# Best Practices for Hiring Teaching Faculty in Research Computing Departments

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## Executive Summary

The rising demand for computing degree programs has led to a rapid increase in teaching faculty positions in computing related fields. This white paper discusses how the diversity in teaching faculty jobs and hiring practices creates challenges for both candidates and departments and then recommends best practices for the hiring process.

Teaching faculty hiring best practices for departments include:

- Departments should carefully plan the timing of the search in relation to other searches within the department and avoid hiring teaching faculty positions with different job descriptions using the same process.
- Departments should clearly communicate the expectations of the role in the job ad, including key details such as workload, provisions for job security, anticipated subject area needs, expectations for diversity, equity, and inclusion (DEI) related experience, and departmental policies related to teaching faculty.
- Departments should develop rubrics that align exactly with the expectations of the role as outlined in annual and promotional review guidelines, and evaluate candidates against those rubrics.
- Departments should use phone interviews not only for assessment, but also to support candidates by providing clarification about the position and interview process.
- Departments should recognize the wide variety of teaching faculty interview formats used across institutions and provide candidates with as much information about screenings and interviews as possible in advance.
- Departments should ensure that the job talk(s) content and format aligns with the expectations of the role.
- Departments should provide flexibility to candidates with respect to job talk(s) subject and structure where feasible.
- Departments should confer with candidates about offer timelines and be prepared to negotiate on not only salary and start date, but also on contract length and support, including start-up/professional/research funds.

Beyond the hiring process itself, departments should create opportunities for graduate students and postdocs to develop teaching experience to better prepare them for teaching faculty positions.

## Terms and Scope

Through this memo, we hope to provide guidance to administrators of computer science or informatics departments/schools/faculties/colleges (henceforth *computing departments* for brevity) at research-intensive universities on hiring practices for full-time teaching faculty. Most of these departments distinguish between *teaching faculty*, who focus more on teaching than research, and *research and teaching* (*or R&T)* faculty, who focus more on research than teaching. We will not use the term *tenure-track faculty,* since many teaching faculty may also be tenure-track and some R&T faculty may not be tenure-track. We use the term teaching faculty because it reflects the titles typically used by departments. By full-time faculty, we mean faculty who expect to make a career of teaching computing as a long-term career. We acknowledge that these terms are not perfect and potentially reinforce distinctions between faculty that are unnecessary or even counterproductive, but believe that these terms accurately reflect the current state of most research-intensive computing departments. We focus our discussion on teaching faculty positions in North American institutions.

We use the phrase *Diversity, Equity, and Inclusion* and its abbreviation *DEI* because it is widely used and recognized by a broad audience. We acknowledge that this phrase neglects other important related concerns such as accessibility and justice. We encourage readers to consider or include these concerns wherever they see DEI. We likewise use the phrase *phone interview* to refer to an initial remote screening interview regardless of exact modality (e.g., phone or zoom).

This memo was motivated and guided by information gathered from discussions with, and surveys of, CRA-member department heads, teaching faculty, and faculty candidates. This information gathering revealed significant frustration from hiring committees and candidates. Departments lamented that they were conducting searches in an ad hoc manner without guidance on best practices. Candidates expressed being overwhelmed by the high variance in hiring practices. This memo is written to suggest practices that we believe will help departments better identify high-quality faculty candidates and help those candidates demonstrate their abilities and potential during the job search process. We also hope that by providing general guidelines for best practices in hiring teaching faculty, Departments might start to naturally converge on a set of practices that reduce the variance across interview processes.

## Unique Challenges of Hiring Computing Teaching Faculty

The current hiring landscape for teaching faculty is a perfect storm, where two issues - (1) increasing demand but a lack of trained candidates and (2) highly diverse job expectations - combine to create a job search that is overwhelming for teaching faculty candidates and disappointing for departments of computing.

First, hiring of teaching faculty in computing departments has surged recently, outpacing even growth among R&T faculty. The 2022 Taulbee survey (https://cra.org/resources/taulbee-survey/) suggests that this trend will continue with a 20% expected 2-year growth in teaching as opposed to 11% for R&T faculty. However, the Taulbee survey also shows that about 20% of 2021-2022 teaching faculty searches were unsuccessful, suggesting that departments are struggling to identify and recruit quality candidates to these positions. As computing becomes essential across a wider range of disciplines, the need to teach students computing will only continue to grow.

These issues are compounded by the fact that Masters and Ph.D. programs provide little training, if any, on how to teach. Consequently, if departments wish to hire the best candidates, they often need to hire based on passion and potential and not on an established track record.

Second, as noted in past memos, there is substantial variance across departments for nearly every aspect of teaching faculty jobs, including titles, advancement opportunities, length of appointments, evaluation, and research expectations (https://cra.org/teaching-faculty/). Many departments are still learning how to support teaching faculty and are discovering that hiring quality teaching faculty is also challenging. While there are some commonly agreed upon markers of (future) success in research (*e.g.*, publications, citations, funding), there is less agreement on what even constitutes excellent teaching or how to evaluate it. Is an excellent teacher someone who has good presentation skills or possesses deep content knowledge or has practical "real-world" experience or creates quality assessments or creates autograders or designs equitable course policies or all of the above? What is the relative importance of the various aspects of teaching? How can a hiring committee evaluate those aspects?

Unfortunately, computing departments are answering these questions on the fly and coming up with many answers. Unlike R&T job searches where candidates are the expert and are able to polish one research presentation with perhaps some slight variations, candidates for teaching faculty positions report being overwhelmed by being assigned many different teaching demonstration topics, oftentimes outside their core area of research expertise. Candidates may even be asked to prepare additional one-off job talks about teaching philosophies or strategies. This variance forces candidates to invest enormous amounts of time just to decipher the expectations and processes for each interview and to create many "good enough" job talks.
Candidates feel that they cannot put their best foot forward, and hiring committees are more likely to misevaluate potentially great candidates who have not had the ability to polish the talk to the same degree as a tenure track candidate.

The surge in hiring and high variance combine to create particular challenges for faculty candidates. Without adequate training, these candidates have few resources to draw upon to decipher departmental cultures/expectations and identify which positions or institutions would be a good fit for their passions and skills.

Given this context, this document provides observations and suggestions for hiring teaching faculty by first walking through the timeline of the hiring process: crafting/announcing a position, articulating and disseminating evaluation criteria, interviewing and evaluating candidates, and extending offers. We conclude with some vision casting for long-term actions departments can take to improve the preparation and hiring of teaching faculty candidates.

## Planning the Search

Consider separate hiring processes for teaching positions with different job requirements:
As noted previously, institutions offer a wide range of faculty roles, and some hire into multiple roles that focus primarily on teaching (e.g., an institution might offer a lecturer role that requires teaching and service while a professor of the practice role requires teaching, service, and research). While it might be feasible to combine searches for all teaching faculty roles, this can lead to uneven interview processes because the requirements of each individual role are not equivalent. Departments that contain a variety of teaching faculty roles should consider separating these searches. This allows applicants to sort themselves based on their interests or even apply to multiple positions. In addition, the search committee can more precisely specify requirements, rubrics, and interview structures for each individual track. The guidance found elsewhere in this document can be more easily applied when a faculty search is focused on an individual position / track instead of across several.

Be aware that teaching faculty searches happen across the calendar:
Traditional R&T faculty searches tend to have application deadlines in early winter with hiring decisions finalized in the spring. This uniformity allows R&T candidates to make informed decisions when deciding between offers and helps departments be confident that they received applications from the best applicants who were interested in their position.

In contrast, teaching faculty positions are variable. For example, Primarily Undergraduate Institutions (PUIs) usually have application deadlines in early fall and finalize hiring by winter, whereas research-intensive institutions often use the typical R&T timeline. Additionally, many teaching faculty positions are created in an ad hoc manner to fill sudden teaching needs, while some departments just keep an ongoing search open year round.

When planning their searches, departments should be mindful that this variance may mean that they may miss out on great candidates simply based on when they run their search. For example, a department using only the R&T timeline is more likely to miss out on candidates who are absolutely certain that they want to focus on teaching and a department using only the PUI timeline is more likely to miss out on candidates who are uncertain about whether they want to focus on research or teaching and are hesitant to forego applying to research-intensive departments altogether. With these issues in mind, some departments have elected to start running ongoing searches or multiple searches per year.

## Crafting the Job Ad

<u>Communicate expectations to potential candidates:</u>

Candidates often have minimal experience with the variety of institutional and departmental cultures, values, and expectations, and thus may not know which institution's jobs are a good fit for their interests, skills, and career goals. To alleviate this issue, providing more information and transparency is key. Without it, potential candidates may not understand differences in titles (e.g., professor of practice, teaching professor, lecturer, clinical professor) or institution type (e.g., research intensive, small liberal arts college). Some roles can even share titles but not responsibilities (e.g., a lecturer role might require research at one institution but not another). Consequently, if the expectations of the role are not clearly articulated, a candidate may not know how to adequately prepare for an interview. Departments frequently mentioned that candidates do not understand the role they applied for, and it may be that deciphering each individual role is an unreasonable expectation in the current landscape. By increasing detail and transparency about the role, these issues can be partially alleviated.

Formal job advertisements are often relatively similar to each other, containing boilerplate information. Departments should consider how they can help potential candidates identify the expectations and responsibilities associated with their role, whether this be in the job advertisement itself or by providing links to other resources (when approved by HR) where the candidates can learn more. If providing information through other resources, departments should ensure equitable access to these resources.

We enumerate (but do not exhaust) some information departments should consider explicating in the job advertisement or supplemental resources:.

- Expectations about workload, including precise breakdowns (or ranges) of the time candidates will be expected to spend on teaching, service, and research/scholarship.
- Differences between roles within the same unit, including links to other job advertisements for those roles.
- Provisions for job security.
- Pathways/opportunities for promotion.
- Whether the unit is hiring for faculty to teach specific courses or are hiring for "open slot" positions. Alternatively, whether the unit values candidates who can specialize in a small number of courses or candidates who can teach across the curriculum.
- Details regarding the typical number of course preparations, deliveries, sections, and class sizes.
- The unit's policies on teaching faculty and their role in departmental governance.

<u>Define the ideal characteristics the committee is searching for and develop clear rubrics:</u>

It is not uncommon for members of hiring committees to not be in agreement on the ideal characteristics for a candidate. Hiring committees and units should spend time building consensus on what skills are valued and how each is valued. Doing this before interviewing candidates helps prevent having each candidate become a proxy discussion regarding the ideal characteristics. This should include discussions surrounding all aspects of the job description (*i.e.*, research accomplishments, service activities related to DEI, etc). In all cases, the hiring criteria should align with the expectations of the role as outlined in annual and promotional review guidelines. We recommend creating a rubric to make this consensus building process transparent to the committee and faculty outside the committee. Committees should also expect that creating a good rubric will require iteration and may not be satisfactory the first time it is used. We also encourage committees to share these rubrics with candidates as a best practice for DEI. Some departments have begun publishing their rubrics, so departments may use those as a starting point for their discussions. Sharing rubrics could also be a pathway to creating shared norms in hiring practices that streamline the teaching faculty hiring process.

Committees should specifically discuss how to evaluate a junior candidate's potential and how to compare that potential against the experience of more senior candidates. Most Masters and Ph.D. programs are research-centric, and so many junior candidates have limited opportunities to gain teaching experience before proceeding to the job market.

In addition, at many institutions, there is a division in responsibilities (and sometimes in culture) between R&T faculty and teaching faculty. Search committees may contain members from different subsets, and thus expectations may be miscalibrated across members of the committee. A clear rubric for assessing candidates teaching demos, research talks (when applicable), written materials, and phone interviews can help committee members agree on a set of expectations for candidates and lead to fairer assessments.

<u>Clearly articulate the Diversity, Equity, and Inclusion (DEI) focused requirements for candidates:</u>
In our information gathering, respondents noted that teaching faculty often have implicitly higher expectations for DEI related experience. We note then that it is important to communicate to candidates whether engaging in DEI activities is a job expectation and in what ways (e.g., K-12 outreach vs. inclusive pedagogies). For the interview process, if there is a plan to assess candidates in this area, consider how this will be conducted and what the criteria for assessment will be. Some searches ask candidates to submit DEI statements, but these are not standardized, so departments should provide guidance and institutional context to support candidates as they write these statements. Take care to avoid requesting statements that make candidates feel compelled to disclose personal information related to DEI.

## Interviewing and Evaluating Candidates

<u>Evaluate candidates against the established rubrics:</u>
In the previous section, we recommended developing rubrics for evaluating candidates. It naturally follows that departments should use these evaluation rubrics because they can help guard against many potential biases in the hiring process and make it easier to interrogate those biases. When using a rubric, ensure that the rubric is fully covered by pre-assigning sections of the rubric to subsets of committee members who will be responsible for those evaluations and can ask relevant questions during the interview. Committees should also consider structured interviews to comprehensively cover the rubric.

Create mechanisms to advocate for candidates:

Because most PhD advisors are R&T faculty, it is common for candidates to receive less coaching on how to apply for teaching faculty positions or how these positions vary. This lack of coaching may be especially true for candidates from marginalized backgrounds or with less social capital. Consequently, teaching faculty candidates are less likely to understand what position they are applying for than R&T faculty candidates: they may not be aware of what information to include in their applications or how the various statements in their packet will be evaluated.

When reviewing applications, we suggest hiring committees:

- Include many perspectives on the hiring committee and allow every member to nominate or advocate for any candidate;
- Create mechanisms to equitably request more information from candidates to fill in gaps or to help candidates make minor adjustments to their applications;
- Appoint committee members as advocates for each applicant; and
- Use equitable evaluation practices such as using rubrics or valuing unconventional experiences.

Use phone interviews to benefit candidates and save institutional resources:

A phone interview is a low-cost opportunity for departments and candidates to learn about one another before determining which candidates to invite to campus. While departments are probably used to performing some preliminary evaluation of candidates during the phone interview, they can also consider using it as an opportunity to provide coaching or guidance to candidates to help them understand the departmental culture/expectations and put their best foot forward during later interview stages. This coaching can be a valuable recruitment opportunity (e.g., demonstrating that the department is invested in the success of the candidate) and can also provide an additional perspective in evaluating the candidate (e.g., departments can evaluate how well the candidate responds to mentorship or feedback). If the committee decides that the phone interview is too time constrained to include some of these items, then it could be beneficial to schedule a second meeting with a host, mentor, or search committee chair to discuss some of these items.

A hiring committee can use the phone interview to support candidates in the following ways:

- Use a common corpus of interview questions, potentially shared in advance
- Help the candidate identify a suitable teaching demo topic if it is not assigned
- Identify ways that a candidate may be able to reuse materials from other interviews to help them focus their prep
- Communicate about institutional values and norms
- Provide time for the candidate to understand the expected workload and division of teaching, service, and scholarship
- Share how teaching is assigned and what factors into those decisions
- Connect candidates to a point of contact who can answer questions as they arise
- Make sure the candidate understands expectations for an on-campus interview

- When possible provide mechanisms to shift candidates to different tracks for candidates who have applied to a position that may not fit their goals. The variation in teaching faculty positions can create confusion.
- Involve all committee members in deliberations on which candidates to move forward

### The Job Talk

During on-campus visits, a teaching demonstration is often central to interviews, but its format is variable: it might be pre-recorded or live, on a provided topic or one chosen by the candidate, with a real classroom or with faculty standing in for a student audience. Sometimes, candidates may elect or be required to pause the teaching demonstration to discuss subtle points about their teaching style. The job talk is also likely on a topic that was not the central focus of the candidate's graduate school training. Since teaching faculty positions have differing responsibilities and expectations, it is infeasible to completely converge on standard practices, but we suggest the following considerations when planning the job talk.

<u>Ensure that the content of job talks aligns with the role's expectations and evaluation criteria:</u>
The job talk(s) should align with the job requirements and help the hiring committee evaluate the candidates based on the specified criteria and developed rubrics. For example, if research is not part of the role, then the job talk should not contain a research component. Since teaching faculty job talk requirements vary so greatly, it is important to make the structure of and expectations for the talk clear to both the candidates and evaluators. Some things to share with candidates could include the job talk structure, recommendations for approaching the teaching demonstration, and even the rubrics that will be used.

<u>Carefully consider topic selection and the implications for workload and evaluation:</u>
Without community norms for teaching faculty talks, candidates may need to prepare many different talks. As a way of mitigating workload, candidates may reuse a talk outside of their area of expertise that was required by another institution. When determining the job talk structure, consider whether it will allow the candidate to reuse materials from other interviews or showcase their area of expertise. If specifying a topic for candidates to teach, the committee should consider how experienced the different candidates are with teaching that topic and evaluate them accordingly. One way to level the playing field is to allow the candidates to choose a topic to teach from amongst the courses in the department. This should help to ensure that candidates are teaching something they are comfortable with.

<u>Be considerate of the inherent differences between the job talk audience and an actual classroom:</u>
The audience plays an important role in teaching demonstrations, which can involve teaching students in an actual class, students and faculty in a special seminar, or just faculty pretending to be students. All approaches have their challenges and can be difficult to manage. Unlike research talks where the audience often holds questions until the end, the audience may be expected to ask questions during teaching demos and question handling may be part of the evaluation. The presence of troublesome students (real or pretend) can derail the teaching demonstration by taking up too much time or getting

the candidate off topic. When the questions are posed by someone in a position of power, like a search committee or faculty member, this can be especially challenging for candidates to navigate. We suggest that in advance of the talk, the host provides the audience with guidance on best practices for being an audience member. This is more difficult to do in the context of a real class where students will eventually be assessed on the material, which may be a reason to consider avoiding those situations.

Exchange information:

Overall, we suggest clear and open communication with both candidates and job talk audiences. For candidates, consider giving them agency and allowing them choice in ways that align with the evaluation criteria and allow for fair evaluation of candidates. Given the diverse experiences that candidates gain through interviewing at different institutions, consider giving candidates an opportunity to provide feedback on the process to refine and improve it for future searches. For job talk audiences, consider giving specific guidance to the audience as to how to evaluate the candidate at the beginning of the talk.

## The Offer

Be prepared to negotiate with candidates on multiple issues

Departments should be prepared to negotiate with candidates on more than just salaries and start dates. Financial support, such as start-up funds and annual professional funds, should be discussed. Likewise, if there is an expectation of scholarship, research funds should also be considered. Some institutions and candidates may wish to negotiate contract lengths (9-month vs. 12-month positions) and any summer financial support that will be provided for 9-month positions. Other types of support may also be negotiated, such as workload reductions in the first year or two.

Confer with candidates about offer timelines

It is common for institutions to provide expiring or “exploding” offers in faculty hiring. Institutions will create offers with deadlines so that if the candidate decides not to accept the offer, there is still time to make an offer to another candidate during the same hiring cycle. This approach has traditionally worked in a context where most offers were being given at around the same time, due to strong community norms. While all expiring offers prioritize the institution’s ability to hire over the candidate’s ability to choose, this imbalance is amplified in teaching faculty hiring.

Unfortunately, because teaching faculty hiring timelines are highly variable, this can create challenges for both candidates and institutions. A teaching faculty candidate may often be faced with offers that expire while still waiting to interview at other institutions. In practice, some candidates are advised that these deadlines have some flexibility, and are able to negotiate a bit more time if needed. However, not all candidates know this, or feel that they are in a position to push back for more time.

In instances where multiple positions are available within a single hiring cycle, departments should leverage this to mitigate the pressure typically associated with expiring offers. If possible, institutions can be more flexible with deadlines because one outstanding offer would not block them from making more offers. This strategy can support candidates in making informed decisions, and provide flexibility for candidates to navigate the differences in teaching track dates.

In cases where multiple faculty lines are not available, expiring offers might still be necessary. However, instead of issuing an ultimatum to candidates, institutions should open a dialog with the candidates. Often candidates experience a significant amount of stress around offer deadlines, when perhaps just a few more days could help them make a much better decision. By negotiating with candidates, institutions can help candidates make good decisions, while still encouraging them to make the decision in a timely manner. By working with candidates to find reasonable deadlines, institutions can not only alleviate the pressure on candidates, making them feel valued and respected, but also benefit by attracting candidates who are fully informed and likely to be a better fit in the long term. Transparency about flexibility in the offer letter can further reduce stress and build trust. Such a candidate-friendly approach to expiring offers enhances the institution's appeal to top talent, supports candidates through the stressful job search process, and lays the groundwork for successful, mutually beneficial relationships between new faculty members and their institutions.

## Future Faculty Development

For PhD granting institutions: Create opportunities for students to develop teaching experience/expertise or create CS pedagogy courses:

While many institutions require their teaching faculty to have a PhD, it is also the case that most PhD programs do not provide training on how to teach. To meet the demand for teaching faculty positions, PhD programs should better prepare their students for these positions. Programs should consider offering formal training, perhaps in the form of a course or other mentored experiences that will prepare students to teach.

While having a PhD student TA a course is common, programs should look for ways to expose PhD students to the broad range of tasks that one needs to do while teaching. This could include tasks such as course development, dealing with academic integrity issues, managing a class schedule, crafting assignments, delivering lectures, and many other aspects of course design, management, and delivery. While these experiences might not be desired by everyone in a PhD program, they should be available to any student who wishes to explore teaching as a part of an academic career.

Another way to help candidates develop their teaching skills can be to provide teaching postdoc opportunities where PhD graduates build their skills and experience in preparation for future teaching faculty opportunities. These positions should not be used solely to increase instructional staff, but should be seen as a developmental pathway into a teaching faculty position, and thus should include mechanisms for mentorship by senior faculty. As an alternative to postdocs, many primarily undergraduate institutions offer visiting professor positions that can provide opportunities to gain teaching experience and mentorship that teaching faculty candidates could pursue.

## Conclusions

The teaching faculty job market is a confusing landscape to navigate, with a plethora of positions, job titles, job responsibilities, and cultures. The goal of this document is to help departments and candidates navigate that landscape by easing the burden on candidates, create equitable hiring processes, and construct a more collaborative and open culture with regard to hiring. In general, we recommend that departments consider increasing the amount of information provided to candidates, build consensus around rubrics for how candidates are evaluated that match the responsibilities of the role, and increase the flexibility for how a candidate approaches the process where feasible.

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