

The following motion passed at Faculty Senate meeting #254 on March 1, 2021:

**MOTION:**

The UAF Faculty Senate moves to approve the Unit Criteria for the Department of Mathematics and Statistics (DMS).

Effective: Spring 2021  
Upon Chancellor Approval

Rationale: The Unit Criteria Committee has assessed the unit criteria submitted by the Department of Mathematics and Statistics (DMS). The unit has brought their existing document into compliance with the current UAF Unit Criteria template. The updated document was reviewed by the Unit Criteria Committee on February 10th, 2021. The updated DMS criteria was approved because it is consistent with UAF guidelines.

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DocuSigned by:  
*Julie A.K. Maier*  
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Julie A.K. Maier, UAF Faculty Senate President

The Chancellor:        X   Approves             Vetoes             Acknowledges

DocuSigned by:  
*Daniel M. White*  
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Daniel M. White, UAF Chancellor

March 3, 2021  
Date: \_\_\_\_\_

*Mathematics and Statistics Unit Criteria*  
*Approved March 1, 2021 at Faculty Senate Meeting #254.*

UAF Unit Criteria  
for  
**Mathematics & Statistics**

Criteria for UAF Faculty Evaluation are outlined in the document “University Policies and Procedures (The Faculty Blue Book)” Chapter III adopted in February 2020. This Chapter details the: A. Purpose; B. Types of Evaluation for Different Faculty; C Evaluation Process for Retention, Promotion, Tenure and Post-Tenure Review; D. Criteria for Instruction; E. Criteria for Research, Scholarly, and Creative Activity; F. Criteria for Public, University and Professional Service; and G. Unit Criteria.

As stated in Chapter III G, Units may develop special Unit Criteria to elucidate, but not replace, the university-wide criteria applicable to all faculty.

The following is an adaptation of the “University Policies and Procedures (The Faculty Blue Book)” Chapter III for use in evaluating the faculty of the ***Department of Mathematics and Statistics (DMS)***. Items in **boldface italics** are those specifically added or emphasized because of their relevance to the Department/Discipline’s faculty, and because they are additions to the University Policies and Procedures.

***The document governs evaluation of all UAF Faculty with a primary locus of responsibilities in DMS. It is noted that these criteria may differ from those found in the Natural Sciences unit criteria. Regulations in the Natural Sciences unit criteria do not apply to DMS.***

## Chapter III: Faculty Evaluation

### A. Purpose

*Excerpted from the “University Policies and Procedures (The Faculty Blue Book)” Chapter III A.*

It is the policy of the university to evaluate faculty on the basis of the criteria identified below. Evaluations shall appraise the extent to which each faculty member has met the performance assignment, the extent to which the faculty member's professional growth and development have proceeded, and the prospects for the faculty member's continued professional growth and development. Evaluations shall also identify changes, if any, in emphasis required for promotion, tenure and continued professional growth and may result in the initiation of processes to improve performance.

For purposes of evaluation at UAF, the total contribution to the university and activity in the areas outlined below will be defined by demonstrated competence from the following areas: 1) effectiveness in teaching; and/or 2) achievement in research, scholarly and creative activity; and/or 3) effectiveness of service *in accordance with relative weightings defined in workload reports. The DMS recognizes the value of academic and scholastic diversity. As such, the unit does not require each candidate demonstrate equal strength in each area of tripartite responsibility. Candidates will be ranked in each area by the DMS Peer Review Committee (PRC). The PRC consists of all tenured members of the DMS. Members of the PRC who are on sabbatical or off campus for extended periods have the option of participating, but this is not required. Members of the committee may abstain from voting, but only in accordance with DMS operating procedures, Candidates will be ranked in each category of responsibility according to the following scale: Outstanding, Superior, Satisfactory, Needs Improvement and Unacceptable.*

*These correlate with categories sometimes used by the university wide committee as outlined below.*

<u><i>DMS</i></u>	=	<u><i>University wide</i></u>
<i>Outstanding</i>	=	<i>Excellent</i>
<i>Superior</i>	=	<i>Very Good</i>
<i>Satisfactory</i>	=	<i>Good</i>
<i>Needs Improvement</i>	=	<i>Satisfactory</i>
<i>Unacceptable</i>	=	<i>Unsatisfactory</i>

### B. Types of Evaluation for Different Faculty

*See “University Policies and Procedures (The Faculty Blue Book)” Chapter III B for the description of the types of evaluation for different faculty.*

***Tenure.***

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*A candidate for tenure will be judged on the basis of performance and indications of potential in all applicable areas of responsibility, with emphasis placed on the interval since the last promotion or hire, whichever is most recent. A candidate need not demonstrate equal performance in all three areas. In order to qualify for tenure, a faculty member should have demonstrated a sustained performance in all their areas of responsibility. While there is no objective definition of “sustained” nor is there any requirement for any length of time at any particular rank, a typical candidate for tenure should normally have served at least five years at the rank of assistant professor at UAF or elsewhere. Untenured faculty should refer to their collective bargaining agreement and initial appointment letter regarding mandatory year of tenure review.*

*A successful tenure candidate should attain at least a satisfactory rating in teaching, research and service and at least superior in teaching or research in the vote by the PRC at the time of application for tenure.*

*Assistant professor.*

*A faculty member at the assistant professor level must have an earned doctorate or demonstrated equivalent. Demonstrated equivalence will be decided on an ad hoc basis by the PRC. Those working at the rank of assistant professor should demonstrate a commitment to teaching, research and service.*

*Associate professor.*

*In order to qualify for this rank, a record of quality instruction and research is important. Those working at this rank are expected to demonstrate a continuing dedication to research, teaching and service.*

*Professor.*

*This is the greatest single honor that the university can bestow upon a member of its faculty. The honor must therefore be made upon careful consideration of the candidate’s total demonstrated contribution to the university and the mathematical sciences. The honor is reserved for those who have demonstrated outstanding performance in their fields, which is sustained over a significant interval of time. Specifically, in the year the candidate applies for promotion to professor, a vote will be taken by the PRC. A successful candidate for professor should attain at least a satisfactory rating in teaching, research and service in the vote of the PRC. If one of teaching or research is ranked satisfactory, the other must be outstanding.*

**C. Evaluation Process for Retention, Promotion, Tenure and Post-Tenure Review**

*Excerpted from the “University Policies and Procedures (The Faculty Blue Book)” Chapter III C.*

1. General Evaluation Criteria

Evaluators may consider, but shall not be limited to, whichever of the following are appropriate to the faculty member’s professional obligation, as specified in the workload agreements:

- mastery of subject matter;
- effectiveness in teaching;
- achievement in research, scholarly, and creative activity;
- effectiveness of public service;
- effectiveness of university service;
- demonstration of professional development; and
- quality of total contribution to the university.

In addition, departments or disciplines may elaborate in writing, with Faculty Senate approval, on these or other criteria which take into account the distinctive nature of the discipline or special university assignment. See Unit Criteria.

**D. Criteria for Instruction**

A central function of the university is instruction of students in formal courses and supervised study. Teaching includes those activities directly related to the formal and informal transmission of appropriate skills and knowledge to students. The nature of instruction will vary for each faculty member, depending upon workload distribution and the particular teaching mission of the unit. Instruction includes actual contact in classroom, correspondence or electronic delivery methods, laboratory or field and preparatory activities, such as preparing for lectures, setting up demonstrations, and preparing for laboratory experiments, as well as individual/independent study, tutorial sessions, evaluations, correcting papers, and determining grades. Other aspects of teaching and instruction extend to undergraduate and graduate academic advising and counseling, training graduate students and serving on their graduate committees, and curriculum development.

*The dissemination of ideas outside the classroom includes, but is not restricted to, statistical and computing consulting for students; assisting students in the design of experiments; directing undergraduate and graduate research. Further, it includes publication of textbooks that are principally intended for classroom use.*

1. Effectiveness in Teaching

Evidence of effectiveness in teaching may be demonstrated through, but not limited to, evidence of the various characteristics that define effective teachers. Effective teachers:

- a. are highly organized, plan carefully, use class time efficiently, have clear objectives, have high expectations for students;

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- b. express positive regard for students, develop good rapport with students, show interest/enthusiasm for the subject;
- c. emphasize and encourage student participation, ask questions, frequently monitor student participation for student learning and teacher effectiveness, are supportive of student diversity;
- d. emphasize regular feedback to students and reward student learning success;
- e. demonstrate content mastery, discuss current information and divergent points of view, relate topics to other disciplines, deliver material at the appropriate level;
- f. regularly develop new courses, workshops and seminars and use a variety of methods of instructional delivery, instructional design, and materials;
- g. regularly expend effort towards future oriented educational development;
- h. may receive prizes and awards for excellence in teaching.
- i. ***Demand high pedagogic standards essential to the department's mission.***
- j. ***Develop a textbook that is used external to UAF.***

2. Components of Evaluation

Effectiveness in teaching will be evaluated through information on formal and informal teaching, course and curriculum material, academic advising, training/guiding graduate students, etc., provided by:

- a. evidence in the narrative self-evaluation, which may include their underlying philosophy of teaching as it relates to effectiveness in teaching;
- b. summaries of teaching evaluations;

and at least two of the following that are supported with evidence that is not solely in the narrative self-evaluation:

- peer classroom observation(s) and evaluation of lecture(s),
- peer evaluation of course and compiled materials,
- pedagogical organization as evidenced through peer evaluation of course syllabi,
- documented use of best practices in teaching through external or peer review,
- evidence of meeting course-level student learning outcomes, which may include student pre/post tests,
- evidence of pedagogical training with peer or external reviewed and documented outcomes as implemented in the classroom

Individual units may choose to require particular items from this list through their unit criteria.

***DMS requires peer review of teaching for untenured faculty. It is recommended for faculty applying for promotion. They will be reviewed by the PRC (which includes the department chair). This committee will send representatives to review classroom performance as well as syllabi and samples of graded material. Representatives will write a report that includes a narrative portion as well as an overall ranking of teaching that uses the scale: outstanding, superior, satisfactory, needs improvement, and unacceptable. Normally, when a faculty member stands for tenure, reports from at least two years***

*should be included in the file, provided the faculty member has been employed at least three years at the time of application for tenure. If the candidate has been employed for at least one year at the time of application for tenure, then at least one report from the PRC should be included in the file. In the case of disagreement between peer opinions and student opinions, the former will be considered more accurate.*

**E. Criteria for Research, Scholarly, and Creative Activity**

Inquiry and originality are central functions of a land grant/sea grant/space grant university and all faculty with a research component in their assignment must remain active as scholars. Consequently, faculty are expected to conduct research or engage in other scholarly or creative pursuits that are appropriate to the mission of their unit, and equally important, results of their work must be disseminated through media appropriate to their discipline. Furthermore, it is important to emphasize the distinction between routine production and creative excellence as evaluated by faculty peers at the University of Alaska and elsewhere.

*Candidates at all levels must demonstrate achievement conducting research in an independent and creative fashion. Work will be judged for importance, originality and quality. Consideration will include, but not be restricted to, the candidate's papers published in refereed journals and refereed conference proceedings; papers, lectures and presentations delivered; other papers and technical reports; books, book chapters, research proposals, software developed and research done through consulting. The work must be presented in a public forum where its contribution can be judged by peers external to UAF. As such, little consideration will be given to research that appears in non-referred preprints. Nor will work that is done by private contracting be considered if it appears only in internal company reports. The research contributions found in a book will be based on the exposition of new ideas. Books that only gather material found in other locations will be considered expository and not research documents.*

1. Achievement in Research, Scholarly and Creative Activity

Whatever the contribution, research, scholarly or creative activities must have **one or more** of the following characteristics:

- a. They must occur in a public forum.
- b. They must be evaluated by appropriate peers.
- c. They must be evaluated by peers external to this institution so as to allow an objective judgment.
- d. They must be judged to make a contribution.

2. Components of Research, Scholarly and Creative Activity

Evidence of excellence in research, scholarly, and creative activity may be demonstrated through, but not limited to:

- a. Books, reviews, monographs, bulletins, articles, proceedings, research data and metadata, and other scholarly works published by reputable journals, scholarly

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- presses, and publishing houses that accept works only after rigorous review and approval by peers in the discipline.
- b. Competitive grants and contracts to finance the development of ideas or projects and programs, these grants and contracts being subject to rigorous peer review and approval.
  - c. Presentation of research papers before learned societies that accept papers only after rigorous review and approval by peers.
  - d. Exhibitions of art work at galleries, selection for these exhibitions being based on rigorous review and approval by juries, recognized artists, or critics.
  - e. Performances in recitals or productions, selection for these performances being based on stringent auditions and approval by appropriate judges.
  - f. Scholarly reviews of publications, art works and performance of the candidate.
  - g. Citations of research in scholarly publications.
  - h. Published abstracts of research papers.
  - i. Reprints or quotations of publications, reproductions of art works, and descriptions of interpretations in the performing arts, these materials appearing in reputable works of the discipline.
  - j. Prizes and awards for excellence of scholarship.
  - k. Awards of special fellowships for research, scholarly or creative activities or selection of tours of duty at special institutes for advanced study.
  - l. Development of processes or instruments useful in solving problems, such as computer programs and systems for the processing of data, genetic plant and animal material, and where appropriate obtaining patents and/or copyrights for said development.
  - m. Inventions, disclosures with substantial documentation, patent applications and awards, and transfer of developed intellectual property (patents, copyrights, and trade secrets) to a commercial entity.
  - n. The provision of expertise, service, performance and/or exhibition, to or with rural and/or Native communities; where such expertise/service/performance/exhibition is documented in books, programs, reviews, monographs, bulletins, articles, proceedings, reports, manuals, needs assessments, program evaluations, strategic plans, proposals, legal research memoranda and tribal judicial opinions, annotated bibliographies, translations, transcriptions, audio recordings, video recordings, websites, data collections, and in professional, industry, or government publications; after review and evaluation by appropriate peers from the entities and/or communities served.
  - o. ***Research results should be measured by quality, imagination, long term impact, depth and originality. The department expects faculty with a 30% research load to be publishing at a rate of approximately one paper per year. At a 50% level or above there should be approximately two. However, it should be emphasized that this is only an approximate goal. The more important goal is quality research. High quality research can be produced and disseminated in special circumstances at a lower rate. Accordingly, candidates should not try to meet a research target in terms of number of papers published. Further, heavy production rates of low quality publications are discouraged.***



- p. A candidate's publication and funding record should be compared with individuals in the same or related disciplines. The practice of listing coauthors who have contributed little to a publication is uncommon in the mathematical sciences. Except in unusual circumstances, each coauthor will have made a significant contribution. Coauthors are often listed alphabetically.*
- q. For DMS faculty conducting research in mathematics education, appropriate research products, in addition to those noted above, may also include development of mathematical curricula that are innovative and based on original research. In addition to journals intended for the research community, DMS will also value peer-reviewed journals intended for the broader education research community. This includes journals devoted to teacher preparation and professional development as well as a reading audience of education policymakers, teachers and administrators.*

Individual units may choose to require particular items from this list through their unit criteria.

#### **F. Criteria for Public, University and Professional Service**

Public service is intrinsic to the land grant/sea grant/space grant tradition, and is a fundamental part of the university's obligation to the people of its state. In this tradition, faculty providing their professional expertise for the benefit of the university's external constituency, free of charge, is identified as "public service." The tradition of the university itself provides that its faculty assumes a collegial obligation for the internal functioning of the institution; such service is identified as "university service."

Each individual faculty member's proportionate responsibility in service shall be reflected in annual workload agreements. In formulating criteria for evaluation, promotion, and tenure, individual units should include examples of service activities and measures for evaluation appropriate for that unit. Effectiveness in public, university and professional service may be demonstrated through, e.g., appropriate letters of commendation, recommendation, and/or appreciation, certificates and awards, media presence and other public means of recognition for services rendered.

##### 1. Public Service

Public service is the application of teaching, research, and other scholarly and creative activity to constituencies outside the University of Alaska Fairbanks. It includes all activities which extend the faculty member's professional, academic, or leadership competence to these constituencies. It can be instructional, collaborative, or consultative in nature and is related to the faculty member's discipline or other publicly recognized expertise. Public service may be systematic activity that involves planning with clientele and delivery of information on a continuing, programmatic basis. It may also be informal, individual, professional contributions

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to the community or to one's discipline, or other activities in furtherance of the goals and mission of the university and its units. Such service may occur on a periodic or limited-term basis. Examples include, but are not limited to:

- a. Providing information services to adults or youth.
- b. Service on or to government or public committees.
- c. Service on accrediting bodies.
- d. Active participation in professional organizations.
- e. Active participation in discipline-oriented service organizations.
- f. Consulting.
- g. Prizes and awards for excellence in public service.
- h. Leadership of or presentations at workshops, conferences, or public meetings.
- i. Training and facilitating.
- j. Radio and TV programs, newspaper articles and columns, publications, newsletters, films, computer applications, teleconferences and other educational media.
- k. Judging and similar educational assistance at science fairs, state fairs, and speech, drama, literary, and similar competitions.
- l. Active engagement in public communication of discipline-based knowledge, defined as using the research methods, theories, and analytical frameworks of the discipline to make discipline-based research and analysis accessible and useful to the lay public. Public service in this area includes, but is not limited to: blogs, documentary films, short films, op-eds published in local, regional, and/or national newspapers and online news sites; radio broadcasts; podcasts; and a strategic and sustained discipline-based presence on social media.
- m. *Service as an outside reviewer on UAF thesis committees.***
- n. *Preparation of university reports.***
- o. *Consulting with UAF faculty in and outside DMS in discipline-specific activities that are not counted as research (e.g., that do not lead to a coauthored publication).***

2. University Service

University service includes those activities involving faculty members in the governance, administration, and other internal affairs of the university, its colleges, schools, and institutes. It includes non-instructional work with students and their organizations. Examples of such activity include, but are not limited to:

- a. Service on university, college, school, institute, or departmental committees or governing bodies.
- b. Consultative work in support of university functions, such as expert assistance for specific projects.
- c. Service as department chair or term-limited and part-time assignment as assistant/associate dean in a college/school.
- d. Participation in accreditation reviews.

- e. Service on collective bargaining unit committees, elected office, representative assembly membership and labor management committees.
- f. Service in support of student organizations and activities.
- g. Academic support services such as library and museum programs.
- h. Assisting other faculty or units with curriculum planning and delivery of instruction, such as serving as guest lecturer.
- i. Mentoring.
- j. Prizes and awards for excellence in university service.
- k. Invoicing, transferring and securing of funds for the University for contract work (lab fees, consultant work) and intellectual property fees and commercialization fees.

### 3. Professional Service

Professional service includes activities related to promoting a faculty member's profession or specialization, including service to professional associations and organizations. Examples of such activity include, but are not limited to:

- a. Editing or refereeing articles or proposals for professional journals or organizations.
- b. Active participation in professional organizations.
- c. Active participation in discipline-oriented service organizations.
- d. Committee chair or officer of professional organizations.
- e. Organizer, session organizer, or moderator for professional meetings.
- f. Service on a national or international review panel or committee.

***Professional service includes, but is not limited to, journal work; service to national professional organizations; working with testing organizations to develop standardized exams; editing for textbook and scientific publishers; organizing conferences; developing, organizing or presenting in-service training programs; giving colloquium lectures; reviewing proposals and books. It includes presentations of expository material including expository texts, which are not primarily meant for classroom use. Outreach to educators (e.g., offering in-service workshops or institutes for K-12 mathematics teachers) is also appropriate professional service for DMS faculty.***

### **G. Unit Criteria**

*Excerpted from the "University Policies and Procedures (The Faculty Blue Book)" Chapter III C.*

Unit criteria are recognized values used by a faculty within a specific discipline to elucidate, but not replace, the general faculty criteria established in D, E, F, above for evaluation of faculty performance on an ongoing basis and for promotion, tenure, 4th year comprehensive and diagnostic review, and post-tenure review. Discipline based unit criteria should be fully aligned with the university-wide evaluation criteria in order to reflect the specific nature of individual disciplines.

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Unit criteria when developed by the faculty and approved by the Faculty Senate, must be used in the review processes by all levels of review. Their use is NOT optional. It shall be the responsibility of the candidate for promotion, tenure, 4th year comprehensive and diagnostic review, and post-tenure review to include these approved unit criteria and all their workloads in the application file.

### ***RATIONALIZATION AND COMMENTARY***

***The above portion of this document is meant to outline the process and indices of evaluation. What follows below are a few remarks meant to give some explanation to this schematic.***

***For promotion to the level of associate professor a record of quality instruction and research is important. The DMS recognizes that at the level of assistant professor, service is secondary to teaching and research. This does not imply service at this level is unimportant. Faculty new to the profession can profitably spend their time establishing a research records and perfecting teaching technique.***

***DMS takes exception with ideas found in certain quarters on specific and objective measures of impact factors. To quote from the October 2006 notice of the American Mathematical Society,***

***“People misuse the impact factor because there are no explicit principles governing its interpretation. The impact factor is used to measure the value of things for which it was never intended (articles and authors, for example), and it is used to make faculty comparisons between unlike objects, including journals themselves ... for decades, scholars have complained about the misuse of the impact factor, and there is extensive literature of such complaints and admonitions. But in a world gone mad with an obsession to evaluate everything ‘objectively’, it is not surprising that desperate and sometimes incompetent evaluators use a poorly understood, but easily calculated, number to comfort them.”***

***DMS strongly maintains that in addition to any quantified metrics we must add personal judgement by PRC and outside evaluators. Scholarly peers, subjective though they may be, are the best judges of quality. Making such decisions is hard work but a necessary responsibility of each member of the PRC. To further underscore the above points, we quote from a 2006 white paper released by the American Mathematical Society.***

***“Mathematics is often considered as part of the physical and natural sciences, but its publications practices differ from these other disciplines in several fundamental ways.***

***Mathematicians tend to publish at rates that are modest compared to some other sciences. The majority of mathematical research is published in refereed research journals rather than conference proceedings or books. The mathematical literature is spread among a wider collection of journals than in most related fields. And, since an article typically represents a mature treatise on a mathematical question, and since mathematics research is not considered time-sensitive, delays in publication are common.***

***Even some of the best young mathematicians publish relatively few papers. A study of the 40 mathematicians winning Sloan Fellowships in 2005-2006 shows that 70% publish an average of***

*two or fewer articles per year in the five years preceding their award. These two groups represent an exceptional group of highly productive mathematicians.*

*Of the 274 publications by these Guggenheim Fellows, 75% were in refereed journals. Only three publications were books. In fact, of all items covered by mathematical reviews in the years 2001-2005, fully 80% were from refereed journals.*

*When judging the work of most mathematicians, the key measure of value for a research program is the quality of the publications rather than the rate. The information above about those who have won prestigious awards strongly supports this view.”*

*Certain disciplines found in mathematical sciences have little opportunity in the way of external funding. Accordingly, the ability to find funding speaks well for a candidate at any level. However, absence of funding may not necessarily speak against the candidate. DMS does not consider the funding of grant proposals to be the goal of any research. Rather, we focus on what is achieved with or without research funding.*

*To summarize, the primary research metric is not the number of publications, nor the number of citations, nor the quantity of grant money. It is research results as measured by quality, imagination, long term impact, depth and originality.*

*Further information on the culture of mathematics and distinctions from other academic disciplines can be found in statements from the AMS Committee on the Profession, in particular the statements on “Citation and Impact in Mathematical Publications”, “Joint Research and its Publication”, and “Research Funding”, available at <https://www.ams.org/about-us/governance/committees/cprof-home> .*