

at a glance

- 1 Modernize the student experience
- 2 Establish global leadership in Alaska Native and Indigenous programs
- 3 Achieve Tier 1 research status
- 4 Transform UAF's intellectual property development and commercialization
- 5 Embrace and grow a culture of respect, diversity, inclusion and caring
- 6 Revitalize key academic programs, from occupational endorsements to Ph.D.s

## 3 Achieve Tier 1 research status

Committee members: Taryn Lopez (original chair), Hajo Eicken (2021 chair), Donie Bret-Harte (2021 co-chair), Samantha Alshire, Marcia Cassino, Audrey Kirby, Cecile Lardon, James McLean, Link Olson, Lorrie Rea, Arleigh Reynolds, Emilie Sinkler, Matthew Sturm, Jason Theis and Mike West

### Definitions

**Tier 1 Research Status:** The colloquial term for universities with very high research activity (R1) status as defined by the Carnegie Classification.

**Tier 2 Research Status:** The colloquial term for universities with high research activity (R2) status as defined by the Carnegie Classification.

**S&E Research Staff:** Non-faculty research staff in science and engineering fields who hold Ph.D.s, including postdoctoral researchers/fellows. In this definition the excluded “faculty” includes any employee with “faculty” in their title, including tenure-track, non-tenure-track, research, and adjunct faculty.

**Full-time Instructional Faculty:** Number of full-time instructional faculty with ladder-rank positions (i.e., assistant professor, associate professor, professor) as identified in the IPEDS HR report (see link below in data sources).

### Introduction

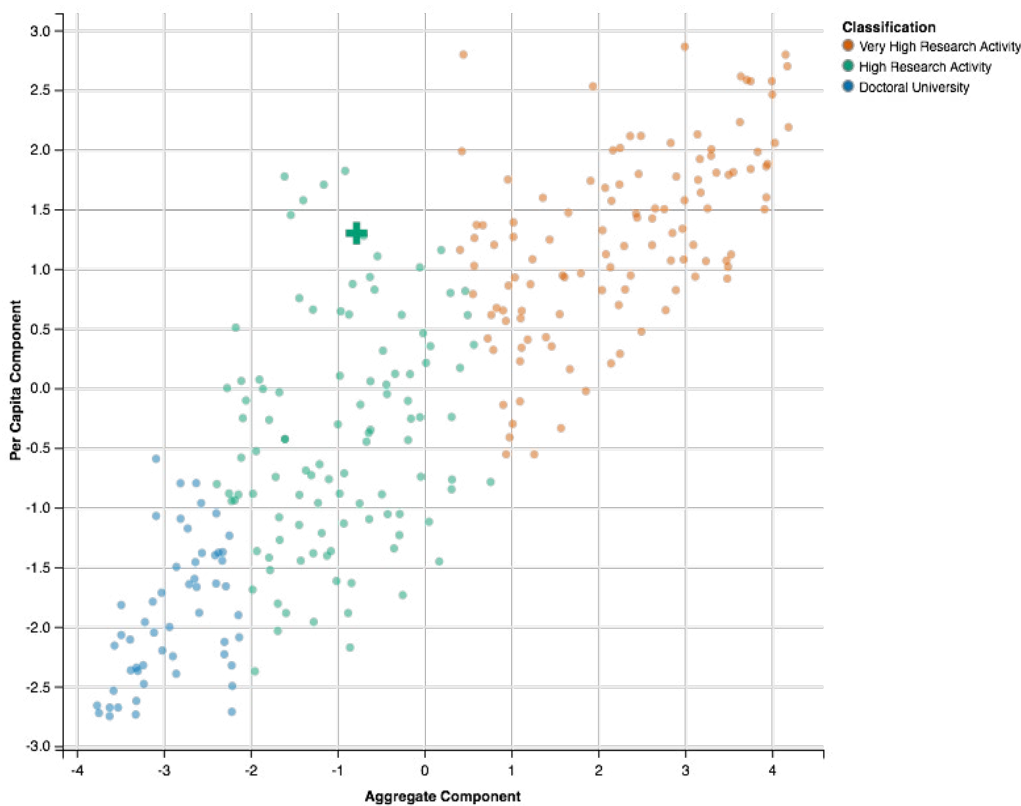
Our committee was tasked with the strategic planning goal of determining how to *Achieve Tier 1 Research Status* and defining *who we are, who/what we want to be, and how we can get there* with respect to this goal. We have evaluated this in terms of both our current research activity and UAF’s core mission and provide recommendations to help advance UAF towards Tier 1 status while strengthening our core mission. Our shorter summary document provides an overview of our most important findings and recommendations. Here we provide additional background and details to support our findings and to enable future replication of this evaluation.

## 1. Who do we want to be?

### 1.1 Carnegie Criteria

To address the goal of Achieving Tier 1 Research Status, it is necessary to first understand how universities attain Tier 1 status and which criteria are considered. While there are several university ranking systems within the United States, the Carnegie Classification is arguably the most prominent, especially with respect to evaluating research activity. The Carnegie Classification has several advantages over other systems, including

being well defined, long-standing, rigorous, and globally recognized. This system was first established in 1970 and is currently operated by the Indiana University School of Education. The data and methods used in the Carnegie Classification are publicly available on their website (<http://carnegieclassifications.iu.edu>). The Carnegie Classification conducts its ranking and statistical analyses of all eligible universities approximately every five years, and recently at three-year intervals. The most recent results are available for 2015 and 2018 evaluation years, with the next evaluation scheduled for 2021. While this system evaluates all U.S. universities and considers a variety of metrics to describe institutional diversity, the aspect most relevant to our study is its evaluation of research activity. The Carnegie Classification considers several metrics of research activity to determine a university's ranking and research activity status. To be considered as a Doctoral University by the Carnegie Classification, a university must confer at least 20 research or scholarship doctoral degrees or 30 professional-practice doctoral degrees in at least two programs during the update year. To be eligible for the top two research ranking classes, a university must meet the Doctoral University requirements and also demonstrate at least \$5 million dollars in research expenditures. After meeting these initial criteria, the Carnegie Classification then considers seven metrics of research activity related to research expenditures, research staff, and doctoral degrees awarded in four disciplinary groups: (1) Science, Technology, Engineering, and Math (STEM); (2) Humanities; (3) Social Sciences; and (4) Other/Professional Fields. These metrics are evaluated for each university on both an aggregate and per capita (divided by the number of full-time instructional faculty) basis and visualized using principal component analyses to divide the top two tiered doctoral granting universities into two categories of research activity, including R1 (very high research activity) and R2 (high research activity). An example of the Carnegie Classification for doctoral granting universities using 2015 data, with UAF's position shown, can be seen in Figure 1.



**Figure 1.** UAF's (plus symbol) ranking shown in relation to Tier 1 (orange), Tier 2 (green), and Doctoral (blue) universities according to the Carnegie Classification for 2015.

Throughout this document we refer to R1 and R2 rankings as Tier 1 and Tier 2, respectively, as these are the colloquial terms most people are familiar with. The Carnegie Classification uses explicit definitions of each metric, such that accurate reporting of university statistics must be prioritized to fully capitalize on potential advancements of the employed metrics. In particular it defines research staff as personnel in science and engineering fields who hold Ph.D. degrees (including postdoctoral fellows) but do not have “faculty” in their title, and defines faculty as full-time instructional faculty with ladder-rank positions (e.g., assistant professor, associate

professor, and professor). Our analysis finds discrepancies in the number of research staff 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 (IPEDS) 2016-17 (<https://nces.ed.gov/ipeds/use-the-data>)
- Faculty Number: IPEDS (HR) 2016-17 (<https://nces.ed.gov/ipeds/use-the-data>)
- Research Expenditures: FY2017 NSF Higher Education Research and Development (HERD) survey (<https://www.nsf.gov/statistics/srvyherd/>)
- Research Staff: NSF Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS) (<https://www.nsf.gov/statistics/srvygradpostdoc/>)

Degree program classifications considered by the Carnegie Classification are less well defined, but specific program names used to distinguish degrees in STEM, Humanities, Social Sciences, and Other/Professional Fields for the 2018 analyses can be found [here](#). According to these classifications, UAF doctoral programs in Social Sciences include anthropology and Indigenous studies. UAF's popular Interdisciplinary Studies program does not clearly fall into any classification, so we assume that Ph.D.s in this category are classified as "Other/Professional Fields," with the remaining UAF doctoral programs falling in the STEM category. When we consider UAF's master's programs, art, English, linguistics, and communications would fall under Humanities; cross-cultural studies and Arctic and Northern studies would fall into the Social Sciences category; business administration, security and disaster management, fisheries, education, special education, justice administration, counselling, and online innovation and design would fall into the Other/Professional Fields category; and all other UAF graduate programs would fall under the STEM category.

## 1.2 Benefits of Tier 1 Status

Obtaining Tier 1 research status is a goal that many Tier 2 universities aspire to and one UAF has been considering for decades. Attaining Tier 1 status can provide global recognition for our high research productivity; enhance our competitiveness for funding resources; attract globally competitive faculty, staff and students to improve the quality and caliber of UAF research and education; increase student enrollment; and provide local economic benefits to the broader Fairbanks community (e.g., Brix et al., 2013; Olsen, 2018; UNLV Report). The main disadvantage of the Carnegie Classification system is that it does not attempt to evaluate research quality, and that striving to meet their criteria could result in the allocation of resources that may not directly support, and could potentially detract, from UAF's core mission. One additional concern is that the Carnegie Classification's metrics and methods have changed over time, and likely will change further in the future, such that investing significantly into specific metrics may not achieve our desired end goal.

## 2. Who are we?

### 2.1 UAF's Carnegie Classification Ranking

UAF has been consistently ranked as a Tier 2 (high research activity) university, and attaining Tier 1 research status would require significant advances in several Carnegie criteria, especially the number of doctoral degrees conferred. The specific aggregate and per capita criteria evaluated and UAF's ranking out of a total of 260 Tier 1 and Tier 2 universities (presented as X/260) evaluated in 2018 are listed below and shown in Figures 2-11.

#### UAF's aggregate ranking among all Tier 1 and 2 universities

1. Science & Engineering Research & Development Expenditures (1000s): 105/260
2. Non-Science & Engineering Research & Development Expenditures (1000s): 186/260
3. Science & Engineering Research Staff (postdocs & non-faculty research staff with doctorates): 183/260
4. Doctorates in Humanities: 183/260

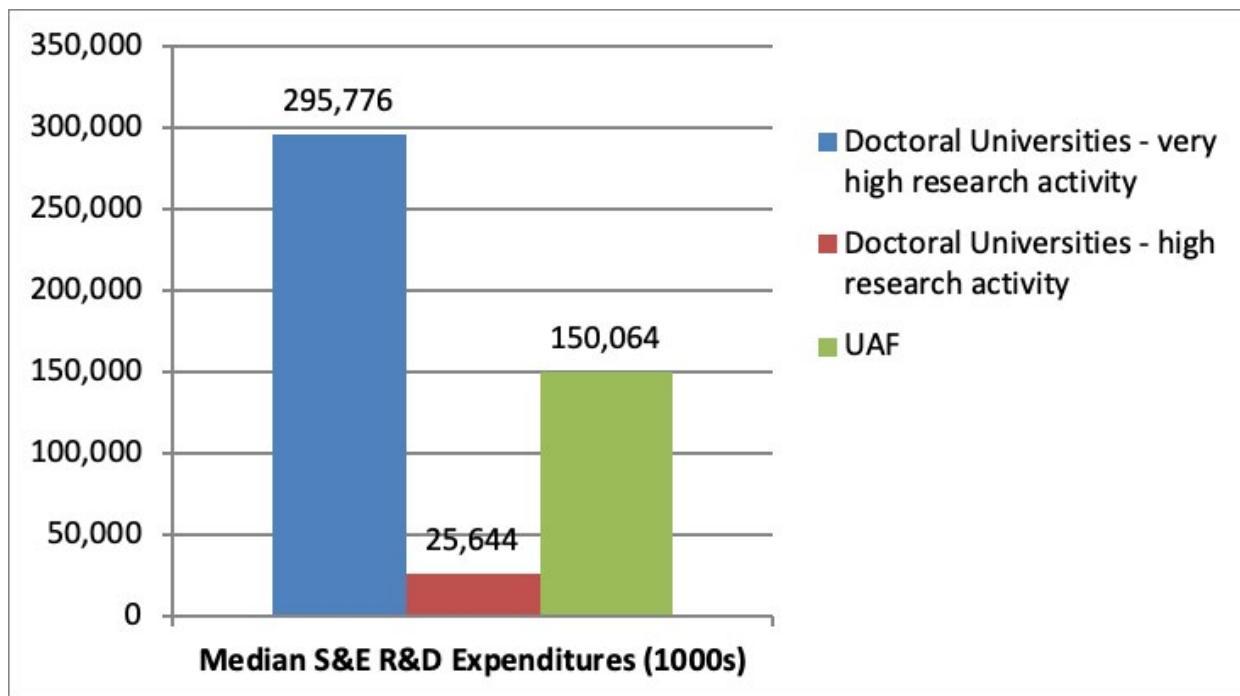
- 5. Doctorates in Social Sciences: 172/260
- 6. Doctorates in STEM Fields: 162/260
- 7. Doctorates in Other/Professional Fields: 243/260

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

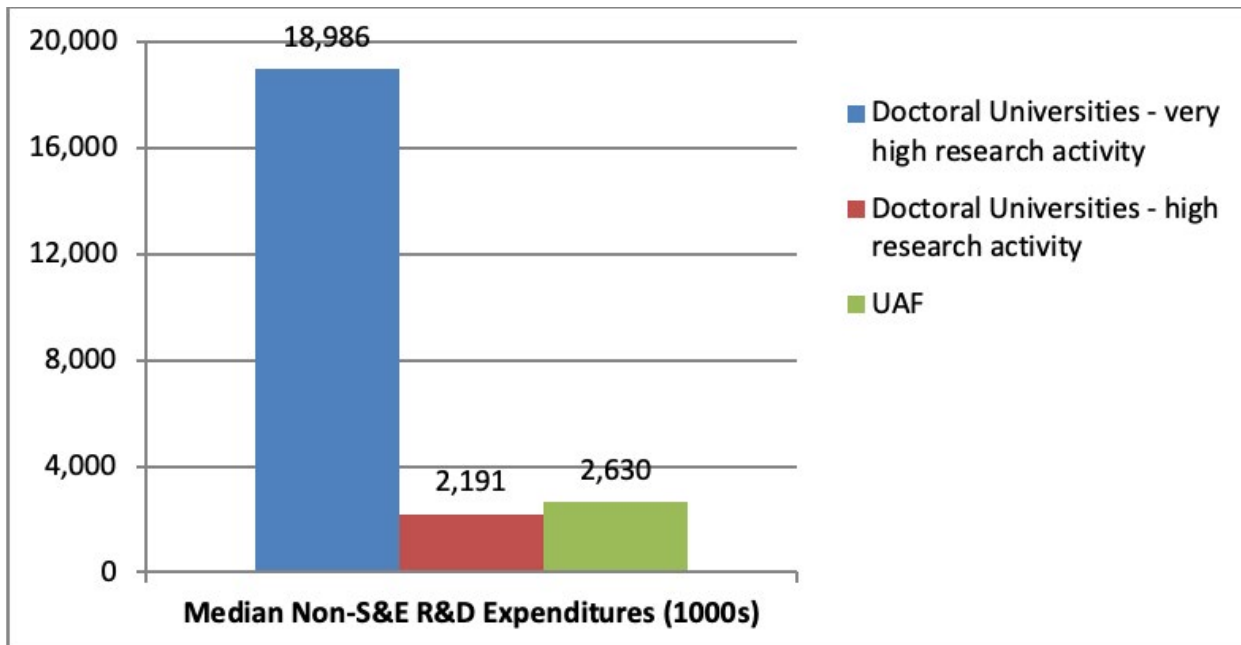
- 1. Per capita Science & Engineering Research & Development Expenditures (1000s): 14/260
- 2. Per capita Non-Science & Engineering Research & Development Expenditures (1000s): 131/260
- 3. Per capita Science & Engineering Research Staff: 140/260

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 235/260 in number of faculty considered (full-time instructional faculty), equal to the bottom 10% of all Tier 1 and 2 universities. UAF also ranks well above the median Tier 2 universities in Non-Science & Engineering Research Expenditures and Research Staff categories.

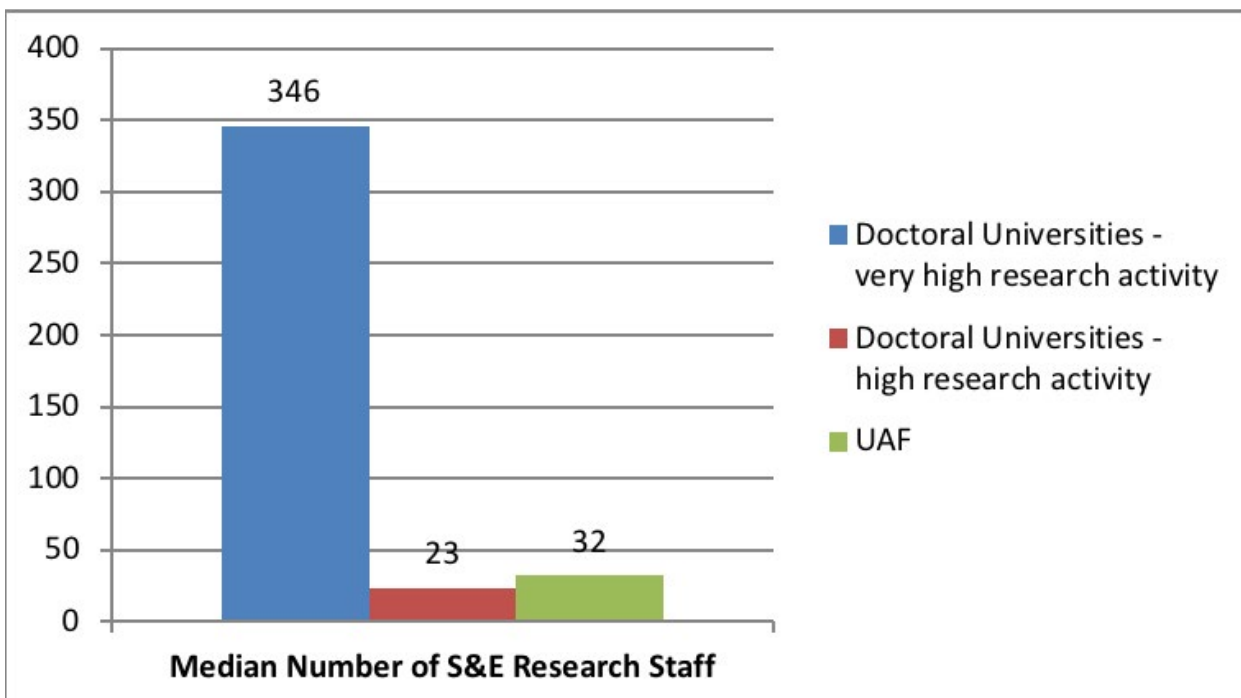
**Carnegie Classification 2018 Aggregate Results:**



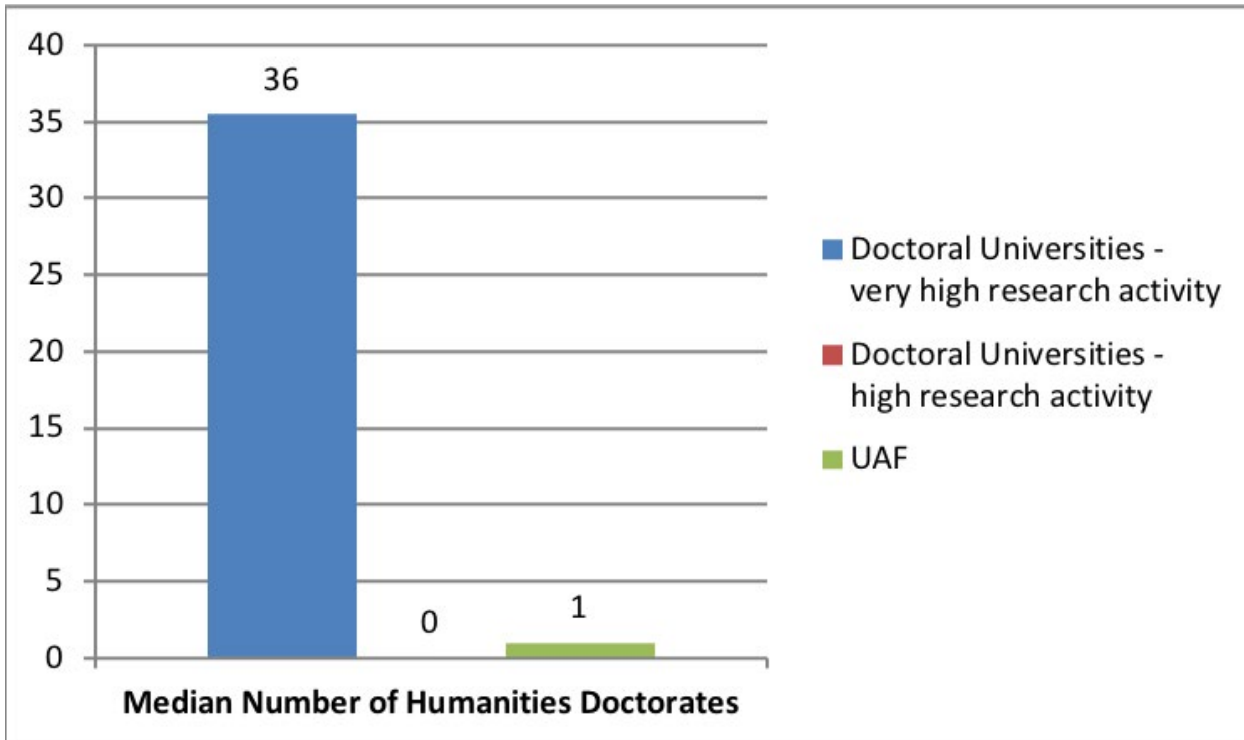
**Figure 2.** Median expenditures in Science and Engineering fields for 2018 for Tier 1 and Tier 2 universities, with UAF values shown.



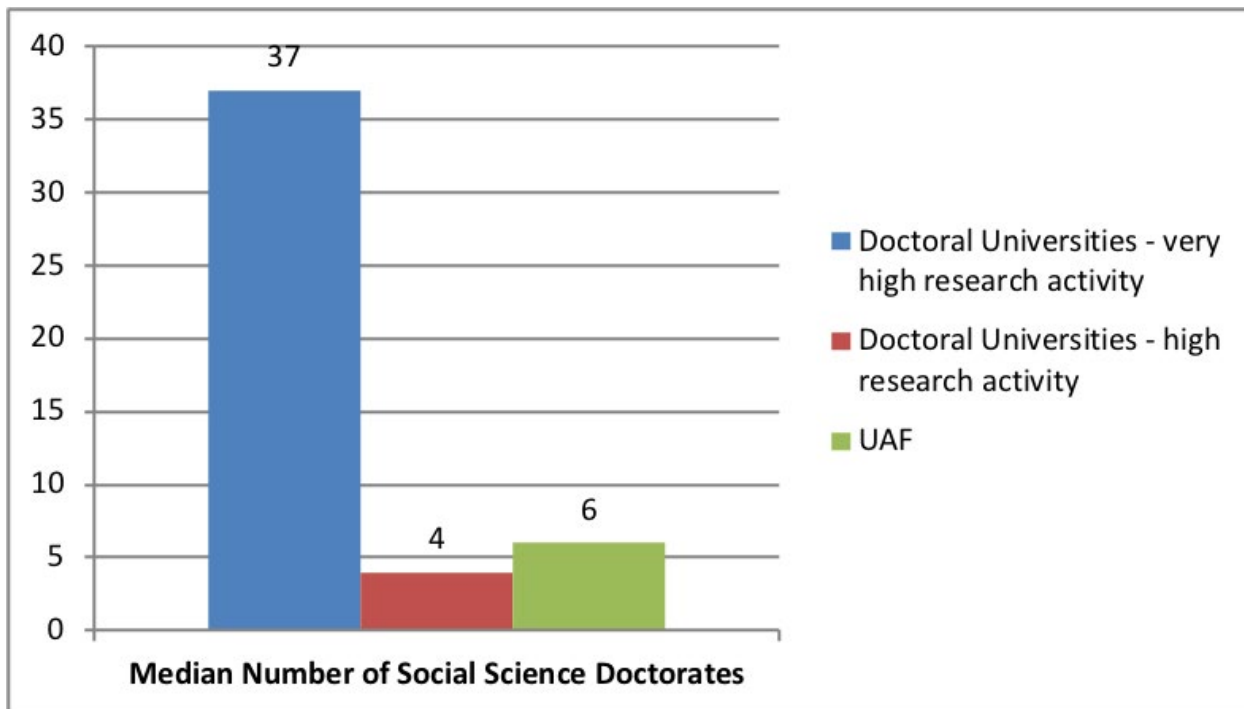
**Figure 3.** Median expenditures in Non-Science and Engineering fields for 2018 for Tier 1 and Tier 2 universities, with UAF values shown.



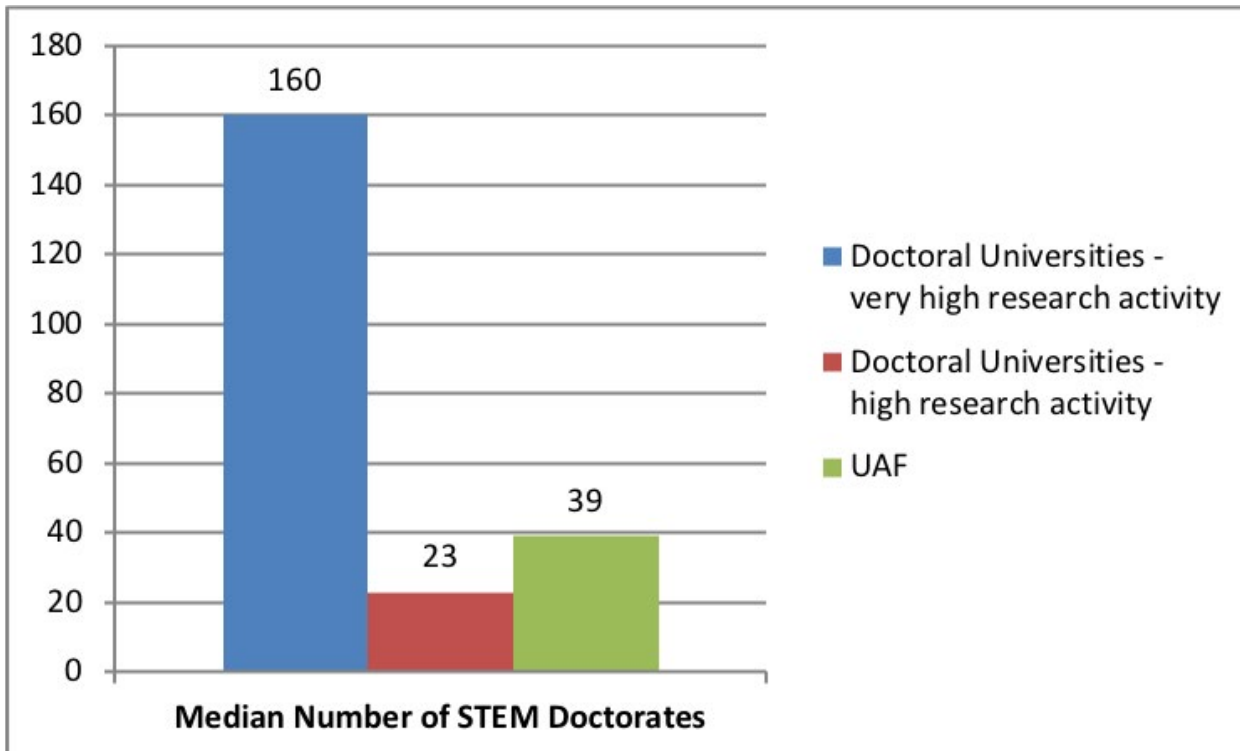
**Figure 4.** Median number of Science and Engineering Research Staff employed for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.



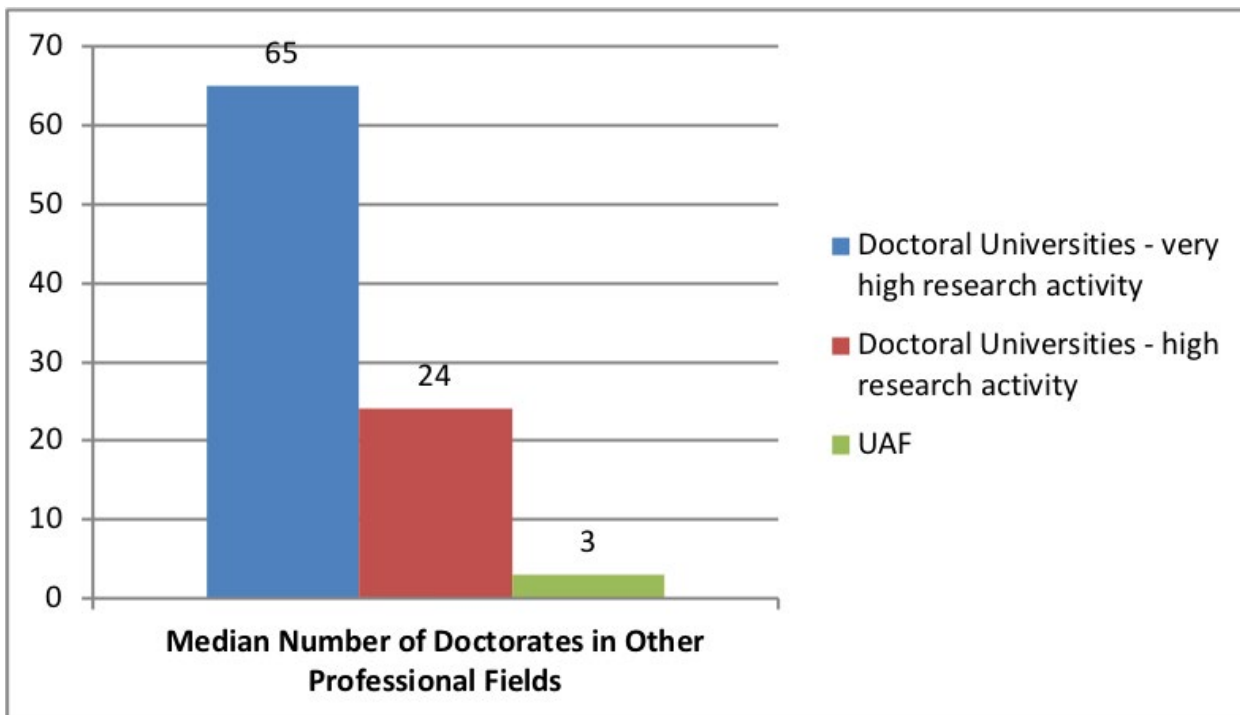
**Figure 5.** Median number of doctoral degrees in the Humanities awarded per year for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.



**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.

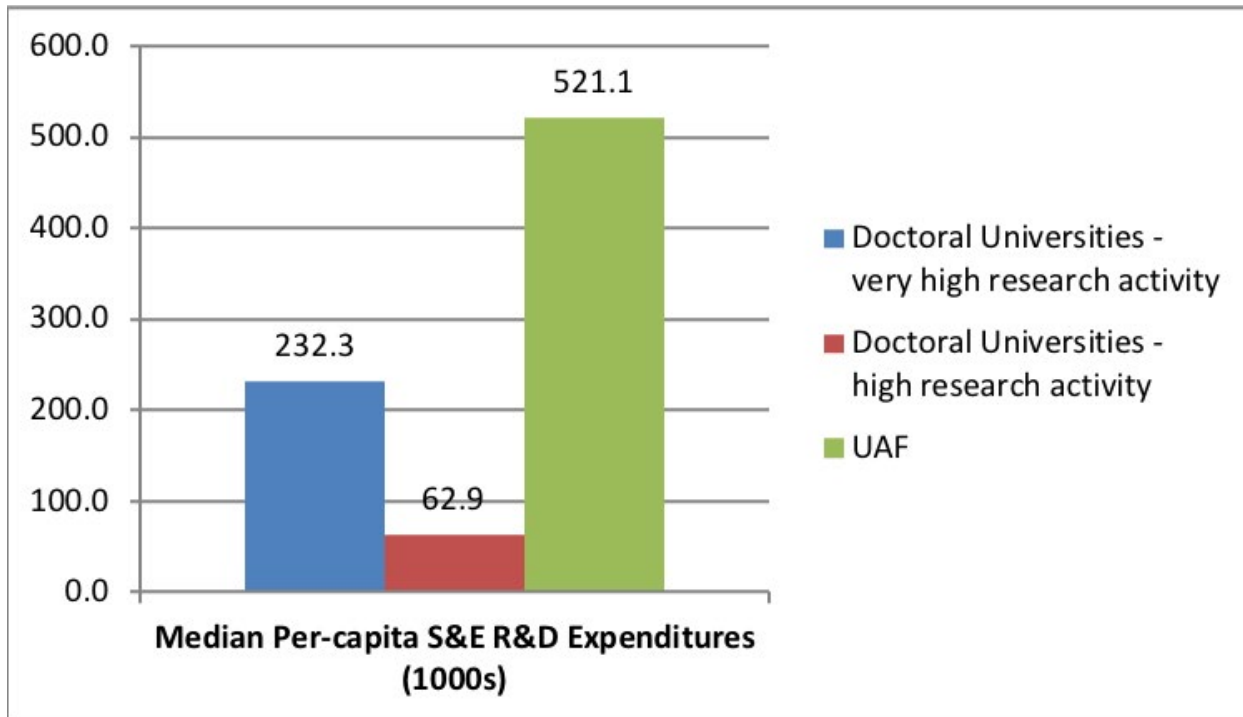


**Figure 7.** Median number of STEM doctoral degrees awarded per year for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

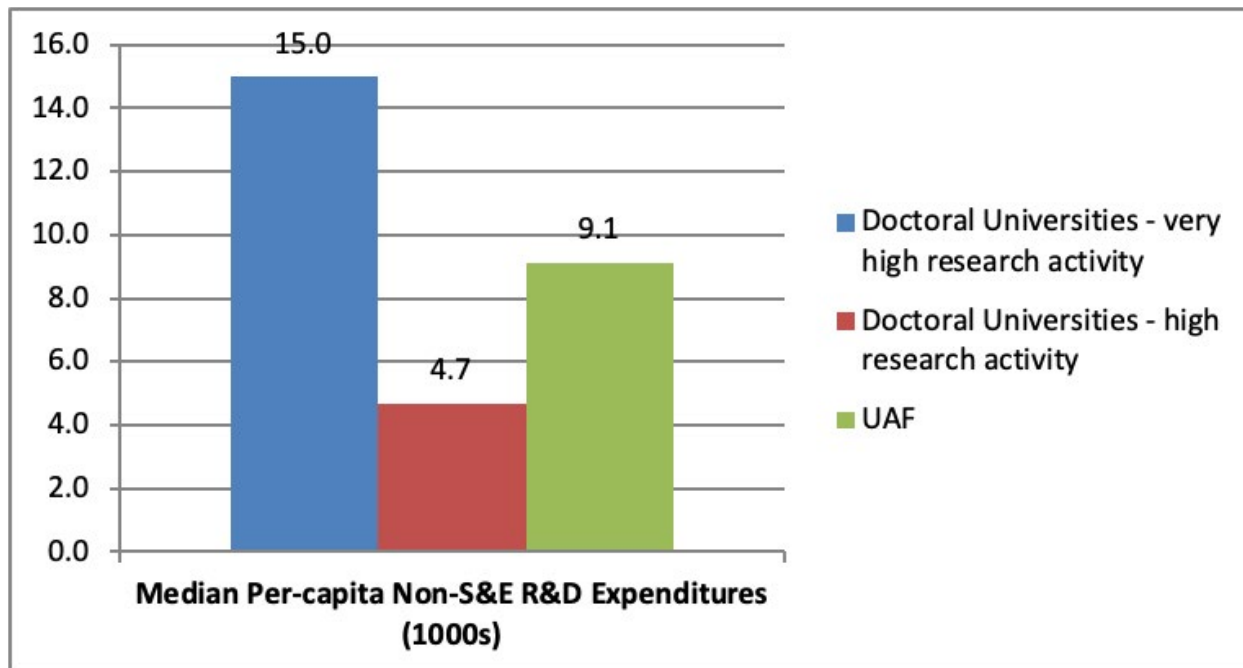


**Figure 8.** Median number of Other/Professional doctoral degrees awarded per year for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

Per Capita Results:

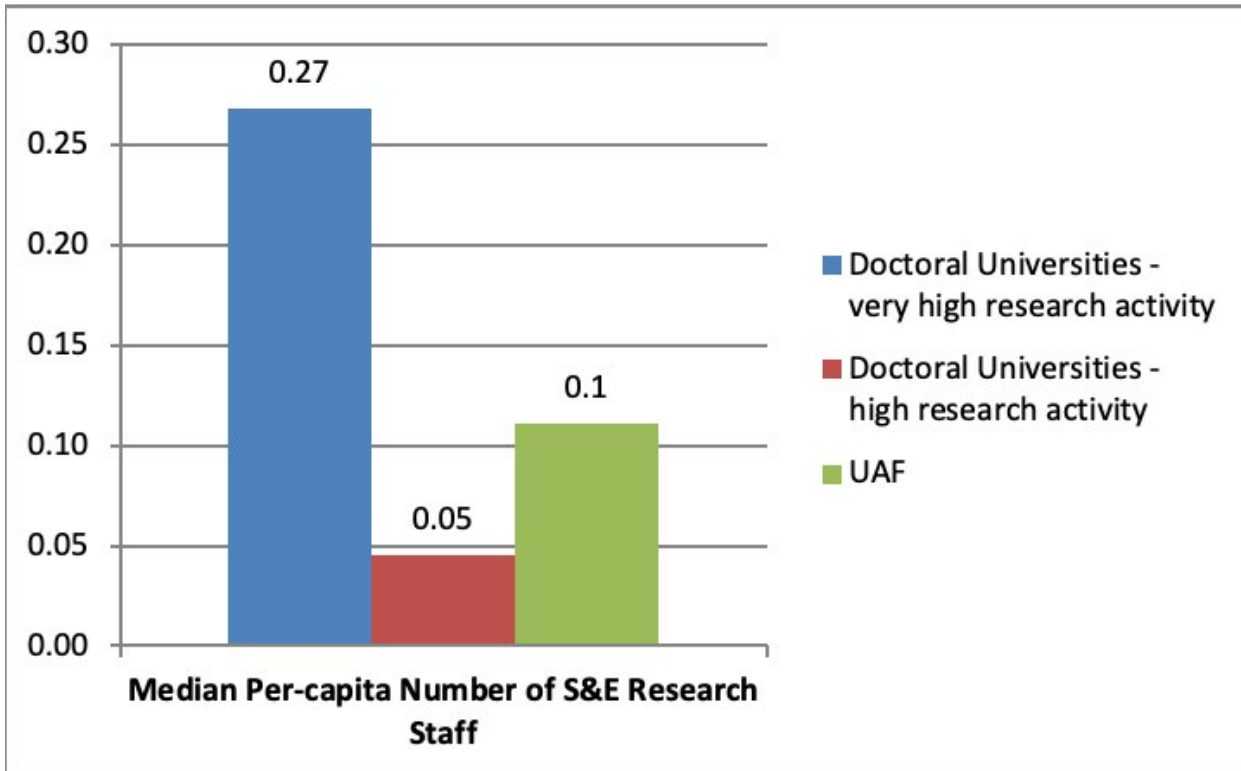


**Figure 9.** Median per capita (divided by number of full-time instructional faculty) Science and Engineering research expenditures for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.



**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.





**Figure 11.** Median per capita (divided by number of full-time instructional faculty) number of Science and Engineering research staff employed for 2018 for Tier 1 and Tier 2 universities, with UAF numbers shown.

**Table 1: Comparison between UAF and small-to-medium sized Tier 1 Universities**

	2017 Fall Enrollment			Tuition (\$)			Revenue (% of total)					Expenditures (% of total)		
	Undergraduate	Graduate	Total	In State (\$ per year)	Out of State (\$ per year)	% Residents	Government Grants & Contracts	Private gifts, grants & contracts	State Appropriations	Tuition & Fees	Investment Return and/or Other Revenue**	Research	Instruction	Academic Support
UAF*	6,639	1,025	7,664	7,910	23,382	88%	32%	7%	43%	12%	6%	36%	24%	10%
New Jersey Institute of Technology*	8,483	2,963	11,446	16,898	31,918	18%	29%	2%	24%	34%	6%	24%	35%	9%
CUNY Graduate School*	2,066	5,608	7,674	7,010	14,400	NA	11%	7%	69%	10%	4%	6%	51%	11%
Brandeis University	3,635	2,086	5,721	53,182	53,182	21%	11%	25%	NA	39%	25%	18%	41%	15%
Brown University	6,988	3,107	10,095	53,419	53,419	3%	12%	20%	NA	29%	38%	16%	41%	16%
Dartmouth College	4,410	2,099	6,509	52,950	52,950	3%	9%	20%	NA	14%	56%	20%	23%	29%
Princeton	5,394	2,879	8,273	47,140	47,140	16%	6%	8%	NA	3%	83%	17%	31%	14%
Rensselaer Polytechnic Institute	6,366	1,123	7,489	52,305	52,305	26%	16%	13%	NA	52%	20%	28%	36%	7%
Rice University	4,001	3,021	7,022	45,608	45,608	42%	9%	10%	NA	15%	67%	19%	50%	6%
California Institute of Technology	961	1,277	2,238	49,908	49,908	35%	28%	26%	NA	4%	42%	38%	34%	7%

\*Public university

\*\*Investment Return and/or Other Revenue as considered here refers to endowments

## 2.2. Evaluation of UAF in comparison with our peer institutions

Tier 1 universities are predominantly large (> 10,000 undergraduate students enrolled) public or private universities. When all 131 universities designated as Tier 1 in 2018 are sorted by size, sector (public/private), geographic region, and/or degree programs, we find that only nine Tier 1 universities are classified as small to medium size (similar to UAF), seven of which are private and two of which are public. These nine universities (asterisks denote public institutions) include:

- Brandeis University: <https://www.brandeis.edu>
- Brown University: <https://www.brown.edu>

- CUNY Graduate School\*: <http://m.gc.cuny.edu/Home>
- Dartmouth College: <https://home.dartmouth.edu>
- New Jersey Institute of Technology\*: <http://www.njit.edu>
- Princeton: <https://www.princeton.edu>
- Rensselaer Polytechnic Institute: <https://www.rpi.edu>
- Rice University: <https://www.rice.edu>
- California Institute of Technology: <https://www.caltech.edu>

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: <https://nces.ed.gov/ipeds/>. In this comparison (summarized in Table 1), we find that UAF has the second-lowest tuition rate, the lowest number of enrolled graduate students, and the largest proportion of in-state students. Additionally, UAF has the largest percent of revenue from government grants and contracts, the second-largest percent of expenditures attributed to research, and the lowest percent of expenditures attributed to education. In comparison to the private Tier 1 universities, we have relatively low percentages of private gifts and contracts, and minimal revenue from investment return (i.e., endowments), which is a significant revenue source for most private Tier 1 universities. When UAF is compared against the two Tier 1 public universities (Table 1, marked by \*above), our (in-state) tuition is similar to CUNY Graduate School (CUNY) and about half that of New Jersey Institute of Technology (NJIT). We have a moderate state appropriation of total revenue of 43% compared to 24% for NJIT and 69% for CUNY. We also have one-third the number of graduate students as NJIT and one-sixth the number of graduate students as CUNY. Considering these observations, possible mechanisms to help us advance to Tier 1 could include increasing our graduate student enrollment, increasing tuition rates, and/or recruiting a larger proportion of out-of-state students.

### 2.3 Summary of who we are

We are a university with a strong research emphasis that currently ranks in the Carnegie Classification as Tier 2 (high research activity) university. Over 30% of total UAF revenue and expenditures are associated with research. Compared to our peer universities, we excel in competing for research funding in STEM fields and in the category of STEM research expenditures are on par with Tier 1 universities. UAF research is largely STEM focused, with 70% of Ph.D. programs, 51% of M.S. programs, and 57% of the doctoral degrees awarded falling under the STEM umbrella. UAF has worked to diversify its graduate programs such that we now have a number of master's-level graduate programs that fall into the Other/Professional Fields category and are particularly well suited to address Alaska-centric issues and better prepare an Alaska workforce. Our unique geographic location and natural laboratory environment make us a research destination for scientists from around the world, attractive to international students (~15% of our graduate student population), and have helped position us as the top Arctic-research university in the world in terms of publications, number of citations, and competitively funded projects (UAF, 2014; Osipov et al. 2017). We also have excellent support for undergraduate research through the Biomedical Learning and Student Training (BLaST) and Undergraduate Research and Scholarly Activity (URSA) programs. Additionally, we are one of only 41 (out of 260) Tier 1 and 2 universities to be a Minority Serving Institution and one of only 57 Tier 1 and 2 universities to be a Land Grant institution. These strengths help position us to advance towards Tier 1 research status.

## 3. How do we get there?

### 3.1 Analyses of Advances Required to Achieve Tier 1 Research Status

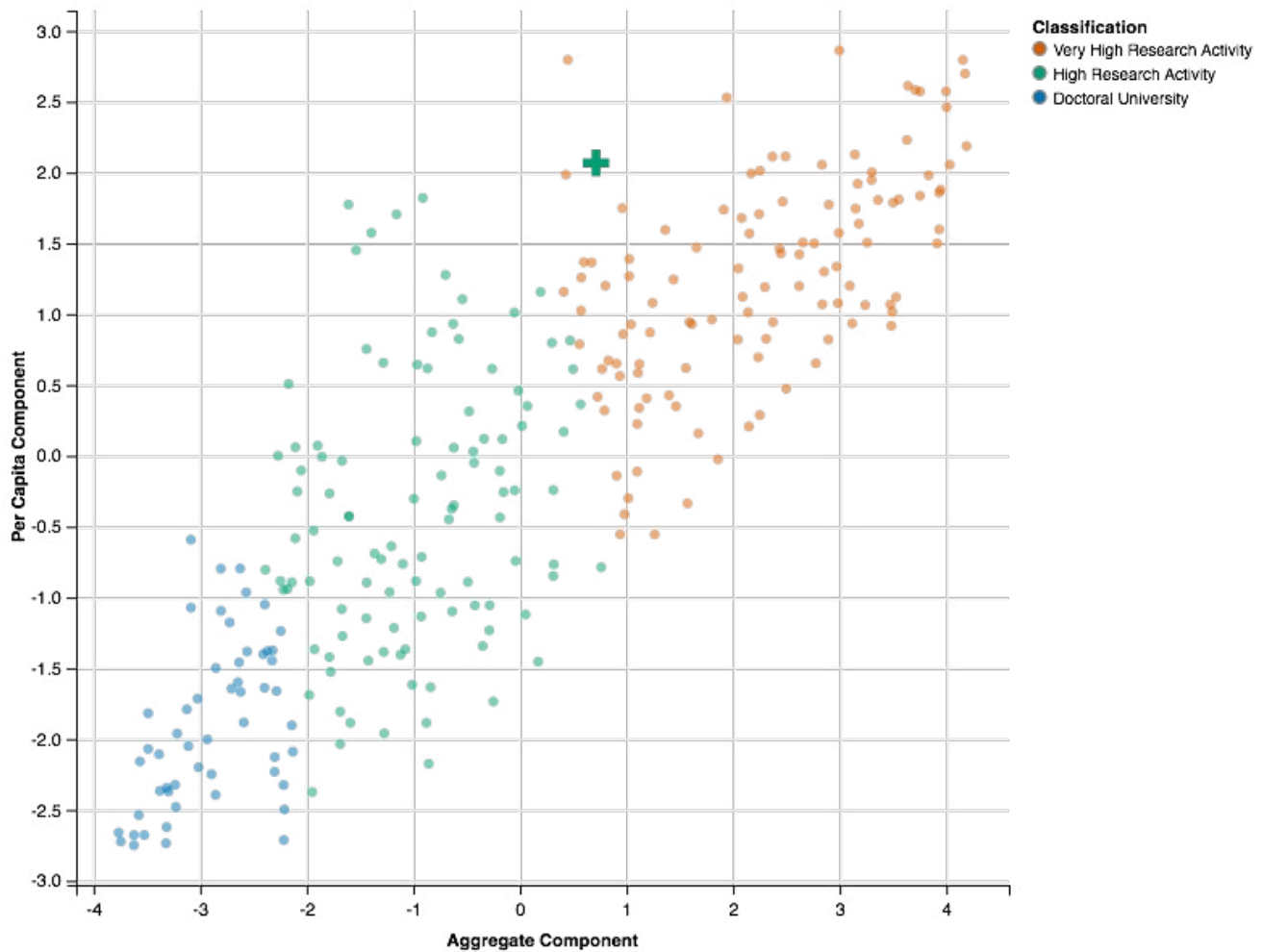
Based on our analyses of UAF's 2018 Carnegie Classification ranking, in order for UAF to advance to Tier 1 research status, we must maintain our excellence in STEM research expenditures while making significant advances in doctorates awarded in all four categories (STEM, Humanities, Social Sciences, and Other/Professional Fields). A more detailed statistical evaluation is required to determine which of these areas would provide the greatest opportunity for advancement. A detailed description of the

Carnegie Classification methods and results based on 2015 data was published by Koser and Scott (2018). These authors provide an exploratory online tool where individual universities can visually see their 2015 position (Figures 1, 12) and explore how changes in each of the considered metrics would influence their ranking, assuming all other universities maintain their status quo (<https://rkspok.shinyapps.io/CarnegieClassifications/>). Our team explored this tool and made the following observations:

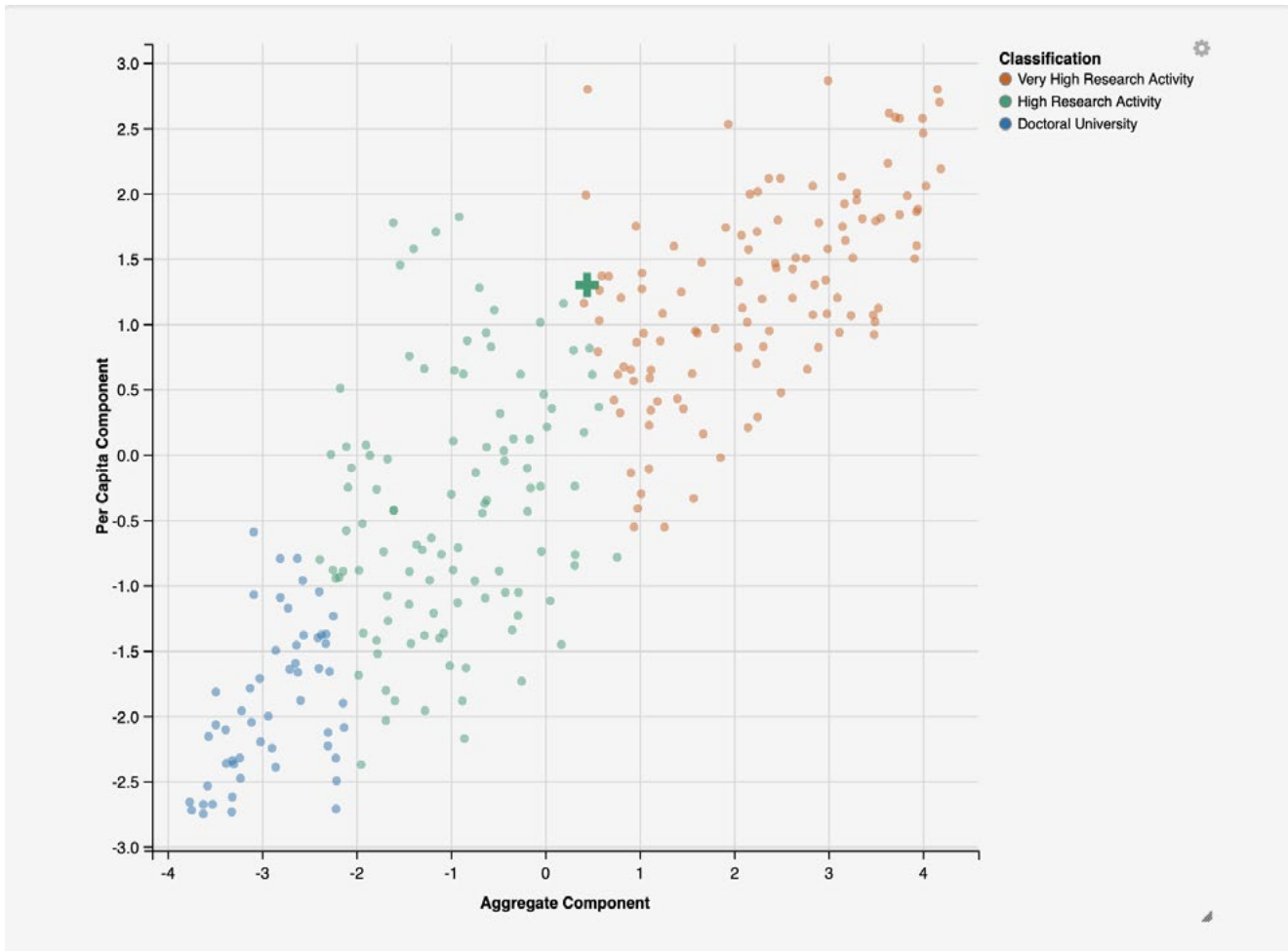
- Increasing expenditures and/or research staff will only indirectly advance UAF's status (moderately efficient targets)
- Increasing doctorate degrees conferred (in all fields) will directly advance UAF's status (most efficient targets)
- Increasing or decreasing our instructional faculty number has minimal effect on UAF's status (least efficient target)
- Doubling our values in all seven of the aggregate metrics will not bring UAF to Tier 1 status
- Significant advancements in a single metric will not bring UAF to Tier 1 status

Attaining Tier 1 status should be possible by: (1) quadrupling our number of doctoral degrees conferred in all four categories and doubling our non-STEM research expenditures and research staff numbers (Figure 12), or (2) increasing doctoral degrees conferred in all four categories by a factor of five (Figure 13).

Based on this analysis of 2015 data we find that there are multiple paths to Tier 1, that range from more to less direct. One less-direct but relatively straightforward path to reach Tier 1 status is to double research expenditures in non-STEM fields, double research staff, and quadruple the number of doctoral degrees awarded in all four categories. One more direct path to Tier 1 status is to increase doctoral degrees conferred in all four categories by a factor of five (to total >200 doctoral degrees earned across the four disciplines). In both cases we must continue to maintain our existing strength in STEM research expenditures. We note that while increasing our full-time instructional faculty has a minimal effect on UAF's status according to the exploratory tool, an increase in faculty numbers should indirectly advance our status by providing more time for faculty to conduct research and mentor graduate students.



**Figure 12.** One potential strategy to achieve Tier 1 status (based on 2015 data) that requires doubling of research expenditures and research staff, 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 staff
- OR-
- 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 staff employed (postdoctoral fellows and Ph.D. research staff), is essential to attaining Tier 1 status. These metrics also align with UAF broader strategic goals, should be effectively 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 difficult to both access and replicate UAF metrics between UAF and Carnegie sources. Key parameters evaluated to produce Carnegie rankings related to faculty numbers, research staff, research expenditures, graduate student numbers, degree programs, and funding sources were difficult to attain and inconsistent due to lack of standardization. Furthermore, it became evident that certain metrics could be tracked differently with a more favorable outcome, for example UAF non-faculty research staff 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 staff. More accurate tracking and reporting of Carnegie Classification criteria, such as research staff, may therefore be a simple and effective 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's faculty, research staff, and student pools to develop ambitious, impactful, cross-disciplinary research initiatives relevant to Alaska. Coordinated initiatives help UAF access large-scale funding opportunities, promote integration of teaching and research, and increase non-STEM Ph.D. research opportunities. Such models have been used successfully by other universities to grow research in targeted areas to help achieve Tier 1 status (e.g., Bix et al., 2013). We expect these initiatives and research themes to be most successful if initiated and driven by teams of passionate investigators, with incentives and project coordination support provided by UAF's Vice Chancellor for Research, Graduate School, and Undergraduate Research and Scholarly Activity offices. Solicitation of cross-campus research themes, a cross-campus research forum to foster communication and sharing of expertise and equipment/laboratory facilities, development of graduate courses supporting cross-disciplinary themes, and dedicated graduate student stipends would all serve to build capacity and promote external funding support of this work.

**Strengthen and expand existing — and grow new — Ph.D. programs in Humanities, Social Sciences, Other/Professional Fields** — Ph.D. programs are essential to attaining Tier 1 research status and provide mission-critical benefits to the university. New and continuing support to grow and strengthen doctoral programs in Humanities, Social Sciences, and Other/Professional Fields, which are currently only a minor component of UAF's portfolio, are critical to attaining Tier 1 status. Increasing capacity in existing Social Science programs (Indigenous studies, anthropology) in the near term and creating new programs (especially in the Humanities) in the mid-term, should be pursued. Additionally, existing Ph.D. programs across all disciplines should be expanded to provide distance-only opportunities when possible to increase accessibility of our unique programs across Alaska and around the world. Strong Ph.D. programs are central to UAF's strategic goals and mission as a research university. These programs may not pay for themselves in tuition revenue but would generate tangible benefits well in excess of investments into graduate programs. Graduate program support is an essential aspect of successful research programs, as Ph.D. students in particular are key to advancing the production of new knowledge and successfully procuring external research grants.

**Provide competitive Ph.D. fellowship opportunities for UAF students** — Informal surveys among faculty suggest that the largest barrier to taking on new Ph.D. students is the difficulty in procuring financial support for the student for the full duration of a typical doctoral degree. A competitive graduate fellowship program to support graduate students in their first and second years would enhance the number of high-quality Ph.D. students accepted across STEM, Humanities, Social Sciences, and Other/Professional Fields; reduce the financial burden of graduate students on UAF faculty mentors; improve graduate student productivity; and increase doctoral degree completion rates. This program

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 staff** — Increasing numbers of research staff (non-faculty employees with doctoral degrees, including postdoctoral researchers), is one of the main metrics considered in the pursuit of Tier 1 status. Continued efforts to increase postdoctoral fellows and research staff 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 staff 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, staff, and graduates. We recommend that UAF create mechanisms to facilitate targeted hiring of diverse faculty, staff, 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 staff 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 from high school to graduate level, following examples such as the Rural Alaska Honors Institute.

**3.3. Research Aspirations Beyond those Considered by the Carnegie Classification System**

Our vision for UAF research goes beyond the research metrics considered by the Carnegie Classification. We propose the following priorities of “who we want to be” to complement our goal of attaining Tier 1 research status while advancing UAF research in the context

of our university mission and core themes. In total, our vision for UAF is to be:

- A Tier 1 research university that is globally recognized for very high research activity
- A university who conducts high-quality and high-impact research that benefits Alaska, the nation, and the world
- A leader in circumpolar North and Indigenous research
- A university where all employees and students feel valued and secure
- A place where collegiality and collaboration across all sectors drives research
- A place where research, education, and service are fully integrated, and where all students and faculty have the opportunity to conduct research

## Summary and Conclusions

Attaining Tier 1 research status is an ambitious goal that will require a long-term and dedicated commitment across campus to fully realize. UAF excels relative to our peers in bringing in competitive external research funding support and translating these funds into compelling, highly cited, and used research products — suggesting that for our size we are doing exceptionally well. At the same time UAF is hampered by low tuition revenue and limited revenue sources. We recommend that UAF strive to procure new sources of revenue and increase enrollment to help provide longer-term financial stability to help pursue these Tier 1 goals. We note that the dual goals of increasing research activity and student enrollment will require an increase in faculty numbers and flexibility of workloads to maximize success. We expect that striving toward Tier 1 research status will result in numerous advances in UAF's research capabilities and productivity, including increased cross-campus collaboration, improvements in student and employee morale, and better integration of research with teaching to improve the overall quality of UAF education.

## References:

- Birx, D., Anderson-Fletcher, E., Whitney, E. (2013), Growing an Emerging Research University, *The Journal of Research Administration*, (44)1. <https://files.eric.ed.gov/fulltext/EJ1013309.pdf>
- Kelderman, E. (2018), Is climbing the Carnegie research rankings worth the price tag?, *The Chronicle of Higher Education*: <https://www.chronicle.com/article/Is-Climbing-the-Carnegie/244048>
- Koser, R. and Scott, D.W. (2018), Examining the Carnegie Classification Methodology for Research Universities, *Statistics and Public Policy*, 5:1, 1-12. <https://doi.org/10.1080/2330443X.2018.1442271>
- Olsen, G.A. (2018). What institutions gain from higher Carnegie Status, *The Chronicle of Higher Education*: <https://www.chronicle.com/article/what-institutions-gain-from-higher-carnegie-status/>
- Osipov, I. A. et al (2017). International Arctic Research: Analyzing Global Funding Trends: A Pilot Report (2017 Update). *Digital Science Reports*, ISBN: 978-0-9956245-4-2. <https://doi.org/10.6084/m9.figshare.4829455>
- University of Alaska Fairbanks (UAF) (2014) America's Arctic Experts – The University of Alaska Fairbanks – An overview of UAF's position in the Arctic. Prepared for the UA Board of Regents January 2014.

## Links to Resources:

- Carnegie Classification System: <http://carnegieclassifications.iu.edu>
- Integrated Postsecondary Education Data System (IPEDS): <https://nces.ed.gov/ipeds/>
- Koser & Scott (2018) online tool to explore potential paths to Tier 1: <https://rkspok.shinyapps.io/CarnegieClassifications/>
- University of Nevada, Las Vegas, The Path to Tier One: [https://www.unlv.edu/sites/default/files/page\\_files/121/PathtoTierOne\\_17Sept2014FINAL.pdf](https://www.unlv.edu/sites/default/files/page_files/121/PathtoTierOne_17Sept2014FINAL.pdf)

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