Context for this material

The purpose of this material is to provide a diagnostic of Rutgers’ position compared to its peers in three areas

- Undergraduate and graduate (masters, professional, and doctoral) educational emphasis, expressed as percent degrees conferred by institution
- Overall university performance using different ranking methodologies
- Ranking of academic programs in key reported academic disciplines

This fact-base can be used in strategy refinement discussions throughout this year, augmenting the toolkit campuses and schools can reference during their planning

Note that the following data limitations place some constraints on this analysis

- Rutgers-Newark and Rutgers-Camden could not be included in all rankings
- Underlying data driving each ranking is not publicly available in all instances when a campus is ranked
- With exception of Business and Engineering, undergraduate rankings by discipline are not available
- Data on the underlying drivers of disciplinary rankings is not publicly available
Trends in Student Demand and Workforce Needs
Health occupations and engineering are growing areas of interest for undergraduates

Change in proportion of undergraduates who selected field as "probable career" in CIRP survey of first-year college students¹ (2002 vs 2012)

¹ CIRP survey is conducted annually by the Higher Education Research Institute at UCLA and administered to first-year students at colleges and universities nationwide.

Nationally, employers face biggest challenge filling occupations in health, sciences, business and engineering

National unemployment rate by occupation, 2012

Unemployment rate (%)

0 3 6 9 12 15

Legal 2.7 Healthcare 3.0 Management 3.6 Life, physical & social science 4.0 Architecture & engineering 4.2 Business & financial 4.6 Community & social service 4.7 Education & library 4.8 Protective service 6.2 Maintenance & repair 6.2 Healthcare support 7.4 Office & admin support 7.3 Personal care 7.8 Sales 7.9 Production 9.3 Food preparation 10.3 Transportation 10.3 Building & grounds maintenance 11.0 Construction 14.4

Note: Does not include farming, forestry and fishing occupation due to small number of people employed.
Source: Bureau of Labor Statistics
NJ employers face biggest challenge filling jobs related to healthcare, computers & math, legal, and business & finance

New Jersey unemployment rate by occupation, 2011

Note: Does not include farming, forestry and fishing occupation due to small number of people employed.
Source: Demand Occupations List 2011, State of New Jersey Labor and Workforce Development.

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Graduate: health degrees large, growing nationwide; business, public admin, engineering, and biosciences also drive growth

Number and CAGR in graduate degrees conferred nationwide, 2007-2012

Note: Graduate degrees include all masters, professional and doctoral degrees.
Source: IPEDS.
Undergrad: nationwide, health is large and growing rapidly; biological sciences, public admin, engineering, & psychology are also growing

Number and CAGR in undergraduate degrees conferred nationwide, 2007-2012

Source: IPEDS.
**Graduate: at RU (3 campus + RBHS), health and public admin are large & growing faster than average**

Note: Disciplines shown are top 10 disciplines by % of degrees conferred at public AAUs with med schools in 2012. Averages are for those top 10 disciplines only.

Source: IPEDS
Undergrad: at RU-NB + RBHS, majority of top disciplines are larger and growing faster than public AAUs with med schools

1. Program grew by only 1 degree.
Note: Disciplines shown are top 10 disciplines by % of degrees conferred at public AAUs with medical schools in 2012.
Source: IPEDS

1 Program grew by only 1 degree.
Note: Disciplines shown are top 10 disciplines by % of degrees conferred at public AAUs with medical schools in 2012.
Source: IPEDS

Draft: advisory, consultative & deliberative material for discussion purposes only
Rutgers’ performance in rankings
Context

In our discussions so far, we defined two sets of peer and aspirant institutions, drawing from public institutions that are members of the AAU

- **Aspirants**: Berkeley, UCLA, UCSD, Illinois, Michigan, UNC, UVA, Washington, Wisconsin
- **Peers**: refers either to all remaining public AAUs or all remaining public AAUs with medical schools (as noted)

This analysis examines Rutgers' performance by campus across five rankings, where data is available, with these limitations:

- Newark and Camden not ranked separately in all methodologies
- Rankings not available for all years; most recent data and longest time period consistently available used for this analysis
Among US institutions, Rutgers-NB largely matches peers, but trails aspirants across five ranking methodologies.

1. ARWU ranking among set of worldwide institutions is 31 for the aspirant average, 61 for Rutgers and 87 for peer average.
2. QSWU ranking among the set of worldwide institutions is 53 for the aspirant average, 197 for the peer average, and 260 for Rutgers-NB.
3. THE ranking among the set of worldwide institutions is 36 for aspirant average, 99 for RU-NB, and 119 for peer average.
4. Lombardi rankings (published by Measuring University Performance) look at ~740 institutions across 9 dimensions, of which we show one here (federal research spend). Note there is a 2-year lag between year of the report and the data used (e.g. the current 2011 rank is based on 2009 data). Note: New Brunswick is ranked #198 in according to the national rankings provided by Forbes, while the aspirant average ranking is #75 and peer average is #180; Forbes rankings have been excluded from this analysis due to inconsistencies.

**Trend in ranking for Rutgers among US institutions**

**Mixed results for RU-NB and Newark, Camden improving**

**Change in ranking for New Brunswick**

- QS World University Ranking (2008-2012): -10
- MUP (Lombardi) Rankings (all dimensions) (2000-2011): -4
- Times Higher Ed. World Univ. Ranking (2010-2012): 8

Based on synthesis; mixed across dimensions

**Change in ranking for Newark**

- QS World University Ranking (2008-2012): 92
- MUP (Lombardi) Rankings (all dimensions) (2000-2011): 283

Based on synthesis; mixed across dimensions

**Change in ranking for Camden**


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1. Rankings were available for New Brunswick from all five sources used for this analysis.
2. Rankings were available for Newark from only two out of five sources considered in this analysis.
3. Rankings were available for Camden from only one source considered for this analysis.
4. Measuring University Performance rankings (Lombardi et. al.) look at ~740 institutions across 9 dimensions. Note there is a 1 to 2-year lag between year of the report and the data used depending on the dimension. Since MUP does not provide a definitive rank, we assigned ranks by weighting each dimension equally and ordering from lowest to highest. Since SAT scores were not added until the 2006 report, we have excluded them from this analysis.
5. After a certain threshold, QS places schools like Newark into rankings categories. Newark was not ranked in 2008, so we assumed they were equivalent to the last-ranked US institution. In 2012, we optimistically assumed that Newark would be ranked ahead of all US institutions in their ranking category and those below it. Note: Washington Monthly and Forbes national rankings were considered in this analysis but are not included in the analysis due to inconsistencies.

Student selectivity, alumni giving, and student outcomes were the biggest drivers of decline in RU-NB's US News ranking.


<table>
<thead>
<tr>
<th>Criteria weight</th>
<th>Alumni giving ranking</th>
<th>Student selectivity ranking</th>
<th>Graduation and retention rate ranking</th>
<th>High school counselor ranking</th>
<th>Financial resources ranking</th>
<th>Peer assessment ranking</th>
<th>Graduation rate performance ranking</th>
<th>Faculty resources ranking</th>
<th>Total change in ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria weight</td>
<td>5%</td>
<td>12.5%</td>
<td>22.5%</td>
<td>7.5%</td>
<td>10%</td>
<td>15%</td>
<td>7.5%</td>
<td>20%</td>
<td>-10.4</td>
</tr>
<tr>
<td>Rutgers-NB 2013 ranking</td>
<td>150</td>
<td>105</td>
<td>69</td>
<td>63</td>
<td>66</td>
<td>64</td>
<td>28</td>
<td>66</td>
<td></td>
</tr>
</tbody>
</table>

1. High school counselor ranking is based only on data for 2011-2013 as data were not available for 2004-2010. Note: 2013 ranks used because underlying drivers of 2014 rank not available.

When normalized for size, Rutgers-NB + RBHS ranks below average on all Lombardi dimensions compared to public AAUs.

<table>
<thead>
<tr>
<th>Ranking dimension</th>
<th>Rutgers-NB standalone 2011 Report</th>
<th>Rutgers-NB + RBHS 2011 Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottom Quartile</td>
<td>3rd Quartile</td>
</tr>
<tr>
<td>Federal Research / Full-Time Faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Academy / Full-Time Faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endowment Assets / Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctorates Awarded / Graduate students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Giving / Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Research / Full-Time Faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postdoctoral Appts. / Graduate students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Awards / Full-Time Faculty</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Dimensions and rankings account for university size by dividing each dimension by its relevant factor. Report year uses lagging data, so the 2011 report uses 2009 numbers for both research categories and postdoctoral appointment measurements; the 2011 report uses 2010 numbers for all other measurements. Source: Measuring University Performance (Lombardi et. al.), IPEDS, BCG analysis.

= declining  = improving
All aspirants have strong reputation in at least one of the top five graduate disciplines; top 25 in most others

<table>
<thead>
<tr>
<th>Aspirant</th>
<th>National rank</th>
<th>Education rank</th>
<th>Business rank</th>
<th>Medical rank</th>
<th>Law rank</th>
<th>Engineering rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berkeley</td>
<td>20</td>
<td>12</td>
<td>7</td>
<td>n/a¹</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>UVA</td>
<td>23</td>
<td>22</td>
<td>12</td>
<td>26</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>UCLA</td>
<td>23</td>
<td>8</td>
<td>14</td>
<td>13</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Michigan</td>
<td>28</td>
<td>11</td>
<td>14</td>
<td>8</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>UNC</td>
<td>30</td>
<td>37</td>
<td>20</td>
<td>22</td>
<td>31</td>
<td>79</td>
</tr>
<tr>
<td>UCSD</td>
<td>39</td>
<td>n/a²</td>
<td>73</td>
<td>15</td>
<td>n/a³</td>
<td>14</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>41</td>
<td>10</td>
<td>34</td>
<td>29</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>Illinois</td>
<td>41</td>
<td>19</td>
<td>47</td>
<td>n/r</td>
<td>47</td>
<td>5</td>
</tr>
<tr>
<td>Washington</td>
<td>52</td>
<td>12</td>
<td>23</td>
<td>12</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Rutgers – all campuses</td>
<td>69</td>
<td>47</td>
<td>61</td>
<td>80⁴</td>
<td>86⁵</td>
<td>51</td>
</tr>
</tbody>
</table>

1. The medical school for Berkeley is UCSF (ranked #4 in the nation). 2. There is a department of education at UCSD that sits in the Division of Social Sciences; education may not be separately ranked because there is no school of education. 3. UCSD does not have a law school. 4. Medical school ranking is based on RWJ Medical School (#80). 5. Law school ranking is listed for School of Law in Newark (#86).

Rutgers is strong in some areas, but lags in key largest disciplines

Rutgers at or near aspirant group in math, physics – but lags in chemistry and biological sciences

Social sciences around the average of peer schools

Rutgers lags peers in critical large disciplines

Rutgers equals best in class in key humanities disciplines

1. Law school ranking is listed for School of Law in Newark (#86) Camden ranked #91. 2. Medical school ranking is based on RWJ Medical School (#80). NJMS is unranked. 3. Physical Therapy ranking for RU-Newark (#44). RU-Camden–UMDNJ is also ranked (#86). Note: All rankings based on graduate-level programs at Rutgers-New Brunswick except where noted. Disciplines were selected based on the largest number of graduate degrees conferred nationwide in 2011-2012.

Source: US News and World Report, IPEDS - Draft: advisory, consultative & deliberative material for discussion purposes only
RU-New Brunswick's disciplinary graduate programs have mostly fallen in US News rankings over time.

**Change in RU-NB disciplinary rankings from 2004/2005 to 2013**

<table>
<thead>
<tr>
<th>Discipline</th>
<th>2013 Rank</th>
<th>2012 Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>51 out of 147</td>
<td>230</td>
</tr>
<tr>
<td>Education</td>
<td>47 out of 278</td>
<td>381</td>
</tr>
<tr>
<td>History</td>
<td>20 out of 129</td>
<td>16</td>
</tr>
<tr>
<td>English</td>
<td>17 out of 138</td>
<td>32</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>26 out of 87</td>
<td>198</td>
</tr>
<tr>
<td>Economics</td>
<td>48 out of 80</td>
<td>26</td>
</tr>
<tr>
<td>Business</td>
<td>61(^1) out of 105</td>
<td>853(^2)</td>
</tr>
</tbody>
</table>

Note: Not all graduate programs are ranked in every year. All disciplines shown were ranked in 2005, except for engineering which was ranked in 2004. Rankings shown over total number of programs ranked and published. 1. Newark's 2013 business ranking is conflated with New Brunswick's. 2. The number of business degrees is inclusive of all masters and doctoral degrees at New Brunswick and Newark combined. Source: US News and World Report data provided by Rutgers; IPEDS.
For graduate programs, RBS & SPAA are improving at Newark, while other disciplines are declining in Newark & Camden

Change in RU-Newark disciplinary rankings from 2004/2005 to 2013

<table>
<thead>
<tr>
<th>Discipline</th>
<th>2013 Rank</th>
<th>Change in Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law</td>
<td>86/148</td>
<td>-12</td>
</tr>
<tr>
<td>Nursing</td>
<td>79/449</td>
<td>-4</td>
</tr>
<tr>
<td>Bio Sciences</td>
<td>130/233</td>
<td>-1</td>
</tr>
<tr>
<td>Public Affairs</td>
<td>23/180</td>
<td>3</td>
</tr>
<tr>
<td>Business</td>
<td>61/105</td>
<td>3</td>
</tr>
</tbody>
</table>

| 2012 Degrees | 243 | 84 | 22 | 85 | 853 |

Change in RU-Camden disciplinary rankings from 2004 to 2013

<table>
<thead>
<tr>
<th>Discipline</th>
<th>2013 Rank</th>
<th>Change in Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law</td>
<td>91/148</td>
<td>-19</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>86/184</td>
<td>-12</td>
</tr>
<tr>
<td>Public Affairs</td>
<td>104/180</td>
<td>-12</td>
</tr>
</tbody>
</table>

| 2012 Degrees | 267 | 26 | 42 |

Note: Not all graduate programs are ranked in every year; base year for calculating change in rankings is 2004 or 2005. Rankings shown over total number of programs ranked and published.

Source: US News and World Report data provided by Rutgers, IPEDS.
For undergraduates, New Brunswick ranked in bottom quartile for engineering and last in business among public AAUs.

**Ranking for undergraduate engineering program**

- Berkeley: 3rd place
- Illinois: 5th place
- Georgia Tech: 5th place
- Michigan: 7th place
- Purdue: 10th place
- UT Austin: 10th place
- Wisconsin: 13th place
- Texas A&M: 15th place
- Penn State: 19th place
- UCLA: 19th place
- Maryland: 23rd place
- Minnesota: 23rd place
- UCSD: 26th place
- Washington: 26th place
- Ohio State: 26th place
- UC Davis: 26th place
- Colorado: 26th place
- UVA: 32nd place
- Florida: 32nd place
- USC Berkeley: 35th place
- Iowa State: 35th place
- Pittsburgh: 35th place
- UC Davis: 35th place
- Rutgers: 35th place
- Michigan State: 35th place
- Arizona: 35th place
- UC Irvine: 35th place
- Iowa: 35th place
- SUNY Buffalo: 35th place
- Stony Brook: 35th place
- Kansas: 35th place
- Missouri: 35th place

**Ranking for undergraduate business program**

- Michigan: 2nd place
- Berkeley: 2nd place
- UVA: 5th place
- UNC: 7th place
- UT Austin: 8th place
- Indiana: 10th place
- Illinois: 16th place
- Wisconsin: 18th place
- Minnesota: 18th place
- Ohio State: 18th place
- Maryland: 18th place
- Penn State: 22nd place
- Purdue: 22nd place
- Washington: 22nd place
- Arizona: 22nd place
- Michigan State: 27th place
- Texas A&M: 27th place
- Georgia Tech: 27th place
- Florida: 27th place
- Iowa: 27th place
- Colorado: 34th place
- Oregon: 38th place
- Pittsburgh: 47th place
- Missouri: 58th place
- UCSD: 58th place
- Kansas: 58th place
- SUNY Buffalo: 86th place
- Stony Brook: 86th place
- Rutgers: 101st place
- Iowa State: 101st place

Note: No rankings are provided for undergraduate engineering for UNC, Indiana, and Oregon; no rankings are provided for undergraduate business programs for UCLA, SUNY-Stony Brook, UCI, UCD and UCSB. No data available for other undergraduate programs. Source: US News and World Report.
Combined RU grant productivity lags behind peers in engineering and bio-med but higher in chemistry and other smaller fields

Grant dollars per TTT index³ by discipline, RU-NB + RBHS vs. peers with medical schools¹ (2011)

<table>
<thead>
<tr>
<th>Discipline</th>
<th>RU-NB + RBHS grant $ per TTT ($K)</th>
<th>Peer¹ avg. grant $ per TTT ($K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer sciences</td>
<td>181</td>
<td>395</td>
</tr>
<tr>
<td>Non-S&amp;E</td>
<td>30</td>
<td>52</td>
</tr>
<tr>
<td>Other physical sciences</td>
<td>313</td>
<td>499</td>
</tr>
<tr>
<td>Psychology</td>
<td>151</td>
<td>233</td>
</tr>
<tr>
<td>Engineering</td>
<td>422</td>
<td>513</td>
</tr>
<tr>
<td>Bio-medical²</td>
<td>513</td>
<td>586</td>
</tr>
<tr>
<td>Agricultural sciences</td>
<td>461</td>
<td>354</td>
</tr>
<tr>
<td>Social sciences</td>
<td>341</td>
<td>254</td>
</tr>
<tr>
<td>Chemistry</td>
<td>910</td>
<td>386</td>
</tr>
<tr>
<td>Mathematical sciences</td>
<td>218</td>
<td>87</td>
</tr>
<tr>
<td>Environmental sciences</td>
<td>682</td>
<td>205</td>
</tr>
</tbody>
</table>

1. Comparison is only to public AAU institutions with medical schools for which AAUDE data was available for 2011: Michigan State, Ohio State, SUNY-Buffalo, and the Universities of Michigan, Florida, Iowa, Pittsburgh, and Virginia
2. Includes faculty and expenditures from biological sciences, health sciences, and other life sciences
3. Index represents Rutgers-NB’s grants per TTT divided by peer average grants per TTT, minus one

Source: AAUDE database, NSF database
Relative to peers with medical schools, RU has proportionally fewer faculty in fastest-growing research fields

Difference in faculty mix vs. peers with med schools and national R&D CAGR, by field of funding (2004-2011)

1. Comparison is only with public AAU institutions with medical schools for which AAUDE data was available for 2011: Michigan State, Ohio State, SUNY-Buffalo, and the Universities of Michigan, Florida, Iowa, Pittsburgh, and Virginia
2. CAGR is between 2004 and 2011 and includes the following disciplines with their respective CAGRs: education (6.7%), business (9%), humanities (9.5%), social work (14.4%), communications (12%) and other non-S&E (20.1%). 
3. Includes RBHS estimates.

Source: AAUDE database, NSF database.
Rankings gap exists for Rutgers' graduate programs in large, growing disciplines

1. To normalize this axis, RU's gap against aspirants was divided by the number of universities that US News ranks in a given discipline. 2. Law school ranking is listed for School of Law in Newark (#86). 3. Medical school ranking is based on RWJ Medical School (#80). Note: Number of graduate degrees conferred nationwide is calculated based on the percentage of degrees conferred in the discipline in 2010, multiplied by the number of degrees conferred in the academic field in 2012. 4. Physical Therapy ranking based on Rutgers-Newark ranking (#44). Rutgers-Camden Physical Therapy ranks #86. Source: US News and World Report, IPEDS.

Bubble size represents # of graduate degrees conferred nationwide in 2011-2012

Growth in all graduate degrees conferred nationwide

Normalized gap in ranking RU vs. Aspirants

CAGR for total graduate degrees conferred nationwide: 5.4%
Nine universities surpassed Rutgers-NB in US News rankings since 2004

Institutions that improve in rankings typically emphasize student selectivity, fundraising, and targeted investments

| Improve student selectivity and outcomes | • These two criteria comprise ~35% of US News' weighted ranking  
• Some universities have improved selectivity by trading off overall enrollment – given Rutgers' commitment to access this may be only be employed selectively  
• Some evidence suggests that Rutgers is historically more successful in graduating a higher percentage of students than expected |
| Fundraising is critical | • Both increased annual giving and large one-time gifts provide the necessary funds to invest in key opportunities  
• Rutgers alumni giving rates are far below average of public AAUs – though this is an area of opportunity, also viewed as challenging to improve historically |
| Invest in targeted areas | • Becoming a leader in a given field can attract top faculty, top students, and publicity; success in a few areas may have virtuous spillover effects elsewhere  
• To realize full benefits, it is critical to focus on disciplinary areas that are aligned with student, employer, and funder interests |