

3 Achieve Tier 1 research status

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Who do we want to be?

Achieving Tier 1 status will elevate UAF to a prestigious class of doctoral-granting U.S. universities with “Very High Research Activity,” as defined by the Carnegie Classification system. Attaining Tier 1 research 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. For these reasons achieving Tier 1 research status captures an important aspect of UAF’s long-term strategic research vision. UAF’s research vision extends beyond the metrics highlighted by the Carnegie Classification system. Specifically, research is critical for advancing UAF’s mission and core themes, including educating our students, preparing a skilled Alaska workforce, connecting with Alaska Natives, and engaging with fellow Alaskans. 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 that conducts high-quality and high-impact research that benefits Alaska, the nation, and the world.
- A leader in circumpolar North and Indigenous research.
- An inclusive university where all employees and students feel valued and secure.
- A place where collegiality and collaboration across all sectors drive research.
- A place where research, education and service are fully integrated, and where all students and faculty have the opportunity to conduct research.

Who are we now?

We are a university with a strong research emphasis that currently ranks in the Carnegie Classification as a Tier 2 “High Research Activity” university. Over 30% of UAF’s total revenue and expenditures are associated with research. In comparison to small to medium sized Tier 1 universities UAF receives the highest proportion of its revenue from government grants and contracts and spends the second highest proportion of its budget on research expenditures. UAF excels in science, technology, engineering and math (STEM) research expenditures and in this category is on par with Tier 1 universities. This suggests that UAF provides a disproportionately large amount of research-related indirect cost recovery (i.e. overhead) to support core university and UA system operations. In comparison to its Tier 1 peers, UAF is handicapped by a combination of relatively low tuition rates, low student enrollment, a high-proportion of in-state students and low proportions of other core revenue sources. 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 and we now have a number of graduate programs that fall into the Carnegie system’s “Other/Professional” category that are particularly well suited to address Alaska issues and workforce needs. Our unique geographic location and natural laboratory environment make us a research destination for scientists around the world and have helped position us as the top Arctic research university in the world in terms of our Arctic-focused publications and associated citations. We also have excellent support for undergraduate research through efforts such as the Biomedical Learning and Student Training program and the Undergraduate Research and Scholarly Activity office.

Additionally, we are one of only 41 (out of 260) Tier 1 and 2 universities to be designated a “Minority-Serving Institution” and one of only 57 to be a “Land Grant Institution.” These strengths help position us to advance towards Tier 1 research status while achieving our complementary mission goals. In summary, we are a university with:

- “High Research Activity” (Tier 2) status, with 1/3 of our revenue and expenditures related to research.
- Strength in STEM research, with STEM research expenditures on par with Tier 1 universities.
- A natural laboratory environment, making us a global research destination.
- Excellent undergraduate research opportunities through URSA and BLaST programs.
- “Minority-Serving” and “Land Grant” institution status.

How do we get there?

The Carnegie Classification system considers seven metrics to determine which universities attain Tier 1 status, including: the number of doctoral degrees awarded in four categories — STEM, Humanities, Social Sciences and Other/Professional fields; research expenditures in STEM and non-STEM fields; and research staff (nonfaculty with Ph.D.s) employed. All Tier 1 and 2 universities are ranked according to these metrics on both an aggregate and per-capita basis and then visualized using principal component analysis. Based on our analysis, we find that one 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, while maintaining our existing strength in STEM research expenditures. The proposed action items to achieve Tier 1 status are summarized below:

- Quadruple Ph.D.s in STEM, humanities, social sciences and other/professional fields.
- Double non-STEM research expenditures.
- Double research staff (Ph.D.s with nonfaculty positions).
- Maintain strong STEM research expenditures.

Proposed mechanisms to achieve Tier 1 goals:

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.

- **Development of cross-campus multidisciplinary research themes and networks** — Cross-campus multidisciplinary research themes such as One Health and Sustainability can provide a mechanism to coordinate cross-disciplinary research to better address Alaska needs, take advantage of new funding opportunities, facilitate improved integration between teaching and research, and increase non-STEM Ph.D. research opportunities.
- **Campuswide coordination and support for Ph.D. students and their advisors** — Improved campuswide graduate student coordination could help unite competitive graduate students, prospective mentors, relevant research projects, and funding opportunities to enhance the number of high-quality Ph.D. students accepted, minimize the financial burden of graduate students on UAF faculty mentors, improve graduate student productivity and increase doctoral degree completion rates.
- **Incentives, opportunities and training for faculty to mentor graduate students** — Initiatives to incentivize and prioritize faculty mentorship of graduate student research projects, such as merit-based award systems, flexible workloads, financial support for graduate students (see second item above), student advising training and resources, and longer-term job security for nontenure-track faculty, could help increase student research opportunities and doctoral degree completions.
- **Development of new Ph.D. programs in humanities, social sciences and other/professional fields** — New and continuing support to grow and strengthen doctoral degree programs in humanities, social science and other/professional fields, which are currently only a minor component of UAF’s portfolio, are critical to attaining Tier 1 status because doctoral degrees in these fields are a key Carnegie Classification metric.

- **Support to maintain and/or expand postdoctoral fellowship opportunities** — Continued efforts to increase research staff, including postdoctoral fellows (for example through the Centennial Postdoctoral Fellowship program), can help advance us to Tier 1 status while simultaneously providing a pool of high-quality prospective faculty to advance our research and education missions.
- **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. New initiatives to recruit and retain excellent faculty will be critical to attaining Tier 1 status.
- **Improve mechanisms to track relevant UAF metrics and promote UAF success** — Accurate, standardized and appropriate tracking of UAF research metrics relevant to the Carnegie Classification criteria is essential to attaining Tier 1 status and should be prioritized along with effective marketing to promote UAF research success.

Concluding remarks

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 both research expenditures and revenue, suggesting that for our size we are doing exceptionally well. At the same time UAF is handicapped by low proportions of tuition revenue and limited revenue sources. We recommend that UAF procure new sources of revenue and recruit nonresident students to provide long-term financial stability to help pursue Tier 1 research status. We expect that striving towards this goal 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. We recommend that in conjunction with and complementary to pursuing Tier 1 research status, UAF also strives to advance the quality and applicability of our research; to better integrate research and education; and to create a research environment that fosters employee and student satisfaction, collegiality and collaboration, in alignment with UAF's core themes and mission.

