Halicioğlu Data Science Institute (HDSI)
Merit & Promotion Review Standards

Version date: 25 June 2025

Data science is a still-evolving field that brings together scholars from a wide range of disciplinary backgrounds, all focused broadly on the use of data to enable and support better decisions, inferences, and actions. It includes mathematical work on computational and statistical foundations; creation of novel algorithms, methods, and systems; implementation and application to address real-world challenges; analyses and evaluations of individual and societal implications of data science; and much more. HDSI's review standards are thus correspondingly multifaceted and flexible to ensure that faculty are judged by appropriate standards. Specifically, the standards described below should be understood as guidance for faculty, and not a substitute for the exercise of faculty expertise. HDSI faculty must ensure that they consider the full totality and complexity of each case, including discipline- and individual-specific nuances and considerations.

Professor series

Individuals in the Professor series are evaluated for their performance along three core dimensions: (i) Teaching excellence; (ii) Research and other creative work; and (iii) Service to HDSI, university, profession, and public.

Teaching expectations

The standard HDSI annual teaching load for Professors is three courses plus mentorship of a standard number of capstone teams. Faculty with partial HDSI appointments have teaching obligations proportional to their FTE percentage. Teaching performance is standardly evaluated using multiple types of evidence, including a teaching statement, course syllabi, and student evaluations; these all collectively form the Holistic Teaching Portfolio.

The Holistic Teaching Portfolio should demonstrate that the faculty member uses best practices in course design, course management, and student engagement. It should also demonstrate continual efforts to improve and refine one's teaching in response to feedback from students, colleagues, and experts in pedagogy (including, but not limited to, the Teaching & Learning Commons). We explicitly do not set numeric requirements for student evaluation ratings (given the many challenges with such ratings), but we do recognize their value in signaling areas in which a faculty's teaching might require improvement. In evaluation of teaching performance, additional (positive) weight shall be given to significant pedagogical innovation by the faculty member, including development of new courses or other curricular modules.

Research expectations

HDSI faculty come from a wide range of disciplinary backgrounds, each with their own publication venues, norms, and practices. Each faculty member is expected to develop one or more intellectually coherent research programs (perhaps cutting across disciplines), including publications in appropriate venues. HDSI strongly encourages collaborations, including encouragement of co-authorship. Faculty members will be evaluated based on their specific contributions to those collaborative works, rather than using mere order of authorship or attempting coarse judgments of "primary" or "secondary" authorship. Collaborations may be with researchers outside of the faculty

member's own disciplinary home(s). We thus evaluate individual research products based on disciplinary norms of the venue, not the faculty member's disciplinary background.

Individual faculty research projects may involve many different disciplines, and venues may include conference or journal publications, as appropriate. Some key areas are highlighted below, including typical (non-exclusive) publication venues and annual research expectations in each area:

- *Machine learning*: Conference publications are the primary venue for research products. Normative expectations are approximately 2.5 high-quality conference publications per year.
- *Mathematical & Statistical foundations*: Journals are the primary venue for research products. Normative expectations are approximately 2 publications per year.
- *Databases and data engineering*: Conference publications and publicly-available systems are the primary venues for research products. Because conferences typically require a fully-developed system for accepted papers, normative expectations are approximately 1.5 publications per year.
- *Systems*: Both conference and journal publications are standard venues for this area of research. Normative expectations are approximately 2 publications per year.
- *Data and society*: Journals are the primary venue for this area, though select conferences are increasingly relevant. Normative expectations are approximately 2 publications per year
- *Translational and applied data science*: Appropriate venues for this type of research will depend on the specific application domain. For example, health data science typically appears in journal publications, while computational linguistics involves a mix of conference and journal papers. Normative expectations are approximately 2 publications per year, though we recognize that translational work can sometimes take longer to come to fruition.

Determination of *impact* in many different potential forms is at the core of our evaluation processes. Research impact may range from impact on peer research to practical adoption in practice to adoption in classroom teaching or standards bodies to many other ways. Each of these forms of impact has different associated quantitative and qualitative measures, including internal evaluation by peer faculty, judgments of external evaluators, impact on a field or real-world problems, translation to practice (including patents), and citation counts (though these are a noisy, lagging measure). Appropriateness and quality of publication venue are also important factors as high-profile publications are particularly valued, but the venue quality must be balanced with the individual's contributions, publication length and type, and other qualitative factors. Full-length research books by HDSI faculty will be treated as equivalent to multiple research papers in corresponding venues (e.g., a machine learning book maps to several papers at conferences of comparable quality to the press for the book, depending on the exact research contributions of the book). The quantitative annual research expectations outlined above are intended as guidelines; they are neither necessary nor sufficient for an advancement action.

If a faculty member's research program(s) involves multiple disciplines, then the annual research expectations should be (approximately) an appropriately weighted combination of the corresponding single-area expectations. Having said that, faculty do not need to "classify" individual research products into one of the above areas. We recognize and value research that spans across multiple areas. In particular, faculty with joint appointments are not expected to divide their research into data science vs. other disciplines in proportion with their FTE (unless specified differently in a memorandum of understanding). Jointly-appointed faculty will often conduct research between traditional disciplines—often, not centrally in one of the above areas above—and they should be evaluated accordingly.

Extramural research funding opportunities are highly discipline-dependent, and so successfully obtaining such funding is not a general requirement or expectation of all HDSI faculty. Rather,

faculty are expected to pursue extramural funding opportunities as appropriate for their research field(s). In addition, high-profile grants (e.g., NSF CAREER, sole-PI NIH R01) can provide clear evidence of the quality and recognition of a faculty member's research program(s).

Service expectations

HDSI is a relatively new unit at UC San Diego. We are working to establish many functional elements, and as a result, faculty are asked to contribute more service than in most departments. Although service expectations are relative to rank, even Assistant Professors are expected to meaningfully participate in HDSI committee service. As faculty advance in rank, they are expected to increasingly provide University-level service, whether through Academic Senate committees, UC systemwide service, or other significant contributions. All faculty are expected to provide service to their professional discipline(s), including reviewing for journals, conferences, and/or funders, and leadership in professional organizations. Faculty are also encouraged, but not expected, to provide public service that uses their distinctive knowledge, skills, and capabilities for public benefit, such as through support of nonprofit organizations or service on governmental advisory committees.

We encourage all faculty to pursue outreach and engagement to ensure that data science is a welcoming and supportive community for all. These efforts can take many different forms, including outreach programs and inclusive mentorship practices. Faculty are encouraged to describe efforts in this regard during their reviews.

Merit review standards

Faculty are expected to demonstrate satisfactory performance in all three dimensions, including meeting (at least) the discipline-specific annual research expectations for their current research program(s). We recognize that research directions and foci can shift over time, and so the exact annual research expectations can shift as well. We encourage faculty to explicitly describe the areas in which they are working for their current research in order to help determine proper expectations. As appropriate, ad hoc committees should also provide their judgments and evaluations about the disciplinary "homes" of faculty research efforts.

Bonus off-scale standards

Bonus off-scale (BOS) recommendations may be considered for a variety of reasons, most typically for unusually strong performance that falls short of an acceleration. This strong performance could be in any of research, teaching, or service, and should be (approximately) 1.5x or more than the normal expectations along that dimension. BOS recommendations may also be made when the faculty member receives a significant professional or university award.

Accelerations

One-step accelerations (resulting in a two-step advancement) require at least double normal expectations along one dimension, along with continued excellence along the other two dimensions. Note that "double performance" must be established both qualitatively and quantitatively; in particular, simply publishing double the normal expectations for that review period is not sufficient to warrant a one-step acceleration. Accelerations will not be recommended if a faculty member exhibits problematic or bare minimum performance on any single dimension.

Two-step accelerations (resulting in a three-step advancement) require truly exceptional performance during the review period, including at least three times the normal expectations along one dimension. If a two-step acceleration is considered for research productivity, then the evaluation must include significant evidence of demonstrated impact of the research that extends beyond quantity of research products.

Fourth-year appraisal

The fourth-year appraisal provides a valuable opportunity to help junior faculty assess their progress towards promotion to Associate Professor (with tenure), including potential weaknesses or areas that require further work in order to secure a successful promotion decision in the future (see below). A series of successful merit reviews is not sufficient for promotion to Associate Professor, so the feedback from this career evaluation is particularly important if the outcomes of prior reviews might provide the faculty member with a misleading impression of their career performance and likelihood of promotion.

Promotion to Associate Professor (with tenure)

Successful promotion to Associate Professor (with tenure) requires a sustained record of impactful, high-quality research. Because of the multidisciplinary nature of the HDSI faculty, we cannot provide quantitative targets, but the number of research products should typically be at the upper end of the relevant annual expectations, taken over the faculty member's time at UC San Diego. The faculty member should have demonstrated intellectual leadership in (at least) one extended, coherent research program that includes multiple research products and has had demonstrable academic and/or real-world impact. This leadership should be evaluated partly on the basis of letters from external evaluators. Research quantity alone is insufficient for promotion to Associate Professor; the faculty member must have demonstrated impact and leadership in one or more areas. In particular, we note that a series of successful merit reviews does not guarantee promotion to Associate Professor, as the latter depends on the cumulative impact of the faculty member's research program(s). When evaluating the impact of collaborative work, special care should be taken to assess the faculty member's contributions and importance in those efforts.

Many HDSI faculty arrive with limited-to-no teaching experience. As a result, courses taught closer to the Associate Professor promotion decision may receive greater weight, as they likely provide more accurate evidence of the faculty member's teaching expertise and contributions. As appropriate, faculty are expected to provide mentorship and advising to undergraduate and graduate students. Advising opportunities vary across disciplines, and so we do not set specific quantitative expectations for promotion to Associate Professor. However, successful promotion requires appropriate engagement and support of undergraduate and graduate student research relative to the individual's mentorship opportunities.

The faculty member should demonstrate evidence of impactful service and (perhaps limited) leadership to HDSI and the profession. University-level service should be rewarded, but is not required at this step.

Promotion to Full Professor

Successful promotion to Full Professor requires continued sustained research excellence, leading to the individual being recognized nationally as a leader in their field(s). Faculty are expected to have been the intellectual leader of at least one new, substantive (multi-year, multi-product) research program since promotion to Associate Professor. This leadership and new research program should be evaluated partly on the basis of letters from external evaluators. Intellectual leadership in their field(s) will also typically include awards, keynote addresses, and other markers of the faculty member's scholarly reputation. A successful series of merit reviews as an Associate Professor does not guarantee promotion to Full Professor, as this advancement involves a career review that demonstrates national leadership and recognition.

Teaching should show continued growth, whether through course improvements, curricular or pedagogical innovations, or sustained teaching excellence since promotion to Associate Professor.

Faculty should play a larger role in undergraduate and graduate student mentorship, even if they do not (for disciplinary reasons) have significant numbers of graduate student advisees.

The faculty member should provide leadership (not only service) within both HDSI and the profession, as well as increased service at the campus and/or systemwide level.

Advancement to Professor, Step 6

Step 6 advancement involves a career review. The faculty member should have continued excellence in research, teaching, and service, including leadership in one or more new, significant research program(s) since promotion to Full Professor. The faculty member should be an internationally recognized leader in their field(s) with multiple indicators of their standing, such as major lectures, leadership positions at research centers or professional societies, or other evidence of the cumulative impact of their research career. Solicitation of external letters is not required for Step 6, though they may be useful as further evidence that the faculty member is an internationally recognized leader. Per UCSD standards, advancement through Professor Steps 1-5, followed by a review period that meets expectations, is not sufficient to justify advancement to Step 6.

Teaching and service should be commensurate with other leaders in the faculty member's field(s), including significant contributions and leadership at HDSI, the university, and the profession more generally. Student mentorship should be strong and sustained, though it may take several different forms.

Advancement to Professor, Above Scale (Distinguished Professor)

This rank is reserved for faculty who demonstrate excellence in all three areas—research, teaching, and service—and are internationally recognized for their ground-breaking, high-impact contributions in at least one of those. External letters provide particularly important evidence of the faculty member's international stature. A faculty member should not be considered for Above Scale if they exhibit merely satisfactory performance on any dimension, even if they are an international leader on another. In particular, substantial service and leadership for HDSI and the University is required, extending beyond service that directly supports the faculty member's research or teaching interests. Mere length of time at UCSD, even including successful advancement to Step 9, does not justify nomination or promotion to Professor, Above Scale. Because of the high expectations for this rank, there are likely to be many Full Professors who are not considered for Above Scale.

Teaching professor series

Individuals in the Teaching Professor series—also called Lecturers with (Potential) Security of Employment (L(P)SOEs)—are evaluated for their performance along three core dimensions: (i) Teaching excellence; (ii) Professional and/or scholarly achievements and activity; and (iii) Service to HDSI, university, profession, and public.

Teaching expectations

The regular teaching load for faculty in the Teaching Professor series is five courses per year, along with mentorship of (at least) the standard number of capstone teams. Evaluation of teaching performance uses the same holistic, comprehensive measures as in the Professor series, including the creation of a Holistic Teaching Portfolio. Since teaching excellence is the primary evaluative dimension for Teaching faculty, their performance should be held to a higher standard than in the Professor series. Teaching faculty are expected to use best practices in pedagogical and curricular design and delivery, including regular updates to their courses in response to new and evolving

understandings of those best practices. Advising and mentorship of undergraduate and graduate students is considered as part of professional and scholarly activities.

Professional/scholarly expectations

HDSI deliberately treats the second criterion for L(P)SOEs in a broad manner, consisting of a range of different possible activities, including: directed research in one or more areas of data science and/or pedagogy, supervision of graduate and/or undergraduate students in research projects (broadly understood), formal TA/tutor training efforts, development of educational materials in various forms (including books, multimedia, or online), and methods to evaluate instructional effectiveness. These various forms of professional effort can yield very different types (and sizes) of products, and so normative expectations cannot easily be expressed as "*X* products per year." We expect that Teaching professors will have at least one substantive professional achievement and/or activity per year, and acknowledge that the results of these efforts could take many different forms.

Service expectations

Teaching professors are expected to provide the same level of service as individuals in the Professor series to HDSI, the university, and the profession. While it is likely that much of this service will be focused on educational efforts, committees, and organizations, there is no expectation (or requirement) that Teaching faculty will contribute exclusively in those ways.

As with faculty in the Professor series, we encourage all Teaching faculty to pursue outreach and engagement to ensure that data science is a welcoming and supportive community for all. These efforts can take many different forms, including outreach programs and inclusive mentorship practices. Faculty are encouraged to describe efforts in this regard during their reviews. Some of these activities may overlap with professional activities, and so faculty should be clear about whether they conceive of those efforts as professional and/or scholarly, or as service.

Merit review standards

Faculty are expected to demonstrate satisfactory performance that meets normative expectations along all three dimensions, including high-quality teaching and notable professional activities.

Bonus off-scale standards

Bonus off-scale (BOS) recommendations may be considered for a variety of reasons, most typically for unusually strong performance that falls short of an acceleration. This performance could be in teaching, professional activities, or service, and should be (approximately) 1.5x or more than the normal expectations along that dimension. BOS recommendations may also be made when the faculty member receives a significant professional or university award.

Accelerations

One-step accelerations (resulting in a two-step advancement) require at least double normal expectations along one dimension, along with continued excellence along the other two dimensions. Note that the "double performance" must be established both qualitatively and quantitatively; in particular, double the number of normally expected professional activities is not itself sufficient to warrant a one-step-acceleration. Accelerations will not be recommended if a faculty member exhibits problematic or bare minimum performance on any single dimension.

Two-step accelerations (resulting in a three-step advancement) require truly exceptional performance during the review period, including at least triple normal expectations along one dimension. As appropriate, the evaluation should include significant evidence of demonstrated impact of the teaching or professional activities that extends significantly beyond mere quantity.

Fourth-year appraisal

The fourth-year appraisal provides a valuable opportunity to help junior faculty assess their progress towards promotion to Associate Teaching Professor, including potential weaknesses or areas that require further work in order to secure a successful promotion decision in the future (see below). A series of successful merit reviews is not sufficient for promotion to Associate Teaching Professor, so the feedback from this career evaluation is particularly important if the outcomes of prior reviews might provide the faculty member with a misleading impression of their career performance and likelihood of promotion.

Promotion to Associate Teaching Professor (Lecturer with Security of Employment)

Successful promotion to Associate Teaching Professor (LSOE) requires a sustained record of impactful, high-quality teaching. The individual's teaching should demonstrate appropriate growth and evolution in incorporating new best practices or other pedagogical innovations over time. The faculty member should also have demonstrated intellectual leadership in support of the educational mission of HDSI, where such leadership could take multiple forms. Teaching quantity alone is thus insufficient for promotion to Associate Teaching Professor; in particular, a series of successful merit reviews does not guarantee promotion to Associate Teaching Professor.

Some types of professional activities (e.g., textbooks, educational research, curricular standards) can require significant time to develop. As a result, evaluation of professional activities should typically weight more heavily the efforts closer to the Associate Teaching Professor promotion decision. Advising and mentorship opportunities are likely to vary across Teaching faculty, and so we do not set specific quantitative expectations. However, Teaching faculty should engage with undergraduate and graduate students as appropriate.

The faculty member should demonstrate evidence of impactful service to HDSI and the profession. University-level service should be rewarded, but is not required at this step.

Promotion to Teaching Professor (Senior Lecturer with Security of Employment)

Successful promotion to Teaching Professor (SLSOE) requires continued sustained high-quality teaching. The individual should be recognized within UC San Diego, and perhaps more widely, as an effective and impactful educator. Faculty are expected to show increased leadership in support of the educational mission of HDSI, and they should typically also demonstrate educational leadership more broadly within UC San Diego. The expectation of increased leadership means that a series of successful merit reviews as Associate Teaching Professor is not sufficient for promotion to Teaching Professor.

The faculty member should have multiple instances of professional and/or scholarly activities with impact outside of HDSI and UC San Diego. These activities can take many different forms, and so no specific quantitative thresholds are provided. However, the scale, scope, and impact should typically be larger/broader than the activities undertaken as an Assistant Teaching Professor. Faculty should play a larger role in undergraduate and graduate student mentorship.

The faculty member should provide leadership (not only service) within both HDSI and the profession, as well as increased service at the campus and/or systemwide level.

Advancement to Teaching Professor, Step 6

<to be determined>

Advancement to Teaching Professor, Above Scale (Distinguished Teaching Professor)

<to be determined>