What are peer institutions?

- Peer – similar role, scope, mission

- Other types of comparison groups
  - Competitor – students, faculty, finances
  - Aspirational – At UH, we call these “benchmark” institutions; those to emulate
  - Predetermined
    - Natural – athletic conference, region (WAC)
    - Traditional – historical (Ivy)
    - Jurisdictional – political or legal jurisdiction (state lines)
    - Classification – national reporting (Carnegie)
Why have peer institutions?

- Strategic Planning
  - Inform policy
  - Accreditation
- Performance Benchmarking
  - Faculty compensation
  - Teaching loads
  - Tuition schedules
  - Budget alignment
  - Used by other institutions for performance comparison
  - Surveys supply peer lists to prospective students and parents to compare cost and graduation rates
Who are our peers now?

• Reminder: Peer = similar role, scope, & mission.

UH West Oahu current peers:

- California State University – Monterey Bay
- Eastern Oregon University
- Great Basin College
- Texas A&M University – Texarkana
- The Evergreen State College
- University of Hawaii - Hilo
- University of Washington – Bothell Campus
- University of Washington – Tacoma Campus
Problems with current peer list

>15 years old. UH West Oahu still upper two-year at that time

<table>
<thead>
<tr>
<th></th>
<th>Total Enrollment (Fall 2017)</th>
<th>Total Undergrad. Enrollment (Fall 2017)</th>
<th>12 month SSH: Undergraduate Instruction (AY 2016-17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHWO</td>
<td>3,082</td>
<td>3,082</td>
<td>63,345</td>
</tr>
<tr>
<td>Current Peer Avg* (Min; Max)</td>
<td>4,175 (2,066; 7,584)</td>
<td>3,757 (1,610; 6,764)</td>
<td>124,751 (36,855; 237,747)</td>
</tr>
<tr>
<td>Manoa; Hilo</td>
<td>17,612; 3,539</td>
<td>12,881; 2,971</td>
<td>371,541; 80,175</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th># Students Receiving a Bachelor's Degree (FY 2016-17)</th>
<th>Retention Rate (2016 cohort)</th>
<th>4-Yr Graduation Rate (2011 cohort)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHWO</td>
<td>612</td>
<td>65</td>
<td>17</td>
</tr>
<tr>
<td>Current Peer Avg* (Min; Max)</td>
<td>882 (75; 1,703)</td>
<td>71 (57; 88)</td>
<td>24 (0; 43)</td>
</tr>
<tr>
<td>Manoa; Hilo</td>
<td>3,023; 712</td>
<td>79; 68</td>
<td>28; 14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>6-Yr Graduation Rate (2011 cohort)</th>
<th>% Full-time first-time undergraduates awarded Pell (AY 2016-17)</th>
<th>Core Expenses (FY 2016-17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHWO</td>
<td>39</td>
<td>35</td>
<td>48,550,478</td>
</tr>
<tr>
<td>Current Peer Avg* (Min; Max)</td>
<td>43 (10; 64)</td>
<td>42 (34; 57)</td>
<td>75,585,597 (26,035,683; 175,918,286)</td>
</tr>
<tr>
<td>Manoa; Hilo</td>
<td>60; 41</td>
<td>28; 49</td>
<td>917,449,892; 107,556,102</td>
</tr>
</tbody>
</table>

*average includes UHWO
What are the 10 (or n) most similar institutions to UH West Oahu?


Selecting peers

The Peer Selection Process Continuum

Data ↔ Judgment

IPEDS
List of meetings and timeline

**September 20, 2017**: Presented overview of peer study at Chancellor’s senior staff meeting and Chancellor’s division chair’s meeting (minutes taken).

**November 15, 2017**: Presented descriptive statistics of IPEDS data at Chancellor’s senior staff meeting and Chancellor’s division chair’s meeting (minutes taken).

**December 1, 2017**: Presented overview of peer analysis ‘V1’ at UH West Oahu faculty senate (minutes taken, video recorded). Hosted an open house to all faculty and staff after faculty senate to present a complete analysis (including cluster analysis) of peer selection. Received feedback and incorporated it in to future iterations of the analysis.

**February 13, 2018**: Presented peer revision analysis ‘V2’ to senior executive management.

**February 21, 2018**: Presented peer analysis ‘V2’ at Chancellor’s senior staff meeting and Chancellor’s division chair’s meeting (minutes taken). Received additional feedback and incorporated it in to a third version of analysis.

**The remainder of 2018**: Work put on hold due to campuswide strategic planning initiatives.

**January 15th and 16th, 2019**: Presented peer analysis ‘V3’ at Chancellor’s senior staff meeting and Chancellor’s division chair’s meeting (minutes taken).

**January 23, 2019**: Presented ‘final’ peer revision study at UH System Chief Council of Academic Officers (minutes taken) for official approval.
IPEDS Descriptive Statistics
The Integrated Postsecondary Education Data System (IPEDS) is a system of interrelated surveys conducted annually by the National Center for Education Statistics (NCES), a part of the Institute for Education Sciences within the United States Department of Education. IPEDS consists of twelve interrelated survey components that are collected over three collection periods (Fall, Winter, and Spring) each year as described in the Data Collection and Dissemination Cycle. The completion of all IPEDS surveys is mandatory for all institutions that participate in, or are applicants for participation in, any federal financial assistance program authorized by Title IV of the Higher Education Act of 1965, as amended.[1] Statutory Requirements For Reporting IPEDS Data.

Data collected in IPEDS:
- Institutional characteristics
- Institutional prices
- Admissions
- Enrollment
- Student financial aid
- Degrees and certificates conferred (completions)
- Student persistence and success (retention and graduation rates)
- Institutional resources
### Institution characteristics selection

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPEDS Universe</td>
<td>7,121</td>
</tr>
<tr>
<td>U.S. Public 4 year or above, degree granting</td>
<td>756</td>
</tr>
<tr>
<td>Bachelors &amp; Master Carnegie Classification; primarily baccalaureate or above</td>
<td>355</td>
</tr>
<tr>
<td>Title IV participating, institutional Size: 1,000 – 4,999</td>
<td>133</td>
</tr>
<tr>
<td>Has full-time first-time undergraduates; all programs not offered completely online</td>
<td>130</td>
</tr>
<tr>
<td>Exclusion of institutions with missing IPEDS data</td>
<td>118</td>
</tr>
</tbody>
</table>

**Final = 118 Institutions**

*Data retrieved January 10, 2019*
Total enrollment and undergraduate enrollment

IPEDS FALL 2017

UH West Oahu = 3,082
First-time freshmen and transfer-in enrollment

IPEDS FALL 2017

Full-time first-time degree/certificate-seeking undergraduate (current year GRS cohort) (EF2017D)

Mean = 454.42
Std. Dev. = 241.22
N = 130

UH West Oahu = 269

Transfer-in degree/certificate-seeking undergraduate enrollment (DRVEF2017)

Mean = 240.55
Std. Dev. = 150.079
N = 130

UH West Oahu = 585
Percent of part-time and percent of undergraduates ages 18-24

**IPEDS FALL 2017**

**Percent Part-Time Total Undergraduate Enrollment 2017**

- UH West Oahu = 48%

**Percent of undergraduate enrollment 18-24 (2017)**

- UH West Oahu = 50%
IPEDS FALL 2017

Percent of undergraduate ages 25-64 and out-of-state enrollment

FALL 2017

UH West Oahu = 40%

UH West Oahu = 2%
Continuing and graduate enrollment

IPEDS FALL 2017

Continuing degree/certificate-seeking undergraduate enrollment (DRVEF2017)

- **UH West Oahu = 1,880**

Grand total (EF2017 All students Graduate and First professional)

- **UH West Oahu = 0**
Business administration and education undergraduate enrollment

IPEDS Fall 2017

Grand total (EF2016CP 52.0000-Business Management and Administrative Services Undergraduate total)

- UH West Oahu = 234

Grand total (EF2016CP 13.0000-Education Undergraduate total)

- UH West Oahu = 150
STEM undergraduate enrollment

IPEDS Fall 2017

Grand total EF2016 Biological Sciences/Life Sciences, Physical Sciences, and Mathematics Undergraduate total

UH West Oahu = 0
Admissions selectivity and yield (first-time freshmen)

FALL 2017

**UH West Oahu = 79%**

**UH West Oahu = 34%**
Percent of first-time full-time undergraduates receiving financial aid

IPEDS FY 2016-17

Percent of full-time first-time undergraduates awarded any financial aid (SFA1617)

- UH West Oahu = 62%

Percent of full-time first-time undergraduates awarded federal grant aid (SFA1617)

- UH West Oahu = 35%
Percent of first-time full-time undergraduates receiving financial aid

IPEDS FY 2016-17

Percent of full-time first-time undergraduates awarded Pell grants (SFA1617)

- UH West Oahu = 35%

Percent of full-time first-time undergraduates awarded institutional grant aid (SFA1617)

- UH West Oahu = 44%
Degrees awarded and four-year graduation rate

IPEDS 4-yr grad rate = 2011 cohort

UH West Oahu = 623
UH West Oahu = 17%
Five-year and six-year graduation rate

IPEDS 5-yr and 6-yr grad rate = 2011 cohort

- UH West Oahu = 33%
- UH West Oahu = 39%
Retention rate

IPEDS Retention = 2016 cohort

UH West Oahu = 65%
In-state tuition

IPEDS AY 2017-18

Published in-state tuition 2017-18 (IC2017_AY)

Mean = $721.6
StDev = $562.34
N = 130

UH West Oahu = $7,200
Distance education

IPEDS FALL 2017

Percent of undergraduate students enrolled exclusively in distance education courses 2017

- UH West Oahu = 29%

Percent of undergraduate students enrolled in some but not all distance education courses 2017

- UH West Oahu = 38%
Distance education

UH West Oahu = 32%

Percent of undergraduate students not enrolled in any distance education courses 2017

Frequency

Percent of undergraduate students not enrolled in any distance education courses 2017

Mean = 64.10
Std. Dev. = 24.114
N = 330

IPEDS FALL 2017
Budget

IPEDS FY 2016-17

Core revenues total dollars (GASB) (DRVF2017)

UH West Oahu = $44,958,120

Core expenses total dollars (GASB) (DRVF2017)

UH West Oahu = $48,550,478
Total employees and non-instructional staff

**IPEDS FALL 2017**

- **UH West Oahu = 344**
- **UH West Oahu = 160**
Instructional faculty (headcount and FTE)

UH West Oahu = 87

UH West Oahu = 119

Instructional staff on 9 10 11 or 12 month contract-total (SAL2017_IS All full-time instructional staff total)

Instructional FTE (DRVHR2017)
Variables for peer selection

Freshmen Cohort Characteristics
- Retention and graduation rates
- Acceptance rate and admissions yield
- # of Freshmen

Undergraduate Demographics
- # Undergraduates (part-time, transfers, continuing, out-of-state, etc)
- # Bachelor degrees awarded
- # Undergraduates ages 25-64
- % Enrolled in distance education

Institutional Size, Scope, Mission, Budget
- Total Enrollment, BUSA enrollment
- Total revenues, expenses
- Tuition and fees as % of Revenues
- # I-faculty, # of employees
- SSH per faculty
- Expenses per BA completion

...what else?
Data preprocessing

- Considering reliability & validity of data
- Standardization
- Random ordering
- Address outliers (noise handling) & missing data
- Descriptive statistics
- Dimension reduction
Choosing a methodology

• Statistical clustering is the most commonly used methodology in peer selection.

• Clustering is a statistical procedure that combines individual cases into homogeneous groups, called clusters, so that distances between clusters are maximized and distances within clusters are minimized.

• Several different clustering methods (i.e. hierarchical, two-step)

• Supporting methods to clustering include factor analysis and discriminant function analysis
Data management tasks

• Choose clustering procedure
  – Hierarchical Agglomerative Clustering (UH Manoa)
  – 2-step sequential (UH West Oahu)

• Choose method for forming groups
  – Between-Groups Linkage (HAC) (UH Manoa)
  – Within-Groups Linkage (HAC)
  – Nearest Neighbor/Furthest Neighbor (HAC)
  – Bayesian Information Criterion (2SS)
  – Akaike Information Criterion (2SS) (UH West Oahu)

• Choose statistic to measure distance
  – Euclidian
  – Log-likelihood (UH Manoa & UH West Oahu)
  – Pearson correlation
  – Cosine
IPEDS Cluster Analysis Results
Two-step cluster analysis data element selection

Four models tested: Fixed 10 cluster solutions

#1 Freshmen Cohort Performance
1. Five-Year Grad. Rate (3-yr avg.)
2. Six-Year Grad. Rate (3-yr avg.)
3. Four-Year Grad. Rate (3-yr avg.)
4. # First-Time Freshmen
5. Retention Rate (3-yr avg.)

#2 Undergraduate Makeup
1. % UGs Part-time
2. % UGs Ages 25-64
3. % UGs Continuing
4. % UGs Transfer-In
5. % Undergraduate Enrollment

#3 Institutional Scope, Mission
1. SSH/I-Faculty Ratio
2. STEM Enrollment
3. Education Enrollment
4. BUSA Enrollment
5. % Some but not all DE

#4 Institutional Size, Budget
1. Total Core Expenses
2. Total Core Revenues
3. # Employees
4. # I-Faculty
5. Total Enrollment
6. # Students Receiving BA
Two-step cluster analysis final model

Hybrid Model (IPEDS variables with >= 0.5 predictor importance using the cluster evaluation correlation coefficient)

<table>
<thead>
<tr>
<th>IPEDS Variable</th>
<th>Correlation</th>
<th>IPEDS Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SSH per I-Faculty</td>
<td>1</td>
<td>12. Percent Part-Time UG Enrollment</td>
<td>0.57</td>
</tr>
<tr>
<td>2. No. Employees</td>
<td>0.84</td>
<td>13. Core Expenses</td>
<td>0.54</td>
</tr>
<tr>
<td>3. No. I-Faculty</td>
<td>0.82</td>
<td>14. Percent UG Ages 25-64 Enrollment</td>
<td>0.42</td>
</tr>
<tr>
<td>4. No. Students (Total)</td>
<td>0.78</td>
<td>15. No. STEM UG Enrollment</td>
<td>0.31</td>
</tr>
<tr>
<td>5. No. First-Time Full-Time</td>
<td>0.75</td>
<td>16. No. BUSA UG Enrollment</td>
<td>0.27</td>
</tr>
<tr>
<td>6. Six-Year Grad Rate (3-yr avg.)</td>
<td>0.74</td>
<td>17. Percent UG Some DE Enrollment</td>
<td>0.27</td>
</tr>
<tr>
<td>7. No. BA Degrees Awarded</td>
<td>0.72</td>
<td>18. Percent UG Continuing</td>
<td>0.24</td>
</tr>
<tr>
<td>8. Five-Year Grad Rate (3-yr avg.)</td>
<td>0.68</td>
<td>19. Percent UG Transfer-In</td>
<td>0.22</td>
</tr>
<tr>
<td>9. Core Revenues</td>
<td>0.68</td>
<td>20. Percent UG Total Enrollment</td>
<td>0.2</td>
</tr>
<tr>
<td>10. Four-Year Grad Rate (3-yr avg.)</td>
<td>0.63</td>
<td>21. No. EDUC UG Enrollment</td>
<td>0.09</td>
</tr>
<tr>
<td>11. Retention Rate (3-yr avg.)</td>
<td>0.61</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hybrid model cluster sizes and model quality

UH West Oahu’s Cluster (#8), N=14

Cluster Sizes

Cluster Quality

Size of Smallest Cluster: 1 (0.8%)
Size of Largest Cluster: 25 (21.2%)
Ratio of Sizes: Largest Cluster to Smallest Cluster: 25.00
Hybrid model variable influence

The variables ranging from most important to least important are as follows: SSH per I-Faculty, number of employees, number of I-Faculty, total enrollment, number of first-time full-time freshmen, six-year graduation rate, number of bachelor’s degrees awarded, core revenues, five-year graduation rate, four-year graduation rate, retention rate, percent part-time undergraduate enrollment, core expenses, percent of undergraduates ages 25-64, STEM enrollment, percent of undergraduates enrolled in some distance education courses, business administration enrollment, percent of undergraduates continuing, percent of undergraduates transfer-in, percent of undergraduates total enrollment, and education enrollment.
Hybrid model – relative (#8) and absolute distribution

Cell Distribution

Frequency

SSH Per I-Faculty

Frequency

No. Employees

Cell Distribution

Frequency
Hybrid model – relative (#8) and absolute distribution

Cell Distribution

No. I-Faculty

Cell Distribution

No. Students (Total)
Hybrid model – relative (#8) and absolute distribution
Hybrid model – relative (#8) and absolute distribution

Cell Distribution

No. BA Degrees Awarded

Cell Distribution

Five-Year Grad Rate (3-yr avg.)
Hybrid model – relative (#8) and absolute distribution

Cell Distribution

Core Revenues

Cell Distribution

Four-Year Grad Rate (3-yr avg.)
Hybrid model – relative (#8) and absolute distribution
Hybrid model – relative (#8) and absolute distribution

Cell Distribution

Core Expenses

Percent UG Ages 25-64 Enrollment
Hybrid model – relative (#8) and absolute distribution

Cell Distribution

No. STEM UG Enrollment

Cell Distribution

No. BUSA UG Enrollment
Hybrid model – relative (#8) and absolute distribution
Hybrid model – relative (#8) and absolute distribution

Cell Distribution

Percent UG Transfer-In

Cell Distribution

Percent UG Total Enrollment
Hybrid model – relative (#8) and absolute distribution
Hybrid model – Cluster group #8 box plot

Cluster Comparison

<table>
<thead>
<tr>
<th>Metric</th>
<th>Box Plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSH Per I-Faculty</td>
<td></td>
</tr>
<tr>
<td>No. Employees</td>
<td></td>
</tr>
<tr>
<td>No. I-Faculty</td>
<td></td>
</tr>
<tr>
<td>No. Students (Total)</td>
<td></td>
</tr>
<tr>
<td>No. First-Time Full-Time</td>
<td></td>
</tr>
<tr>
<td>Six-Year Grad Rate (3-yr avg.)</td>
<td></td>
</tr>
<tr>
<td>No. BA Degrees Awarded</td>
<td></td>
</tr>
<tr>
<td>Five-Year Grad Rate (3-yr avg.)</td>
<td></td>
</tr>
<tr>
<td>Core Revenues</td>
<td></td>
</tr>
<tr>
<td>Four-Year Grad Rate (3-yr avg.)</td>
<td></td>
</tr>
<tr>
<td>Retention Rate (3-yr avg.)</td>
<td></td>
</tr>
<tr>
<td>Percent Part-Time UG Enrollment</td>
<td></td>
</tr>
<tr>
<td>Core Expenses</td>
<td></td>
</tr>
<tr>
<td>Percent UG Ages 25-64 Enrollment</td>
<td></td>
</tr>
<tr>
<td>No. STEM UG Enrollment</td>
<td></td>
</tr>
<tr>
<td>No. BUSA UG Enrollment</td>
<td></td>
</tr>
<tr>
<td>Percent UG Some DE Enrollment</td>
<td></td>
</tr>
<tr>
<td>Percent UG Continuing</td>
<td></td>
</tr>
<tr>
<td>Percent UG Transfer-In</td>
<td></td>
</tr>
<tr>
<td>Percent UG Total Enrollment</td>
<td></td>
</tr>
<tr>
<td>No. EDUC UG Enrollment</td>
<td></td>
</tr>
</tbody>
</table>
Cluster group #8 includes...

1. Black Hills State University*
2. Dakota State University*
3. Eastern Oregon University*
4. Indiana University-East*
5. Louisiana State University-Alexandria*
6. Mississippi University for Women*
7. Nevada State College*
8. Northern State University*
9. Rogers State University*
10. University of Alaska Southeast
11. University of Hawaii-West Oahu*
12. University of Maine at Augusta*
13. University of Minnesota-Crookston
14. West Virginia State University*

*indicates Title III eligible institutions
Cluster Group #8 Details (2016-17 data)

<table>
<thead>
<tr>
<th></th>
<th>UH WEST OAHU</th>
<th>OLD PEER AVERAGE</th>
<th>NEW GROUP AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Enrollment</td>
<td>3,082</td>
<td>4,175</td>
<td>3,418</td>
</tr>
<tr>
<td>Number of I-Faculty (9,10,11,12 mo.)</td>
<td>87</td>
<td>153</td>
<td>98</td>
</tr>
<tr>
<td>12-month UG SSH per I-Faculty FTE</td>
<td>532</td>
<td>648</td>
<td>550</td>
</tr>
<tr>
<td>Bachelors Awarded</td>
<td>623</td>
<td>882</td>
<td>450</td>
</tr>
<tr>
<td>4 year Grad Rate</td>
<td>17</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>5 year Grad Rate</td>
<td>33</td>
<td>38</td>
<td>28</td>
</tr>
<tr>
<td>6 year Grad Rate</td>
<td>39</td>
<td>43</td>
<td>31</td>
</tr>
<tr>
<td>Retention Rate</td>
<td>65</td>
<td>71</td>
<td>66</td>
</tr>
<tr>
<td>Core Expenses (in millions)</td>
<td>$49</td>
<td>$76</td>
<td>$41</td>
</tr>
<tr>
<td>Core Expenses per Completion (in thousands)</td>
<td>$79</td>
<td>$119</td>
<td>$113</td>
</tr>
</tbody>
</table>
- Public, interactive dashboard for conducting comparative analysis.

- Allows comparison of UH West Oahu with 130 similarly sized, public baccalaureate colleges as well as the new peer group.
Dr. Jeffrey Moniz, Vice Chancellor for Academic Affairs
jmoniz@hawaii.edu

Dr. Alan Rosenfeld, Associate Vice Chancellor for Academic Affairs
alan3@hawaii.edu

John Stanley, Director of Institutional Research
jstanley@hawaii.edu