Research, Scholarship, and Creative Activity (RSCA)
(FY 2017: Top Tier Subcommittee #2-3 Assignment)
“Develop plans & strategies for increasing competitive grant applications & entrepreneurial funding opportunities”

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Submitted to:
Rama Venkat and Kate Korgan, Chairs of RSCA

(November 22, 2016)
Some Background Information and Thoughts

➢ Probably the most important goal of the Top Tier initiative is for UNLV to achieve AT LEAST $120 M/YEAR of “SPONSORED” research expenditure by 2025\(^{(i)}\).

➢ Where UNLV is NOW?
  o FY16 sponsored research expenditure of $30.5M.
  o FY16 sponsored research awards of $34.5M.
  o FY16 sponsored proposals of $232.3M.
  o Note: Approximately 12-13\% (in terms of $ volume) of the submitted sponsored proposals are materialized (the actual rate for sponsored research is probably less than this number?).

➢ In reality, having the current success rate at around 12-13\% (may be slightly different?), UNLV needs either to improve its funding rate or to submit more proposals?
  o For example, $1B/year proposal submission will produce about $100-130M research awards (10-13%)?

\(^{(i)}\) In FY 2016, the targeted $ amount was changed from $150M to $120M.
2015 Carnegie Study

(credit to Dr. Jim Thompson to reproduce the data)

(UNLV was not able to improve in both ARI and CRI compared to the previous study?)
Some Naive Comparison (peer institutions?)

• **UNLV**
  – FY16 Research proposals of $232.3M.
  – FY16 Research awards of $34.5M (~15% conversion).

• **Univ. of Houston** (www.uh.edu/research)
  – FY14 Research proposals of $737.0M.
  – FY14 Research awards of $119.0M (~16% conversion).

• **Univ. of Central Florida** (www.ucf.edu/research)
  – FY13 Research proposals of $622.8M.
  – FY13 Research awards of $113.2M (~18% conversion).

• **Univ. of New Mexico** (www.unm.edu/research-reports)
  – FY15 Research proposals of $402.6M.
  – FY15 Research awards of $124.2M (~30% conversion).

• **Q: By 2021, short-term goals (?) – it could be very stiff goal(s)**
  – UNLV probably needs to write proposals ~$500M annually by 2021.
  – UNLV probably needs to improve the success rate to ~15% by 2021.
    → This will help UNLV produce about $75M sponsored research annually.
    → **Q: Not 100% sure these goals area realistic or not?**

**UNLV is annually producing**
# of Proposals 500-600
F&A generated ~ $7M

**Our peer institutions are annually producing**
# of Proposals > 1,000
F&A generated > $20M
Funding by UNLV College/Unit

- Sciences
- Engineering
- Liberal Arts
- Business
- Allied Health
- Community Health Sciences
- Hotel Administration
- Law
- Education
- Urban Affairs
- Fine Arts
- Library
- Dental Medicine
- Nursing
“Sponsored” Funding by UNLV College/Unit/Faculty Head Count (FY15) (Includes Research + Other Sponsored Projects)

EXAMPLE CASE

FY15 Top 5 colleges/units
Eng.: $134K/faculty (#69)
Sciences: $102K/faculty (#130)
DHS: $77K/faculty (#145 [4+20+36+55])
Edu.: $24K/faculty (#73)
UA.: $21K/faculty (#71)

FY16 sponsored projects award of TT Assistant Professors as the PI
Eng.: $0.52M out of $7.6M (6.8% by 6 TTAP)
Sciences: $1.67M out of $12.84M (11.2% by 6 TTAP)
DHS: $0.73M out of $7.4M (10% by 8 TTAP)
Edu.: $1.79M out of 2.61M (67% by 7 TTAP)
UA.: $0.18M out of $1.94M (9% by 1 TTAP)

FY16 Top 10 Faculty Awardees (sponsored work):
TOTAL~$15M (~30% of the total UNLV awards but more in Research?)
$3.133M (Sciences); $2.511M (DHS); $1.745M (VPR);
$1.735M (Eng.); $1.440M (Sciences); $1.318M (Eng.);
$1.136M (Sciences); $0.858M (DHS); $0.751M (Eng.); and
$0.739M (Sciences)

FY16 TTAP awardees greater than $100K (rank II)
6 from Edu
6 from Sciences ($580K by a rank II faculty is the largest)
2 from DHS
1 from Eng.
1 from UA
AN EXAMPLE UNLV DATA for FY13-FY15: National Science Foundation

1. Number of NSF grant proposals “directly” submitted by UNLV annually is low.
2. Large volume (>1M)/flagship grants “directly” submitted/received by UNLV is low.
   - 14 submissions
   - Since 1976 (Fastlane data): 4 grants > 1M

3. **Number of NSF CAREER awards “directly” received by UNLV**
   - The NSF/CAREER program is designed for TT faculty to build their academic career via research/education (5 yr. program)

### Number of NSF proposals Submitted by UNLV

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>Institution</th>
<th># of Active NSF Grants</th>
<th># of Active CAREER Awards</th>
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<td>84112</td>
<td>U of Utah</td>
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<td>29</td>
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<td>77204</td>
<td>University of Houston</td>
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<tr>
<td>97403</td>
<td>University of Oregon (no Engineering)</td>
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<td>9</td>
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<tr>
<td>32816</td>
<td>University of Central Florida</td>
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<td>89557</td>
<td>UNR</td>
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<td>89154</td>
<td>UNLV</td>
<td>40</td>
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(NSF data as of November 19, 2016)
RSCA Top Tier Subcommittee #2-3 Assignment
Develop plans & strategies for increasing competitive grant applications & entrepreneurial funding opportunities

Best Global Universities (BGU) Ranking*

<table>
<thead>
<tr>
<th>UNLV Referenced/Peer Institutions (?)</th>
<th># of Active NSF Grants</th>
<th>Best Global Universities Ranking</th>
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<td>UC Boulder</td>
<td>543</td>
<td>#46</td>
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<td>U of Utah</td>
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<td>University of Houston</td>
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<td>#303</td>
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<td>University of Oregon (no Engineering)</td>
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<td>University of Central Florida</td>
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<td>UNR</td>
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<td>San Diego State University</td>
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<td>#480</td>
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<td>UNLV</td>
<td>47</td>
<td>#678</td>
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</table>

(NSF Fastlane data as of August 7, 2015)

Q: There might be a possibility to move the BGU ranking of UNLV within the top 500 if UNLV can have about 100 active NSF grants?

- Fact: The active NSF grants for UNLV went down from 47 to 40, from Aug 2015 to November 2016.
- No improvement in this market space!

*GU ranking is based upon global/regional research reputation, volume and quality of publications, citations, PhD awarded, etc, of each institution
<table>
<thead>
<tr>
<th>Rank</th>
<th>Fall 2009 #</th>
<th>Fall 2009 %</th>
<th>Fall 2010 #</th>
<th>Fall 2010 %</th>
<th>Fall 2011 #</th>
<th>Fall 2011 %</th>
<th>Fall 2012 #</th>
<th>Fall 2012 %</th>
<th>Fall 2013 #</th>
<th>Fall 2013 %</th>
<th>Fall 2014 #</th>
<th>Fall 2014 %</th>
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<td><strong>918</strong></td>
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### 2016 COACHE Results

#### Our 2016 COACHE Grades

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<tr>
<th>Benchmark</th>
<th>UNLV Overall</th>
<th>Tenured Faculty</th>
<th>Pre-Tenured Faculty</th>
<th>Non Tenure Track Faculty</th>
<th>Full Professors</th>
<th>Associate Professors</th>
<th>Assistant Professors</th>
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<td>Interdisciplinary Work</td>
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</table>

These benchmarks were created by COACHE based on individual questions within these categories. Responses were on a scale of 1 to 5 (1=Very Dissatisfied, 2=Somewhat Dissatisfied, 3=Neutral, 4=Somewhat Satisfied, 5=Very Satisfied).

Sources were calculated by translating the means across for each benchmark into a letter grade. Benchmarks are listed in descending order of mean.

Legend: 5.0-4.7 A+, 4.6-4.3 A, 4.2-4.0 A-, 3.9-3.7 B+, 3.6-3.5 B, 3.3-3.0 B-, 2.9-2.7 C+, 2.6-2.3 C, 2.2-2.0 C-, 1.8-1.7 D+, 1.6-1.5 D, 1.2-1.0 D-
CONGRESS AND THE BUDGET

TRUMP R&D SAVINGS WOULD MEAN CUTS IN UNIVERSITY OVERHEAD

Discussing National Institute of Health grants at a hearing this week, Tom Price, Health and Human Services secretary, told House appropriators that “36 percent of those moneys go for the facility, may go for administration, may go for all sorts of things at the university or study center, research center, that don’t have to deal with the specific research being done.” Citing David Kennedy of the Council on Governmental Relations, the Chronicle of Higher Education’s Paul Basken writes that “state institutions probably would suffer first and hardest... because they would have virtually no ability to cover lab costs with outside resources.” The Chronicle cites NIH Director Francis Collins as saying that even now, indirect cost payments don’t fully cover the facilities and administrative expenditures incurred by universities. Democrats on the House Appropriations Committee put out a detailed critique of the administration’s proposed 2018 cuts.

NSF SLATED FOR FY 2017 CUTS: The National Science Foundation wasn’t specifically addressed in the Trump administration’s “skinny” FY 2018 budget. Nor was the National Institute of Standards and Technology, apart from the Manufacturing Extension Partnership. But they’re not off the budget-cutters’ radar, as the administration’s FY 2017 budget document, obtained by Politico, shows. For the remainder of the current fiscal year, NSF would lose $350 million. “This level will reduce the number of grants awarded in the second half of FY17,” the document states. NIST’s Scientific and Technical Research and Services would lose $40 million - requiring NIST to “prioritize its core metrology mission, scaling back on research initiatives that go beyond the core focus of the agency.” Manufacturing USA/Industrial Technology Services would lose $10 million. The remainder would allow NIST to maintain its first awarded manufacturing institute, but will prevent NIST from awarding an additional institute in FY17. NIST’s priority under Manufacturing USA will remain the coordination of existing institutes as well as the successful stand-up of its first manufacturing institute.

D.O.E. CAN ‘ABSORB’ FY 17 CUTS: States the Trump administration’s budget document obtained by Politico. “ARPA-E... typically does not obligate a large portion of its appropriation until the following fiscal year,” it states; Energy Efficiency and Renewable Energy can decrease R&D grant awards; Fossil Energy Research and Development “could utilize $240 million in prior year balances;” and cut back on grant awards; Nuclear Energy could decrease “funding for later stage R&D in fuel cycle, reactor, and crosscutting technologies”; the Office of Science could “could absorb a reduction from the annualized CR level, primarily by delaying or not awarding grants to universities that would otherwise be obligated late in the fiscal year.”
SWOT ANALYSIS FOR UNLV RESEARCH

**Strengths** in:
1. A few noticeable areas of faculty research that can potentially become nationally and internationally recognized,
2. Not enough but some support for faculty grant applications and management, and;
3. Good intension for faculty grant applications and management from the central administration

**Weaknesses** in:
1. Number of grant proposals from UNLV is relatively low compared to peer institutions?
2. Number of large volume/flagship grants/contracts is very low compared to peer institutions.
   - No research center of excellence at the moment?
3. The capabilities of TT assistant professors are not fully materialized.
   - Very small portion of sponsored research is from TT assistant professors (~10% of the total grants/contracts).
   - Campus-wide retention program(s) for top-performing TT assistant professors are not established.
   - Nearly no success in winning “young investigator” award
     - Seemingly, infrastructure to help TT assistant professors may not be adequately set up?
     - More aggressive recruitment of TT assistant professors may be needed?

**Opportunities** in:
1. UNLV Uniqueness: EPSCoR, MSI, KF, others...
2. Growing interest in the UNLV medical school and health care research*
3. Slowly but growing faculty-participation in campus-wide research initiatives

**Threats** in:
1. Federal budget for university research is not well established for FY 2018 and beyond (not looking good)
2. State budget for FY 2018 and 2019 and beyond?
   - Might affect the recent investment? (Knowledge funds? Medical school?)
3. Severely Increasing competition in grant applications as more institutions are pursuing research funding
4. Growing interest in the UNLV medical school and health care research*
5. Limited research infrastructure/resources (space, CORE facilities, research leadership, students, staff support, etc.)
6. UNLV campus culture on research
   - Low priority business?
   - Expectations for research is low compared to peer institutions?

(ii) Federally supported
(*) Listed in both (O and T) places
Short Summary and Recommendation to the RSCA Committee Chair (Drs. Rama Venkat and Kate Korgan)

- We (Kim, Ezeanolue, Stream, and Farley) were recommended to serve on this subcommittee on 07/22/2016 and assigned to identify one item to work on regarding the overarching subject of “strategies for increasing grant proposal activities, etc.” Thus we picked an idea - “how to help Tenure-Track faculty to establish long-term research grant activities.”
- We have looked at some data on the status of research grants/contracts activities of UNLV. Also, we found that most colleges have their own support structures for grants/contracts activities.
- We recommend:
  1. The recruitment and retention of top-notch TT faculty who can “significantly” contribute to the UNLV communities in terms of research productivities.
  2. “Effective and early enough training” of incoming TT faculty regarding teaching, competitive research, etc.
  3. Or (since recruitment, training, and retention of top-notch TT faculty is very expensive and time-consuming), UNLV hires establish associate or full professors only until the overall research productivities of UNLV significantly improves?