



professor, and professor). Our analysis finds discrepancies in the number of research sta employed by UAF and reported in Carnegie Classification records, which may suggest that UAF is underreporting non-faculty Ph.D. level researchers. All metrics are evaluated on the update year, which usually uses the most recent year with complete data available from the various data sources. The data sources used for the most recent 2018 evaluation are:

- Degree completions: Integrated Postsecondary Education Data System



- 5. Doctorates in Social Sciences: 172/260
- 6. Doctorates in STEM Fields: 162/260
- 7. Doctorates in Other/Professional Fields: 243/260

UAF's per capita ranking among all Tier 1 and 2 universities (Values divided by number of full-time instructional faculty = 288 for UAF)

- 1. Per capita Science & Engineering Research & Development Expenditures (1000s): 14/260
- 2. Per capita Non-Science & Engineering Research & Development Expenditures (1000s): 131/260
- 3. Per capita Science & Engineering Research Sta : 140/260

According to these 2018 results, UAF ranks above the median Tier 2 universities in six out of seven of the aggregate criteria. UAF ranks well above the other Tier 2 universities in STEM research expenditures and is on par with Tier 1 institutions. UAF ranks below the other Tier 2 universities in professional doctorates awarded. When considered in the per capita evaluation, UAF is well above median universities in both Tier 1 and 2 classifications in the Science & Engineering Research Expenditures criteria, with a ranking of 14/260 placing us in the top 5% of all Tier 1 and 2 universities. While not a direct Carnegie Classification criterion, it is worth noting that UAF ranks 235 (sites in six out of 750) vs (a ev). (acc) 5c. (onsider) 18 of full-time 2 (struction)

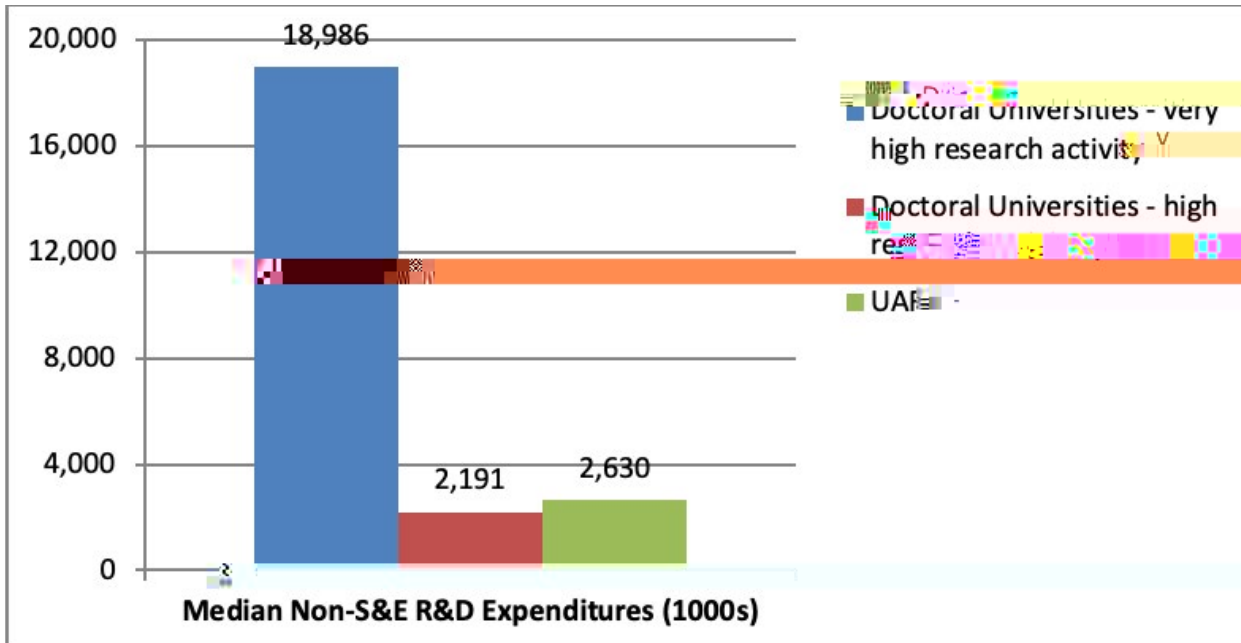


Figure 3. Median expenditures in Non-Science and Engineering fields for 2018 for Tier 1 and Tier 2 universities, with UAF values shown.

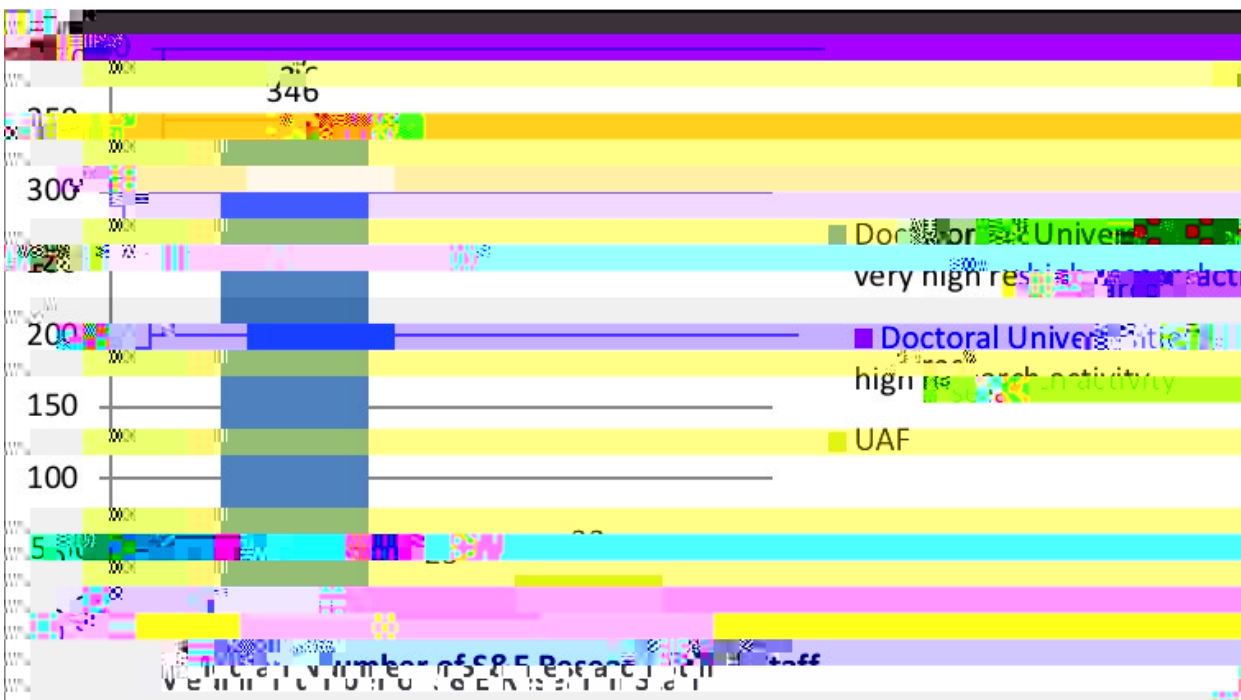


Figure 4. Median number of Science and Engineering Research Staff employed for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

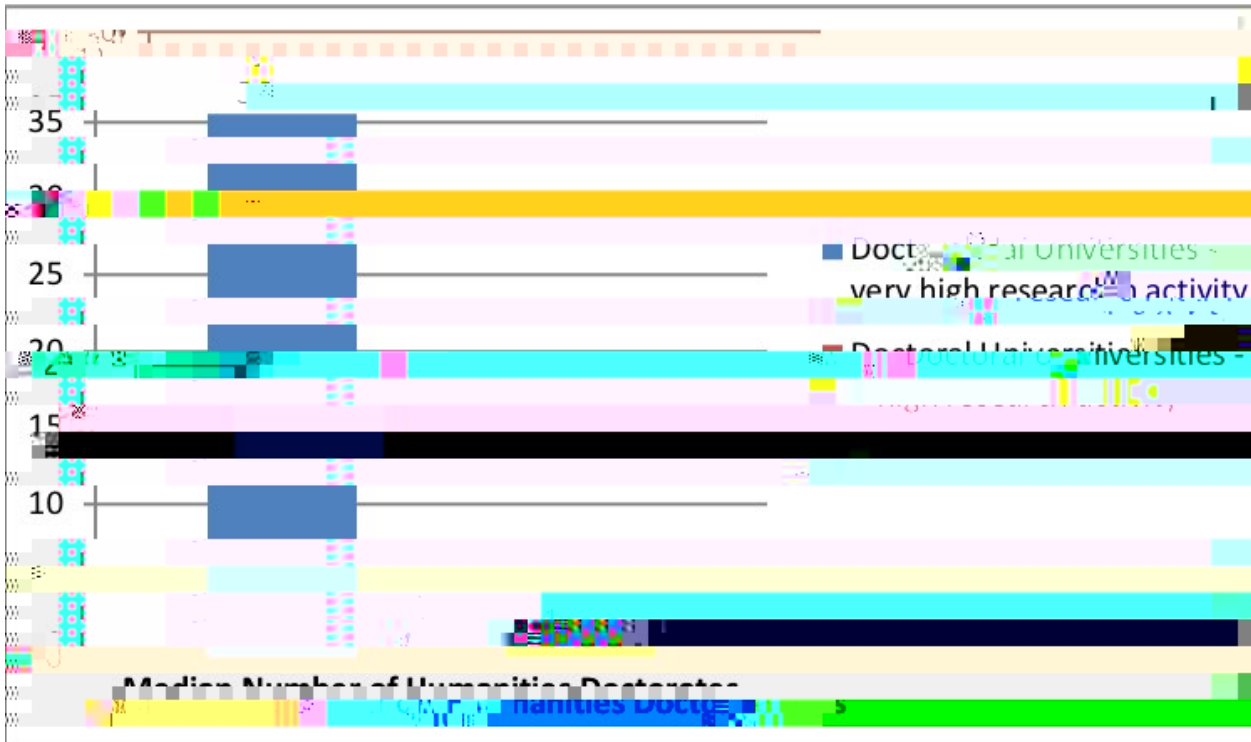


Figure 5. Median number of doctoral degrees in the Humanities awarded per year for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

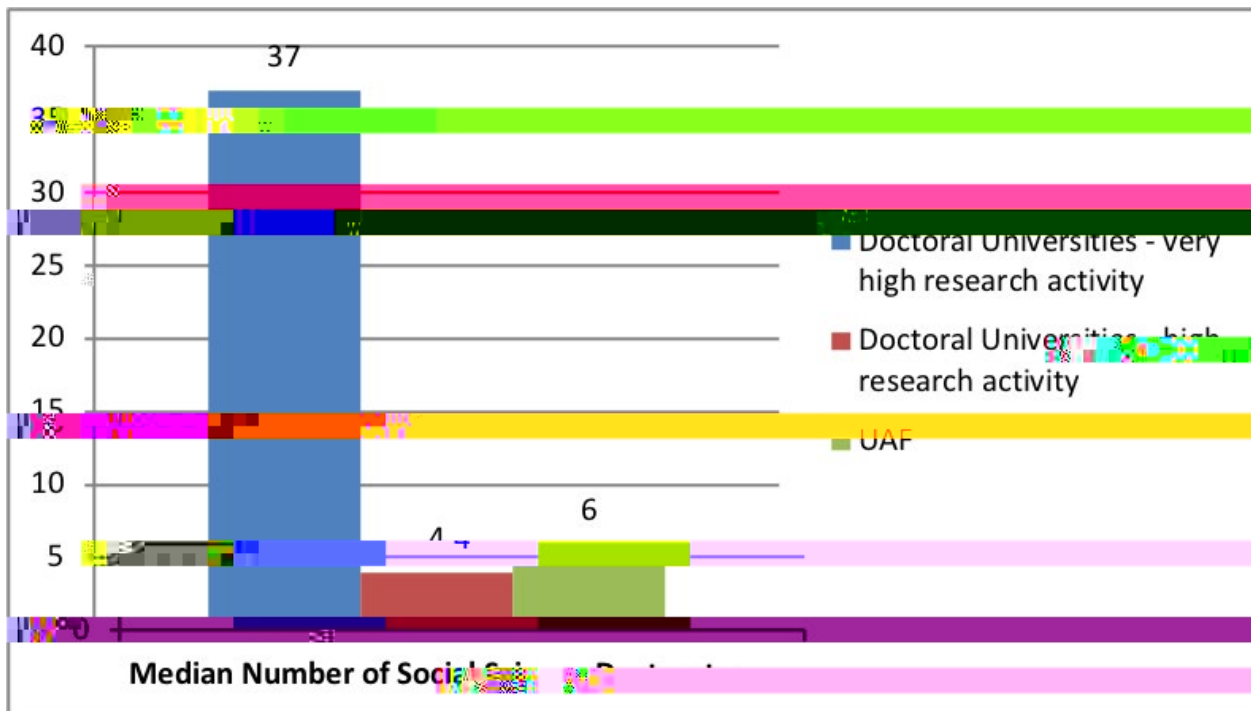


Figure 6. Median number of doctoral degrees in the Social Sciences awarded per year for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

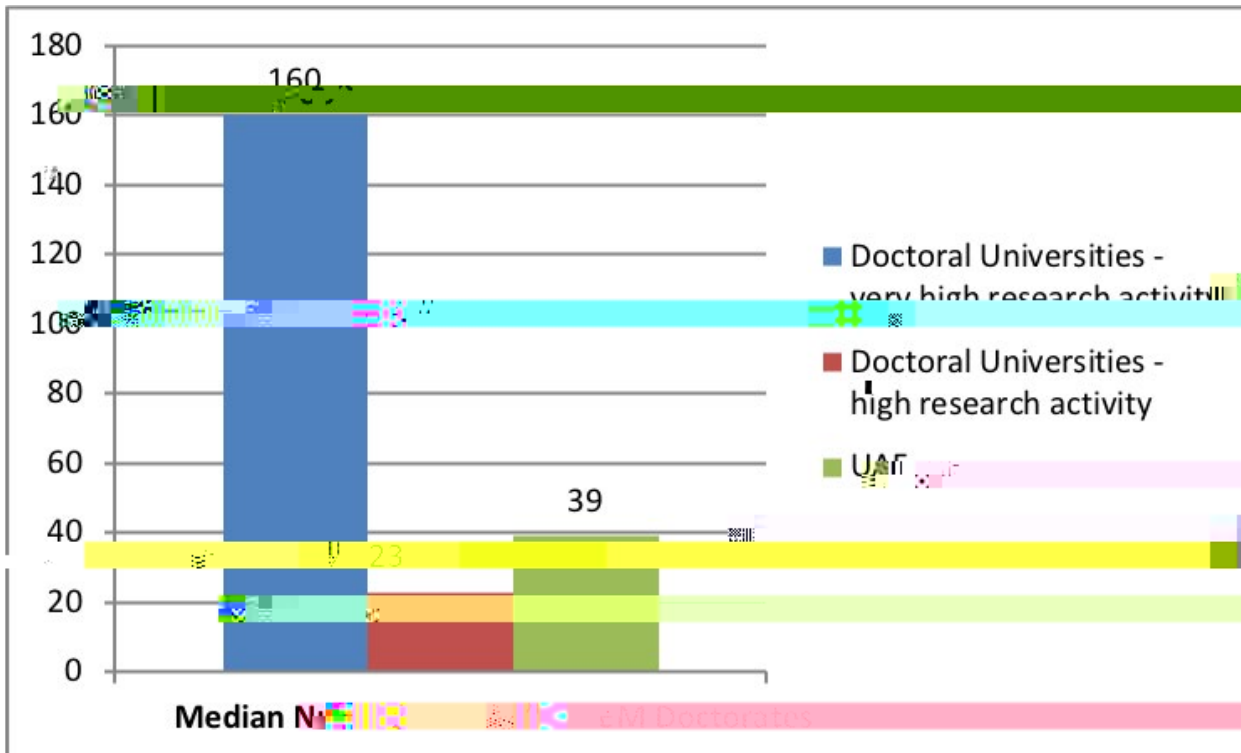


Figure 7. Median number of STEM doctoral degrees awarded per year for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

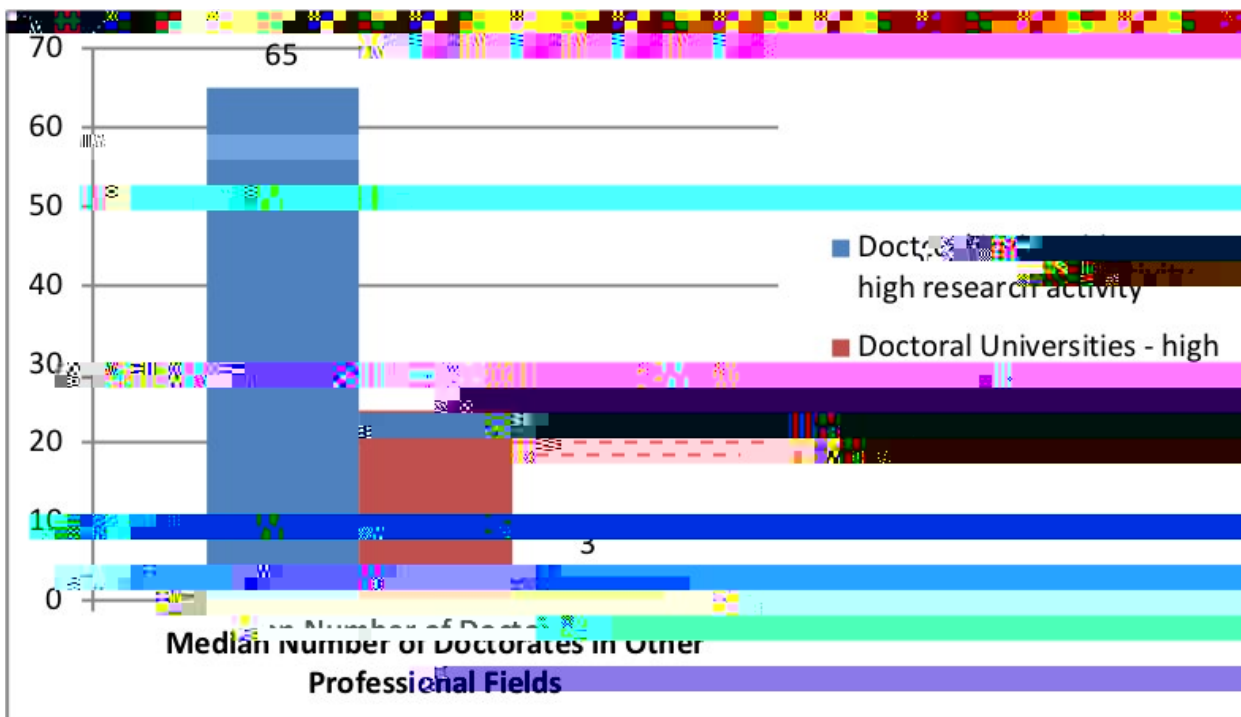


Figure 8. Median number of Other/Professional doctoral degrees awarded per year for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

Per Capita Results:

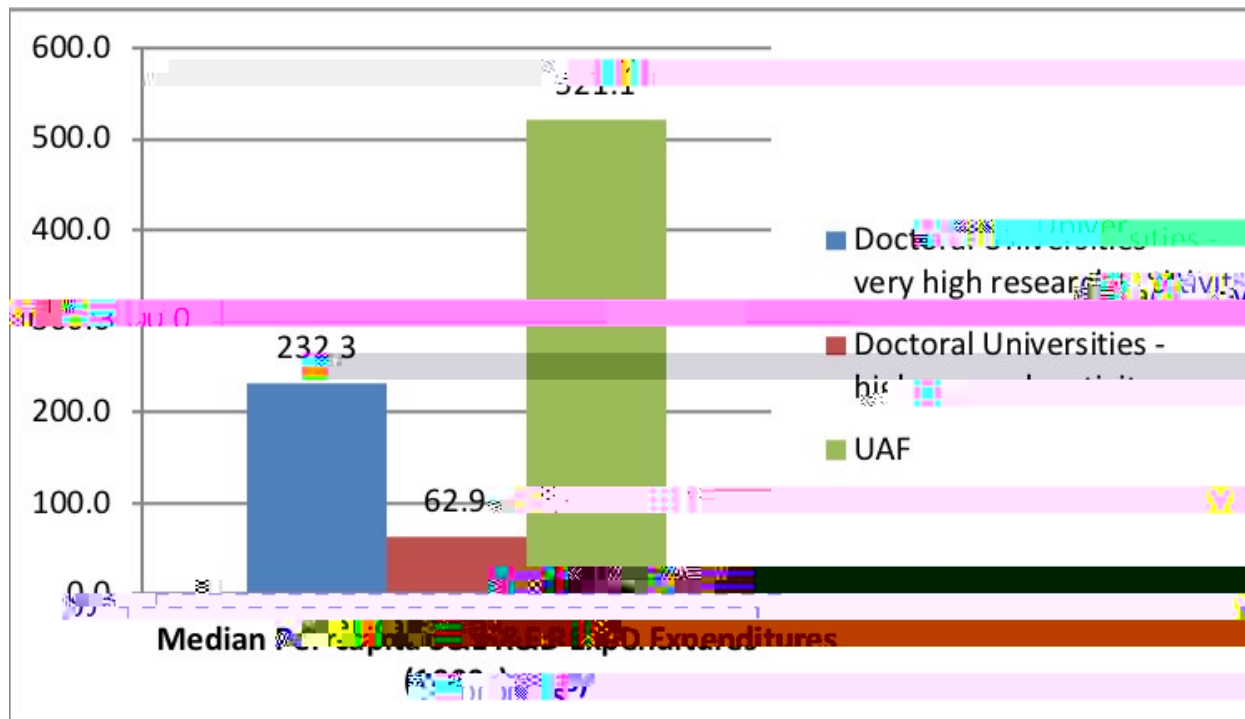


Figure 9. Median per capita (divided by number of full-time instructional faculty) Science and Engineering research expenditures for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

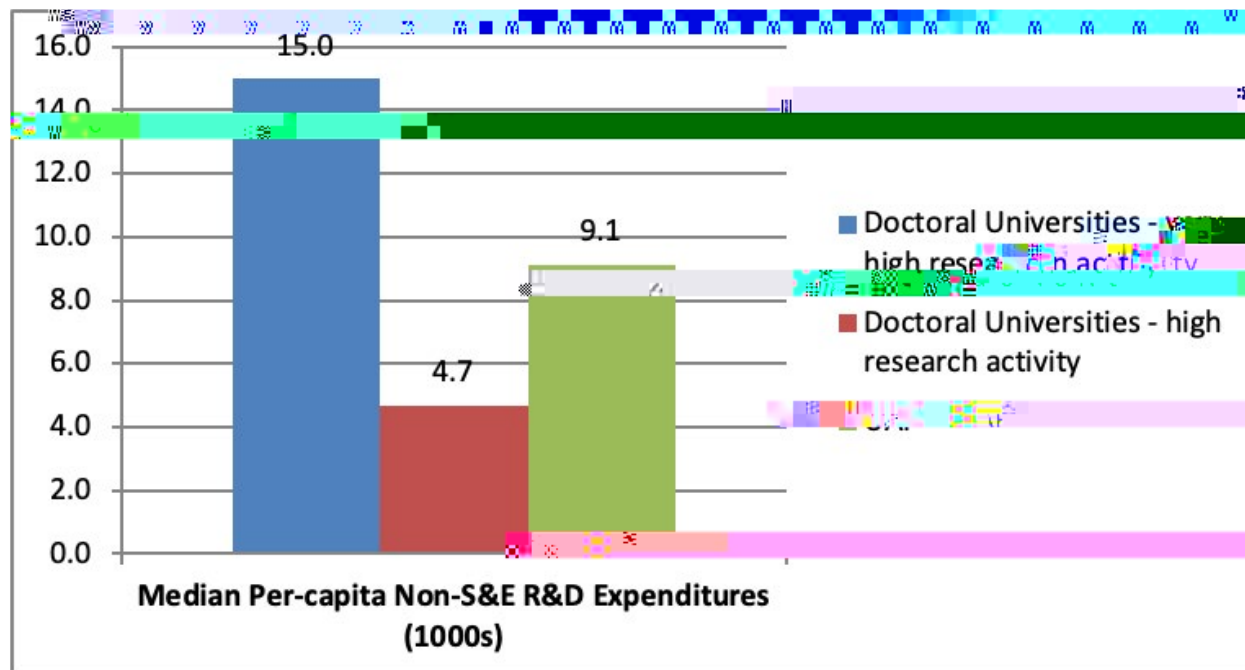


Figure 10. Median per capita (divided by number of full-time instructional faculty) Non-Science and Engineering research expenditures for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

- CUNY Graduate School*: [:// . . . /H](#)
- Dartmouth College: [:// . . .](#)
- New Jersey Institute of Technology*: [:// . J .](#)
- Princeton: [:// . . .](#)
- Rensselaer Polytechnic Institute: [:// . . .](#)
- Rice University: [:// . . .](#)
- California Institute of Technology: [:// . . .](#)

We compare UAF to these small to medium-sized Tier 1 universities using the Integrated Postsecondary Education Data System (IPEDS) institutional profile data accessed here: [:// . . . /](#). In this comparison (summarized in Table 1), we find that UAF has the second-lowest tuition rate, the lowest

Carnegie Classification methods and results based on 2015 data was published by Koser and Scott (2018).

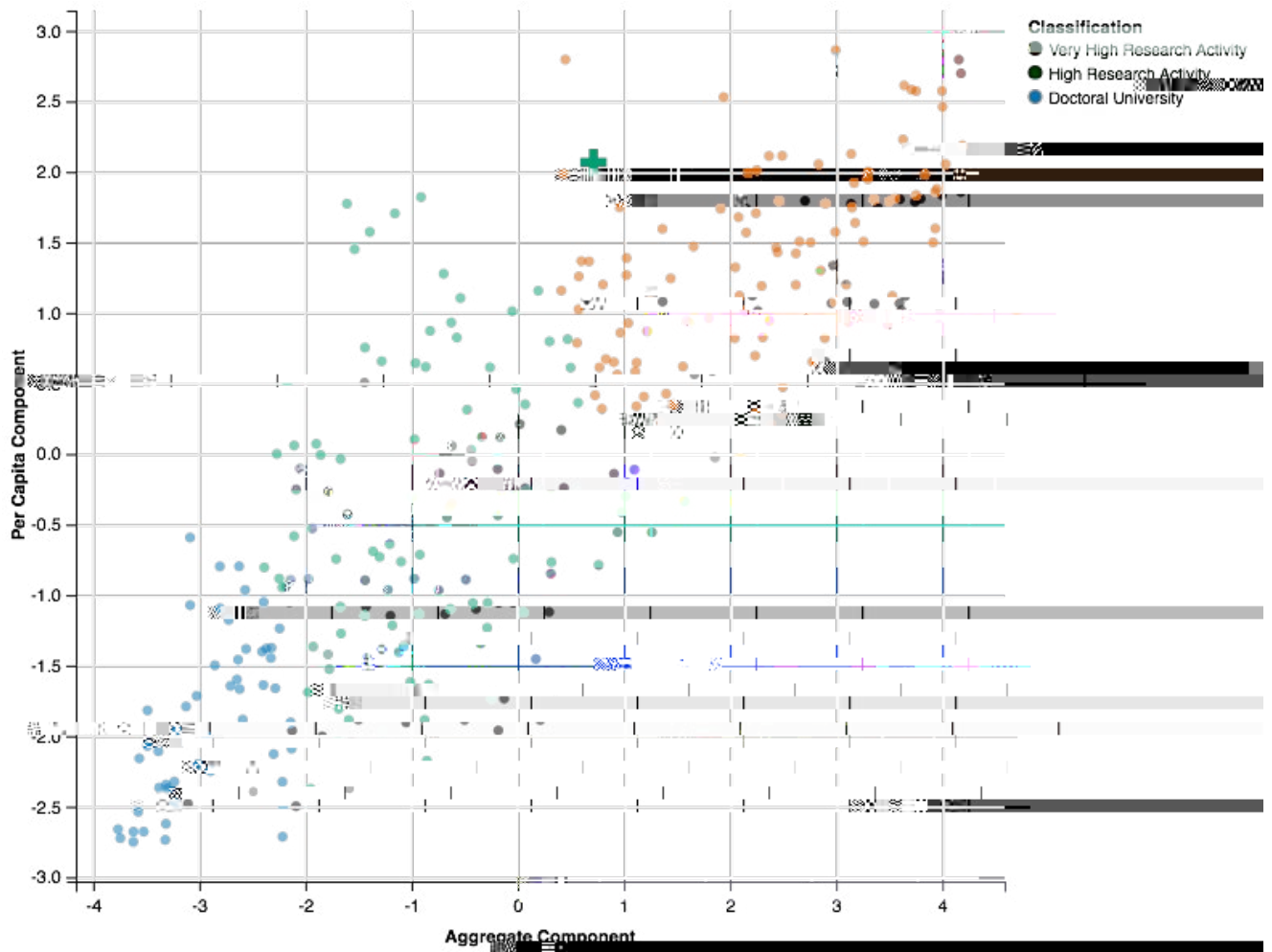


Figure 12. One potential strategy to achieve Tier 1 status (based on 2015 data) that requires doubling of research expenditures and research sta , and quadrupling doctorates awarded in all four fields.

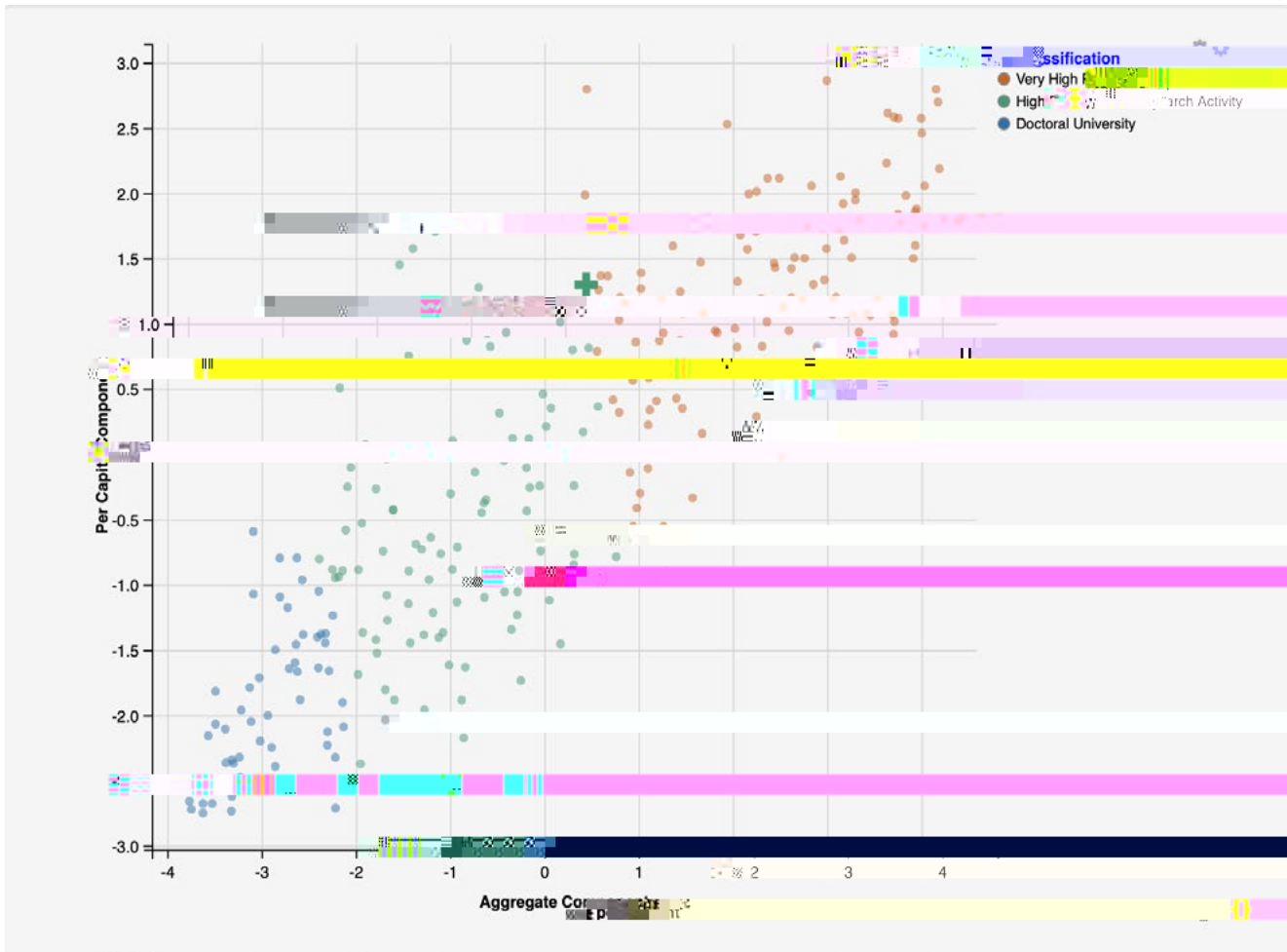


Figure 13. An alternative and potentially more direct strategy for UAF to achieve Tier 1 status (based on 2015 data) that requires increasing the number of doctorates awarded in all four fields by a factor of five.

Action Items to Achieve Tier 1 Status:

- Quadruple the number of Ph.D.s awarded in STEM, Humanities, Social Sciences, and Other/Professional Fields,
- Double non-STEM research expenditures, and
- Double research sta

- Increase the number of Ph.D.s awarded in STEM, Humanities, Social Sciences, and Other/ Professional Fields by a factor of five (to total >200 Ph.D.s earned across the four disciplines)

Because UAF does not currently offer doctoral degrees in the Humanities, such degree programs would need to be developed to facilitate these goals. Similarly, UAF currently offers only two Ph.D. programs in the Social Sciences, such that this area is also prime for growth. New Ph.D. programs in Social Sciences could include Arctic and Northern studies and psychology, which have a history of funded research but do not currently have Ph.D. programs. Our committee has compiled potential mechanisms to help advance these metrics. A more detailed cost-benefit analysis is required to determine which of these would be the most beneficial.

3.2 Proposed Mechanisms to Achieve Tier 1 Goals:

We have identified the following mechanisms that can help UAF attain Tier 1 research status, while simultaneously advancing UAF's core mission.

Prioritize Tier 1-appropriate metrics to guide strategic decision making and evaluation of research and academic unit performance —

Accurate, standardized, and appropriate tracking of UAF research metrics relevant to the Carnegie Classification criteria, including Ph.D.s completed in STEM, Humanities, Social Sciences, and Other/Professional Fields, as well as numbers of non-faculty research sta_employed (postdoctoral fellows and Ph.D. research sta_), is essential to attaining Tier 1 status. These metrics also align with UAF broader strategic goals, should be e_ectively monitored and reported to the relevant tracking agencies, and should be used to prioritize and inform strategic university decisions.

In tracking relevant metrics, UAF may also want to modify some of its reporting approaches. Through our study we found it di_icult to both access and replicate UAF metrics between UAF and Carnegie sources. Key parameters evaluated ~~to~~ to produce Carnegie rankings related to faculty numbers, research sta_ , research expenditures, graduate student numbers, degree programs, and funding sources were di_icult to attain and inconsistent due to lack of standardization. Furthermore, it became evident that certain metrics could be tracked di_erently with a more favorable outcome, for example UAF non-faculty research sta_ with Ph.D.s are not represented (values of 0) in either the Carnegie and GSS source data reports, which suggests that UAF may be under-reporting research sta_ . More accurate tracking and reporting of Carnegie Classification criteria, such as research sta_ , may therefore be a simple and e_ective way to advance towards Tier 1.

Incentivize the development of multidisciplinary research themes and networks — Cross-campus multidisciplinary research themes such as One Health, climate change, and sustainability draw talent from across UAF f_mts-.5ih themes5ful H — Cralent

could be funded by the UAF research enterprise (through research overhead return) for the UAF research enterprise, similar to the Undergraduate Research and Scholarly Activities model.

Provide incentives and opportunities for all faculty to mentor graduate students and conduct research

— The number of UAF faculty willing and able to mentor graduate students is a limiting factor towards attaining Tier 1 status. Mentoring undergraduate and graduate research projects provides numerous benefits to UAF's strategic educational and research missions, but research mentorship is not currently prioritized in faculty workloads and is inconsistently emphasized in the faculty review process across units. Initiatives to incentivize and prioritize faculty mentorship of graduate student research projects should be pursued, especially in priority areas that lack other funding support mechanisms (e.g., Humanities and Social Sciences). Incentives may include merit-based award systems, flexible workloads, financial support for graduate students, student advising training and resources, tiered-mentorship support, and longer-term job security for nontenure-track faculty. These initiatives would help increase student research opportunities, doctoral degree completions, and integration of undergraduate students in research. In addition, it is critically important to maintain successful structures at UAF that currently enable high research productivity. In particular, the system of joint appointments of faculty between research institutes and colleges enables faculty to conduct research within autonomous research units, while reinvestment of research overhead into the generating units supports further research success.

Recruit and retain excellent faculty — Faculty play a critical role in advancing the metrics required to attain Tier 1 research status, particularly in competing for research grants and mentoring Ph.D. students. UAF faculty are exceptionally productive, as evidenced by UAF's very high Carnegie Classification ranking in per capita STEM research expenditures (14 out of 260 Tier 1 and 2 universities). However, faculty numbers are on the decline due to recent UAF budget cuts, and highly productive faculty, in particular term-funded research faculty and faculty in academic units threatened with closure, are leaving UAF for more stable positions. In some academic units, high faculty teaching loads and lack of access to graduate students hinder productive research programs. New initiatives to recruit and retain excellent faculty (including both filling vacancies and adding new strategic positions) will be critical to attaining Tier 1 status. Mechanisms to achieve this goal include addressing inequity, expanding child care options, developing spousal hire programs, enhancing work-life balance opportunities, and providing remote work options.

Incentivize and nurture the recruitment of postdoctoral fellows and research sta — Increasing numbers of research sta (non-faculty employees with doctoral degrees, including postdoctoral researchers), is one of the main metrics considered in the pursuit of Tier 1 status. Continued e orts to increase postdoctoral fellows and research sta will help advance us to Tier 1 while providing a pool of high-quality prospective faculty to advance UAF research. This can be facilitated through competitive postdoctoral fellowship programs, such as the UAF Centennial Postdoctoral Initiative, as well as by recognizing faculty for supporting research sta and postdoctoral fellows.

Increase diversity and equity across campus to foster research innovation and achieve a welcoming campus environment

— Numerous studies have linked research innovation to investigator diversity. UAF's undergraduate student population is >20% Alaska Native, but this diversity is not reflected in our faculty, sta, and graduates. We recommend that UAF create mechanisms to facilitate targeted hiring of diverse faculty, sta, and graduate students from underrepresented minorities to increase research innovation and help make UAF a more welcoming environment for all. In particular we recommend increasing Alaska Native faculty and sta hires, and graduate student recruitment, to strengthen connections with and better serve Alaska Native communities. Furthermore, we recommend cross-campus initiatives to provide additional opportunities to recruit and engage diverse students in research



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