electronically
- Participation increased by 138% since 2010
- In Spring 2014, 774 students took advantage of the program
Encourage students to enroll in 15 credits that **count** per semester to graduate on time

- Students with 15 or more credits tended to be more prepared and have better academic success.

- More importantly, at all but the lowest levels of academic preparation… students who took 15 or more credits generally had more academic success…..this held for Pell and URM students
Credits Attempted at UH Community Colleges
First-Time Freshmen Fall 2009 to 2011

- <12 credits (39.1%)
- 12–14 credits (53.6%)
- ≥15 credits (7.3%)

[Diagram showing the distribution of credits attempted]
First Time Freshman enrolled at UH Community Colleges in 15 or more credits

- Fall 2011: 7.5%
- Fall 2012: 11.4%
- Fall 2013: 12.9%
- Fall 2014: 13%
Academic Success by Preparation Score and Number of Credits Taken

2-Year Campuses

First-time Freshmen, Fall Semesters 2012–13

% GPA Initial Semester ≥ “C+”

Number of students taking <15 credits=9,803
Number of students taking ≥15 credits=1,355
Academic Success by Preparation Score and Number of Credits Taken

2-Year Campuses

First-time Freshmen, Fall Semesters 2012–13

% Credit Completion Ratio > 80%

Academic Preparation Score

Number of students taking <15 credits=9,803
Number of students taking ≥15 credits=1,355
Academic Success by Preparation Score and Number of Credits Taken

2-Year Campuses

First-time Freshmen, Fall Semesters 2012–13

% Persistence to Next Spring

Number of students taking <15 credits=9,803
Number of students taking ≥15 credits=1,355
Academic Success by Preparation Score and Number of Credits Taken

2-Year Campuses

First-time Freshmen, Fall Semester 2012*

% Persistence to Next Fall

Number of students taking <15 credits=9,803
Number of students taking ≥15 credits=1,355

* Fall to fall persistence data not yet available for fall 2013 first-time freshmen.
Automated Degree Pathways

‣ GPS – Guided Pathways to Success

‣ Program Velocity – measurement of academic program efficiency
Student Success

There are two broad operational tenets:

1. We need to be able to guide students so they stay on-track at all times.

2. We need to provide the curriculum students need when they need it.
We are all confident we know how to keep students on-track:

- By having and advisor to student ratios of around 100:1
- However: most of our advising units our have ratios of 400:1 and up
For the 60,000 University of Hawai‘i students that would mean:

800 more advisors = 54 million dollars yearly
Student Success

Challenge

No perfect plan + No perfect student = “Significant guidance”
Student Success

UHSTAR – Guided Pathway to Success

• Dynamic Pathway (GPS)
• Optimal Pathway to Graduation
• Optimal Point of Transfer
• Optimal Degree Curriculum Offerings
Automatic Degree Pathways

www.youtube.com/watch?v=2GH6dJl7AuU&hd=1
Registration via STAR
Thank you

We would like to sincerely thank our innovation partners at the Kresge Foundation and the Bill and Melinda Gates for their support.
### STAR Academic Essentials

#### Graduation Requirements Totals

<table>
<thead>
<tr>
<th></th>
<th>Required</th>
<th>Have</th>
<th>Remaining</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPR Requirements</td>
<td>2.00</td>
<td>3.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OVERALL GPA</td>
<td>3.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Additional Credit Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Credits</th>
<th>Earned</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional</td>
<td>12.00</td>
<td>76.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### My Academic Pathway at Hawaii CC

- Graph showing academic progress over time.
- Academic Pathway chart with courses completed.

#### Educational Goals

**Spring 2015**
- Immediate Goal: Earn an associate degree
- Highest ed. Goal: Earn a bachelor's degree (4-yr)

**Fall 2014**
- Immediate Goal: Earn an associate degree
- Highest ed. Goal: Earn a bachelor's degree (4-yr)

#### Courses Not Yet Classified

<table>
<thead>
<tr>
<th>Semester</th>
<th>Name</th>
<th>Cr</th>
<th>Cr</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2012</td>
<td>BUSN 121</td>
<td></td>
<td>1.00</td>
<td>Hawaii CC</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>BUSN 121</td>
<td>1.00</td>
<td></td>
<td>Hawaii CC</td>
</tr>
</tbody>
</table>

#### Accounting AAS Degree for Hawaii Community College
- The student has completed 43.00 total credits of this program's required 61.60 total credits.

<table>
<thead>
<tr>
<th>First SEM: Accounting part I</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2013</td>
<td>ACC 120 A</td>
</tr>
<tr>
<td>1st SEM: Business Math</td>
<td>Complete</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>BUS MATH BUSN 121 B</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>BUS MATH BUSN 99 A</td>
</tr>
<tr>
<td>1st SEM: BUSN 121</td>
<td>Complete</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>BUSN 121 BUSN 121 A</td>
</tr>
<tr>
<td>1st SEM: Business Communications</td>
<td>Tentatively complete</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>BUS COMM ENO 55 ***</td>
</tr>
</tbody>
</table>

#### 1st SEM: IS
- Complete

<table>
<thead>
<tr>
<th>First SEM: IS</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2012</td>
<td>IS 55 A</td>
</tr>
</tbody>
</table>

#### 2nd SEM: Accounting part II
- Complete

<table>
<thead>
<tr>
<th>Second SEM: Accounting part II</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2013</td>
<td>ACC 124 B</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>ACC 159 A</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>ACC 155 A</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>ACC 132 B</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>ACC 134 B</td>
</tr>
</tbody>
</table>

#### 2nd SEM: Business
completes

<table>
<thead>
<tr>
<th>Second SEM: Business Comp</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2013</td>
<td>BUS COMP BUSN 150 A</td>
</tr>
</tbody>
</table>

#### 3rd SEM: Accounting part III
- Complete

<table>
<thead>
<tr>
<th>Third SEM: Accounting part III</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>ACC 201 A</td>
</tr>
</tbody>
</table>

#### 3rd SEM: EN 100
- Complete

<table>
<thead>
<tr>
<th>Third SEM: EN 100</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>EN 100 A</td>
</tr>
</tbody>
</table>

#### 3rd SEM: SP 100
- Tentatively complete

<table>
<thead>
<tr>
<th>Third SEM: SP 100</th>
<th>Tentatively complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>SP 100 A</td>
</tr>
</tbody>
</table>

#### Events and Actions

- **Events**
  - Applied to Hawaii CC Fall 2012 Kamalana Program Applicant
  - Undergraduate AAS Accounting FEB 09-2012 HAW

- **Actions**
  - Spring 2014 Hawaii CC Dean's List
  - Fall 2013 Hawaii CC Dean's List
  - Spring 2013 Hawaii CC Dean's List

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**University of Hawaii System**

- [Logo]

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**STAR Academic Essentials**

- [Logo]
Student Velocity toward Program Requirements
Calculating Student Velocity

# credits a student is enrolled in that count towards credential requirements

\[ \frac{\text{# credits enrolled}}{\text{Total # of credits required}} \]

Total # of credits required for degree program

When a student is enrolled in 15 credits that count...

**Velocity will be \(~12.5\%\) in a 4-yr program**

or **\(~25\%\) in a 2-yr program**
Why Does Velocity Matter?

• When students take credits that don’t count to credential, time-to-degree increases

• Preliminary evidence suggests an increase in velocity is associated with an increase in the likelihood that a student will persist from one fall to the next
Predicted Probability of Persistence

Create a Hypothetical UH Student:

Caucasian, Non-resident, 3.0 Cumulative GPA (end of F12), Not a Transfer Student, Freshman, No Academic Program Change, Full-time Student, Male, & Federal Aid Recipient

…and change value of Velocity

<table>
<thead>
<tr>
<th>Velocity</th>
<th>Probability of persistence</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>.78</td>
</tr>
<tr>
<td>9%</td>
<td>.87</td>
</tr>
<tr>
<td>12.5%</td>
<td>.93</td>
</tr>
</tbody>
</table>
Academic Program Velocity

If:

All students have a velocity towards degree requirements, and

Degree programs are composed of declared majors

Then:

Every academic degree program has a “Program Velocity”
Program Velocity Definition

\[ \sum_{\text{Student}} \frac{\text{Velocity in Program for semester}}{\text{# of students in program for semester}} = \text{Program Velocity} \]
Community College Program Velocity
Approach to Working with Programs

• **Question**: What are the operational characteristics of a program that inhibit or foster progress towards degree?

• **Meetings and interviews with department chairs**

• **Analyze data specific to the department**
  • Program structure
  • Audit review in STAR
  • Velocity data
  • Course-related constraints
  • Advising patterns

• **Provide actionable recommendations**
Common Programmatic Factors that Hinder Students’ Ability to Stay on Track

• Highly structured/sequential program, but no blocks/cohorts
• Semester constraints in course offerings
• Seat constraints in course offerings
• Core courses offered at conflicting times
• Focus courses taken outside of program requirements
• Miscommunication about requirements
• Interdisciplinary requirements, but no interdepartmental communication
Example: Program A

VELOCITY BREAKDOWN
Program A (AS) Overview:
Enrollment and Velocity Figures
Fall 2014

- Number of full-time majors: 31
  - Total number of majors in F14: 87

- Fall 2014 Velocity: 19.84%

- Average time to completion based on current velocity: ~ 5 semesters
Course Enrollment Patterns for Full-time Students

• 32% of students are taking 15 credits that count to credential.

• 48% of students are taking 12 credits that count to credential.

• 20% of students are taking credits that do not count towards their desired credential.
Diving Into the Data

Categorization and Distribution of Credits that Do Not Count

- Other/Unknown: 75%
- Remedial: 17%
- Repeat: 8%
## Dissecting the 75% of “Other/Unknown” Courses

<table>
<thead>
<tr>
<th>Course Planning Category for Program A Majors</th>
<th># of “Other” Courses in Category</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS/Arts &amp; Humanities Option</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AS/Natural Sciences Option</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AS/Social Sciences Option</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>English Requirement Option</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Math Requirement Option</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of courses that could satisfy a program requirement, provided that the student has not completed that requirement prior to enrolling in the course</strong></td>
<td><strong>7</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Courses not listed as options to satisfy course requirements</strong></td>
<td><strong>2</strong></td>
<td></td>
</tr>
</tbody>
</table>
# Core Course Constraints

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Constraint</th>
<th>Seat Constraint</th>
<th>Details</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>COURSE 1</td>
<td>No</td>
<td>Potential</td>
<td>Offered each Fall and Spring; 2-3 sections in Fall and 1 section in Spring; 51-82 seats in Fall and 30 seats in Spring semesters; 64%-93% full; 94% full as of 8/18/14</td>
<td></td>
</tr>
<tr>
<td>COURSE 2</td>
<td>No</td>
<td>Potential</td>
<td>Offered each Fall and Spring; 1 section/semester; 20-30 seats; 80%-90% full historically; 90% full as of 8/18/14</td>
<td></td>
</tr>
<tr>
<td>COURSE 3</td>
<td>No</td>
<td>No</td>
<td>Offered each Fall and Spring; 1 section/semester; 20-30 seats; 78% - 95% full historically; 66% full as of 8/18/14</td>
<td></td>
</tr>
<tr>
<td>COURSE 4</td>
<td>No</td>
<td>Potential</td>
<td>Offered each Fall and Spring; 1 section/semester; 20-28 seats; 60% - 90% full historically; 90% full as of 8/18/14</td>
<td></td>
</tr>
<tr>
<td>COURSE 5</td>
<td>No</td>
<td>No</td>
<td>Offered each Fall and Spring; 1 section/semester; 20-28 seats; 70% - 75% full historically; 80% full as of 8/18/14</td>
<td></td>
</tr>
<tr>
<td>COURSE 6</td>
<td>No</td>
<td>Yes</td>
<td>Offered each Fall and Spring; 1 section/semester; 20-25 seats total; 60% - 95% full historically; 100% full as of 8/18/14</td>
<td></td>
</tr>
<tr>
<td>COURSE 7</td>
<td>Yes</td>
<td>No</td>
<td>SP13 &amp; 14: 1 section/semester; 30 seats total; 83% full (Recommend offering required Core courses in Fall and Spring)</td>
<td></td>
</tr>
<tr>
<td>COURSE 8</td>
<td>No</td>
<td>No</td>
<td>Offered each Fall and Spring; 1 section/semester; 20 seats; 30% - 60% full</td>
<td></td>
</tr>
<tr>
<td>COURSE 9</td>
<td>No</td>
<td>Potential</td>
<td>Offered each Fall and Spring; 1 section/semester; 13-20 seats; 55%-100% full historically; 61% full as of 8/18/14 (Dropping below 20 seats is not recommended)</td>
<td></td>
</tr>
</tbody>
</table>
## “Immediate Goals” of Full-time Program A Majors

<table>
<thead>
<tr>
<th>Immediate Goal</th>
<th>Responses of Students enrolled in courses that don’t count towards degree requirements (n=6)</th>
<th>Responses of students only enrolled in courses that count towards degree requirements (n=25)</th>
<th>All Full-time Program A Majors (n=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earn an Associate Degree</td>
<td>50% (3)</td>
<td>88% (22)</td>
<td>81% (25)</td>
</tr>
<tr>
<td>Earn a Certificate</td>
<td>0% (0)</td>
<td>4% (1)</td>
<td>3% (1)</td>
</tr>
<tr>
<td>Take Courses to Transfer to Another College</td>
<td>33% (2)</td>
<td>4% (1)</td>
<td>10% (3)</td>
</tr>
<tr>
<td>No Response</td>
<td>17% (1)</td>
<td>4% (1)</td>
<td>6% (2)</td>
</tr>
</tbody>
</table>
Recommendations

• The analysis suggested that there were incongruent communications between the institution/program and the student.

• To a lesser degree, there were minor curricular constraints in a couple of classes.
Opportunities for Programs to Foster Student Success

• Reconsider program structure

• Course scheduling process

• Collaboration/communication across departments and disciplines

• Interventions
MEMORANDUM

TO: Chancellors

FROM: David Lassner
President

SUBJECT: STAR AS THE OFFICIAL ARBITER OF DEGREE COMPLETION EFFECTIVE FALL 2015

STAR, developed by UH Mānoa with the support of the UH System, is the official systemwide degree audit system.
# Model Results

Predicting the likelihood of being retained from Fall 2012 to Fall 2013

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>X-Standardized Logit Coefficient (Magnitude)</th>
<th>Wald Statistic (Relative Contribution)</th>
<th>Significance (p-values of .05 or below)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Velocity</td>
<td>0.98</td>
<td>127.95</td>
<td>.000</td>
</tr>
<tr>
<td>GPA (End F12)</td>
<td>0.47</td>
<td>66.47</td>
<td>.000</td>
</tr>
<tr>
<td>F12 Program Change</td>
<td>-0.30</td>
<td>33.24</td>
<td>.000</td>
</tr>
<tr>
<td>Transfer Student</td>
<td>-0.29</td>
<td>24.42</td>
<td>.000</td>
</tr>
<tr>
<td>Initial Class Standing*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td>0.53</td>
<td>29.28</td>
<td>.000</td>
</tr>
<tr>
<td>Junior</td>
<td>0.46</td>
<td>22.83</td>
<td>.000</td>
</tr>
<tr>
<td>Sophomore</td>
<td>0.30</td>
<td>18.03</td>
<td>.000</td>
</tr>
<tr>
<td>Part-time Student</td>
<td>-0.15</td>
<td>18.21</td>
<td>.000</td>
</tr>
<tr>
<td>Ethnicity*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korean</td>
<td>0.19</td>
<td>15.72</td>
<td>.000</td>
</tr>
<tr>
<td>Chinese</td>
<td>0.25</td>
<td>13.73</td>
<td>.000</td>
</tr>
<tr>
<td>Filipino</td>
<td>0.22</td>
<td>9.40</td>
<td>.001</td>
</tr>
<tr>
<td>Japanese</td>
<td>0.15</td>
<td>8.13</td>
<td>.002</td>
</tr>
<tr>
<td>Mixed Asian</td>
<td>0.12</td>
<td>6.24</td>
<td>.005</td>
</tr>
<tr>
<td>Hawaii Resident</td>
<td>0.25</td>
<td>14.96</td>
<td>.000</td>
</tr>
<tr>
<td>Female</td>
<td>-.04</td>
<td>.90</td>
<td>.342</td>
</tr>
<tr>
<td>Federal Aid Recipient</td>
<td>-0.00</td>
<td>.00</td>
<td>.968</td>
</tr>
</tbody>
</table>

Pseudo R2: 0.24, n=6,100; Percent Correctly Classified: 88.64%

*Ethnicity comparison group: Caucasians; Class Standing comparison group: Freshmen

**Note: Excludes pre majors, general majors, double majors, & majors with known inaccurate STAR representations.
ACADEMIC PROGRAM VELOCITY
(Methodology: Mean Student Velocities through program for the Semester)

<table>
<thead>
<tr>
<th>On-track Status of Students in</th>
<th>Off Track</th>
<th>On Track</th>
<th>Above Track</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>76%</td>
<td>8%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Excludes students that are part time or double major
Thank you

We would like to sincerely thank our innovation partners at the Kresge Foundation and the Bill and Melinda Gates for their support.