

2010 UC Larry L. Sautter Award for Innovation in Information Technology

Title

Academic Personnel Recruit: UC Irvine & UC San Diego Collaboration

Online faculty recruitment: more effective hiring, reduced cost

University of California, Irvine, hosted for University of California, San Diego

Submitters

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Summary

The multi-campus AP Recruit project is a product of strong partnership and commitment between two campuses with a common vision to take advantage of modern technology to bring forth automation and efficiencies to established business processes in Academic Personnel during the time of budgetary limitations.

In October 2009, UC Irvine and UC San Diego jointly launched the AP Recruit web application for use at the San Diego campus. Originally launched in 2006 and costing over a half-million and 3 years of development and maintenance, the collaboration transformed UC Irvine's campus-tailored AP Recruit system into a multi-campus software service in 6 months. Going forward, multiple campuses will benefit from new Recruit enhancements.

Project Description

AP Recruit began as an application available to a single academic department, tailored to that department's particular needs and business practices. In 2006, Academic Personnel and the Office of Information Technology at UC Irvine partnered to reconstruct the departmental Recruit as a campus-wide application, able to meet the broader needs of multiple departments and disciplines. In 2009, IT and AP departments from UC Irvine and UC San Diego partnered to transform AP Recruit into a multi-campus application.

Background: Why AP Recruit?

“AP Recruit brings efficiency and velocity to our academic recruitment process. Recruit facilitates the timely completion of application packages, including the submission of letters of support by references, and expedites faculty peer review of applicants while ensuring compliance with established recruitment guidelines.” – Joan Tenma, Director, Academic Personnel, UC Irvine

“Our vision is to provide a constructive and effective experience from the beginning to end for all who interact with this application. For thousands of applicants and references, AP Recruit is the forefront to having a positive experience with our campus, individuals, and processes. Recruit is built upon this promise.” – Shohreh Bozorgmehri, Director, Office of Information Technology, UC Irvine

Faculty recruitment has long been a paper-intensive process, which creates an administrative burden both to increasingly over-assigned staff and faculty committees juggling multiple priorities. AP Recruit was developed and deployed campus-wide in 2006 with the goal of streamlining this process. System design requirements included dynamic and secure interaction, from the job posting through the receipt of the application supporting reference letters and documents, and the archival of all materials in accordance with University policies and legal considerations.

Moving from Paper to Online: Advantages and Challenges

Paper	Online (AP Recruit)
Applicants submit documentation via mail or email	Applicants log in and upload documentation
Analysts verify applicants submit necessary documentation	Recruit indicates to applicants when they meet documentation requirements
Analysts scan/copy/file/distribute to search committee members	Analysts define the who’s on the search committee – AP Recruit handles the rest
Applicants call/email analysts to confirm that they received their application	Recruit indicates to applicants that their application was successfully received
Popular recruitments with 300+ applications create a management burden for search committees	Recruit provides personal notations and indicators such as “mark as read” to keep track of applications
Filing cabinets & checkout systems pose problems for traveling search committee members	Recruit provides online access to applicant documents 24/7/365

Paper	Online (AP Recruit)
Spreadsheets for managing/reporting applicant status, rank, and shortlist are typically not available to all	Recruit provides a social tagging, status, and comment functions
Analysts manually create visit seminar flyers, applicant email lists, and address labels	Recruit offers flyer creation and up-to-date applicant email & mail addresses spreadsheet downloads
Analysts email applicants asking to fill-in the equal opportunity & diversity survey as an afterthought, lowering response rates	The diversity survey is made available immediately upon completing their application, improving response rates

UC Irvine & UC San Diego: Why Collaborate?

“With the current California budget crisis, it was not financially feasible for UC San Diego to develop its own e-application system for processing academic recruitments. However, by partnering with UC Irvine, the San Diego campus has been able to offer a superb system to its academic departments. The cost savings has been enormous, and the savings will continue as UC San Diego shares its Review e-system with UC Irvine.” – Academic Personnel On-Line Services Team, UC San Diego

Before the start of our collaboration, we recognized that academic hiring practices shared some similarities across the ten-campus system. Recruit was purposely designed to be modular and highly adaptable. We anticipated that having a single campus hosting and maintaining the source code and infrastructure in a Software as a Service (SaaS) model would allow us to efficiently utilize resources. The host campus (UC Irvine) would invest upfront resources to configure Recruit for UC San Diego, including branding, data services, and infrastructure. UC San Diego IT staff would develop a data bridge between their systems and Recruit.

Shohreh Bozorgmerhi from UCI’s Office of Information Technology, Emily Deere from UCSD’s Administrative Computing & Telecommunications, Joan Tenma from UCI’s Office of Academic Personnel, and Kristi Larsen from UCSD’s Office of Academic Personnel gave the joint Recruit Multi-campus project team the chance to transform Recruit for use at UC San Diego. We had less than 6 months to prove our theory that SaaS was an efficient model for application delivery, saving resources and eliminating redundant development work at UC San Diego.

Academic Personnel Recruit – Branded for UC Irvine

AP On-Line Recruit – Branded for UC San Diego

The Collaboration: Looking Forward

This collaboration does not end with AP Recruit. After launch for UC San Diego, the collaboration turned its attention to transforming the UC San Diego AP On-Line Review system for use at UC Irvine. The future of both Recruit and Review systems will be determined jointly between UC Irvine and UC San Diego

through shared governance. AP and IT units from both campuses will collaboratively develop unified business requirements for future enhancements – opting for diverging business process only when absolutely necessary.

The collaboration’s shared governance is defined in three documents:

Name	Description
Memorandum of Understanding	Defines overall vision and goals of UCI/SD collaboration
Project Charter	Project documentation describing how we made Recruit available to UCSD
Service Level Agreement	Defines ongoing services, responsibilities, communication, and performance guarantees for Recruit

Software as a Service Creates Efficiencies across UC

The AP Recruit Software as a Service model capitalizes on similarities between UC AP business processes, delivering a single application that supports multiple campus-branded Recruit sites: hosted, developed, and maintained by UC Irvine.

All participating campuses benefit from a host campus maintaining and implementing code updates. This creates efficiencies; participating campuses do not need a dedicated development team to support a local application.

Now that we have laid the foundation for supporting both UC Irvine and UC San Diego’s branding and configuration, we can enable a standard, branded Recruit site for additional partner campuses with several weeks of development work. Campuses interested in collaborating may refer to the Memorandum of Understanding, Project Charter, and Service Level Agreement documents. These documents describe how the collaboration makes decisions, defines new enhancements, and supports Recruit ongoing.

SaaS mitigates or eliminates traditional roadblocks to collaboration, including: fragmenting code bases, diverging business processes, contributing unique technical skill set needs, and infrastructure incompatibilities among campuses. Recruit is hosted and maintained by a group at UC Irvine with 4 years of experience developing and running the application. One codebase supported by the original developers makes sharing Recruit easier – just import data into Recruit and customize the branding to fit the campus.

SaaS promotes a single business process across UC campuses, improving our ability to deliver future recruitment process innovations. Traditionally, significant changes to a UC recruitment process would involve coordination between a UC-wide body and AP offices, then additional training and coordination between campus AP and staff within academic units. A single system, with campus-specific differences that are primarily cosmetic and of limited scope, allows us to change a core process in Recruit, with immediate benefit to all participating campuses. Moreover, participating campuses retain the option to opt-out of future enhancements.

Description of the Technology Employed

AP Recruit is a Ruby application built on the Ruby on Rails framework, a MySQL database, and Redhat Enterprise Linux operating system. We used a combination of application architecture decisions and framework features outlined in this section to transform Recruit into a multi-campus software service.

Branding: Ruby Internationalization & Localization

Just as developers use internationalization and localization (i18n) as a means to adapt computer software for multiple languages or regional differences without the need for engineering changes, the collaboration used i18n to brand Recruit for the UC Irvine and UC San Diego “locales”. Each campus receives a unique site presence or “locale dictionary”, including custom text, images, color schemes, contact information, links and more.

Authentication: Shibboleth Single Sign-on

Shibboleth was a natural fit with the multi-campus Recruit system because it is designed to allow for cross-campus authentication. Shibboleth saves developer time by providing a standard interface to differing campus authentication systems.

Interoperability: RESTful web services & data feeds

To be useful, Recruit needs to know who may log in, what level of access they have within the system, and what school and department they belong to. This data is routinely synchronized between UC San Diego and UC Irvine systems using a combination of RESTful web services (for UC San Diego’s near-real-time access control updates) and nightly data transfers for less-frequently changing data.

Repository: One codebase for all campuses using Subversion

From the start, we agreed to keep a unified code base using Subversion. While we had the option to “fork” UC Irvine and UC San Diego’s code base – creating two copies – we felt this would create a long-term maintenance burden. We predicted that over time, code would slowly diverge between campuses – eliminating our collaboration’s goal of a unified application and business process.

Deployment: Launching new software versions with Capistrano

As governed by the AP Recruit Service Level Agreement, UC Irvine periodically deploys enhancements and bug fixes. We needed an automated deployment strategy, as deploying new releases to eight sites manually would be unacceptably time-consuming. We use the Capistrano tool to automate and test deployment and database migrations.

Security: Data Storage & Isolation

Security and isolation of campus data was our top priority. Exposing San Diego data to Irvine users and vice versa could have serious consequences. As such, we opted to partition data into separate databases

within a single MySQL server instead of a single database. Campus A's application runs under a unique Linux user account with no access to Campus B's files or database.

Environments: Separate production, development, and testing sites

Each campus has a production site as well as development, QA, and training sites (four sites total per campus). This separation helps to protect production data from accidental deletion or modification while also allowing for concurrent development, QA, and training activities.

Virtualization: Assisting development and testing with Xen

Virtual servers for development and testing made more sense than rolling out new dedicated hardware. Xen allowed us to recreate a mirror of the production server, ensuring that we were testing both code and system changes.

Timeline

January 2006: Recruit 1.0 launch

Transformed UCI's Information & Computer Science PHP tool into a campus-wide application.

Trained department and school-level analysts.

June 2007: Recruit 2.0

Completed usability redesign.

Application rewritten in Ruby on Rails framework.

August 2008: Recruit + Diversity Surveys

Integrated diversity surveys directly into online application process.

Enabled non-Senate level positions to use diversity surveys.

October 2009: Recruit 3.0

Transformed Recruit into a multi-campus software service.

February 2010: Host Recruit for UC San Diego

Recruit software as a service launched at UC San Diego.

Project Team Members

UC Irvine	UC San Diego
Aldo Sarmiento	Emily Deere
Briandy Walden	Jennifer Kramer
David Pritikin	John Baker
Joan Tenma	Jonathan Welch
Kim Gerrard	Kevin Chou
Max Garrick	Kristi Larsen
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Contributors

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- Linda Arias
- Peggy Munhall

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- Gabor Mester

UC Irvine Office of Equal Opportunity & Diversity

- Gwendolyn Black

Appendix A: Using Recruit

Posting the Position

Once approved, an authorized Recruit analyst logs into Recruit and uses a Web interface to describe a new recruitment, including what documentation and reference letters are required of applicants. While the recruitment is open, it is displayed publicly and accepts new applications. The analyst will also form a search committee consisting of faculty members and administrative assistants. This committee is responsible for reviewing applicant files and making the final selection.

Accepting Applications

While job searching, an applicant visits Recruit's Apply page, which lists all open faculty positions. The applicant drills-down into a specific department and views information about open positions. When they find a position they are interested in, they begin the application process by creating an account and providing basic background information.

Professor of Sustainability
Institutes and Centers • Institute of Mathematics and Computer Science

Help | Contact | Logged in as testtest [Logout]

My Dashboard | My Information | My Files | My References | Diversity Survey

Application Status
Not yet complete
Need to provide files
Need to provide references and request letters of reference

Position Status
Accepting modifications to existing applications and new applicants
You may modify this application until June 30th, 2011
New applicants accepted until April 22nd, 2011

Need Help?
[Frequently asked questions](#)
[Help documentation](#)
[Contact position support](#)

Learn more about UCI
[UCI Homepage](#)
[Today@UCI - news and events](#)
[UCI employment information](#)

When an applicant applies for a position, he or she sees exactly what documentation and letters of reference are required in order to be considered by the search committee. As the applicant completes file uploads and solicits letters of reference, Recruit provides immediate feedback on completion progress.

If the position requires letters of reference, applicants may compose an email to references from within Recruit. Included in the email to references is a special token that provides secure access to log into Recruit and submit a letter. Applicants do not have access to the content of the reference letters, but can check Recruit to see how many letters were received and can send follow-up reminders if needed.

If a Recruit analyst prefers to contact an applicant's references directly to request letters of recommendation, the analyst may opt to have applicants enter only reference contact information.

Fulfilling Legal Requirements

Once an applicant submits all required documentation, he or she is presented with a survey from UC Irvine’s Office of Equal Opportunity and Diversity or UC San Diego’s Office of Academic Diversity and Equal Opportunity. This survey is required in order to meet the University’s legal obligation as a federal contractor. Survey results are submitted into a confidential pool from which analysts may create a diversity report. Recruitments will remain open until the applicant pool meets the necessary diversity requirements.

Gender	Ethnicity
<input type="radio"/> Male	<input type="radio"/> BLACK / AFRICAN AMERICAN (not of Hispanic origin)
<input type="radio"/> Female	<input type="radio"/> ASIAN or PACIFIC ISLANDER
	<input type="radio"/> AMERICAN INDIAN or ALASKAN NATIVE
	<input type="radio"/> HISPANIC
	<input type="radio"/> WHITE (not of Hispanic Origin)

Reviewing Applications

The recruitment search committee may immediately begin reviewing applications as they are submitted. Committee members can view documents directly from their browser (no download necessary), attach flags to applicants, and share their comments for other members to see. Designated members of the committee may also submit documentation on behalf of mail-in candidates.

Once the position closes and all applicants have been evaluated, the committee may invite top candidates to their campus for a visit or seminar. From within Recruit, an analyst can schedule a series of events for the visit, post the schedule in Recruit and then print out flyers and signup-sheets to aid in publicizing the visit or seminar.

At any point, analysts and committee members may download a spreadsheet containing applicant data, excluding files and reference information. This facilitates the creation of mailing address labels, email distribution lists, or summary reports. Closing out a position and notifying applicants of their status may be handled using Recruit's spreadsheet export and the “mail merge” function, or by sending emails using a BCC'd distribution list.

Archiving Documents

The final step in the recruitment process is to archive all documentation. Information is automatically archived electronically, eliminating the need for large filing cabinet systems built to house applicant information. This data can be retrieved at a moment's notice via the website in case of a grievance or lawsuit.

Online application management is currently available for tenure or tenure-track faculty recruitments only. Other recruitments may still use Recruit's online diversity survey component to fulfill UCI's and UCSD's obligation as a federal contractor.

Obtaining Help

Full step-by-step AP Recruit instructions are available online:

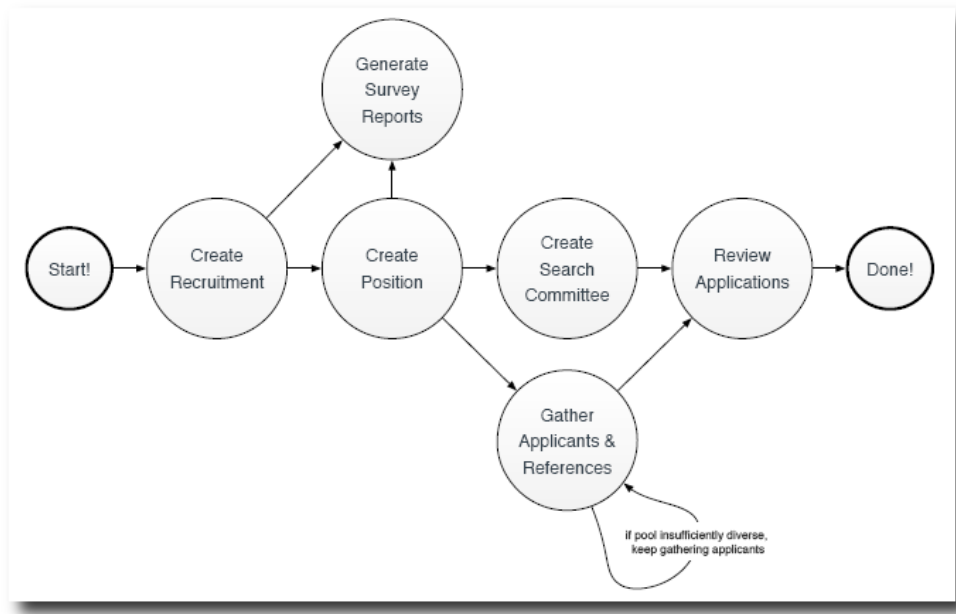
- Analysts & Committees (requires login):
 - UCI: <https://recruit.ap.uci.edu/analyst/help/>
 - UCSD: <https://apol-recruit.ucsd.edu/analyst/help/>
- Applicants:
 - UCI: <https://recruit.ap.uci.edu/help/applicants/>
 - UCSD: <https://apol-recruit.ucsd.edu/help/applicants/>
- References:
 - UCI: <https://recruit.ap.uci.edu/help/reference/>
 - UCSD: <https://apol-recruit.ucsd.edu/help/applicants/>

Additionally, UC Irvine AP and Office of Information Technology staff is available during business hours to provide technical assistance via phone or email. Recruit routes non-technical questions about open positions and search committee inquiries to the AP analyst responsible for the position. OIT provides training sessions as needed to introduce new Recruit analysts to the system.

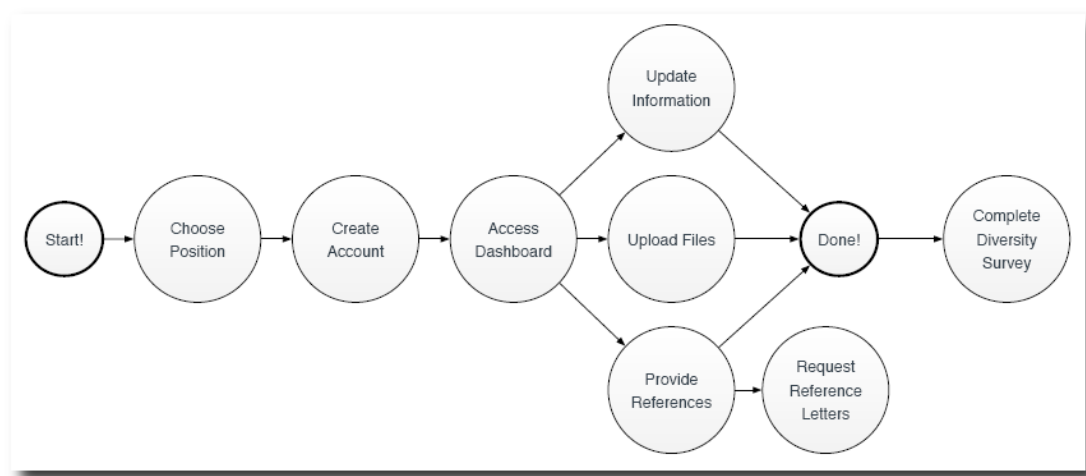
Similarly, UC San Diego AP and Administrative Computing & Telecommunications staff is available during business hours to provide technical assistance via phone or email. Furthermore, a service level agreement exists between UCI's OIT department and UCSD's ACT department for IT support and emergency response.

Appendix B: Analyst & Applicant Workflow

Analyst Workflow



Applicant Workflow



Appendix C: Objectives of AP Recruit

Standardized process

Variations in recruitment processes among campus units make it more difficult to implement new recruitment policies and procedures. Innovations and improvements take longer to roll out across the entire campus. Response to new regulations, including diversity reporting requirements, is slow. Acting on legal disputes or grievances is hindered.

Today, Recruit provides the standard for administering faculty recruitments, submitting applications, and archiving applicant documents.

Campus-wide adoption

We knew that if the benefits of Recruit reached only a handful of campus units, we would be failing in some fundamental way. Either this would mean we were not listening to the needs of our campus, or we were ineffective at encouraging units to switch to an online process. Reaching only part of the campus would mean wasted potential.

Today, Recruit is used by every school at UC Irvine.

At UC San Diego, Recruit is available for use by every division. Since February 2010, Reproductive Medicine in the School of Medicine and the History departments have posted recruitments. Due to the budget crisis, recruitments were frozen during the academic year 2009-10 resulting in limited use of the application, however, it is now anticipated that funding will be provided to launch recruitments for 30 positions, and thus use of Recruit should increase significantly during the recruitment cycle of 2010-11.

Reduced staff burden

Creating a campus-wide online standard in faculty recruitment would make little sense if staff spent more time using the new online process than the paper-based process. Easing the routine tasks of administering recruitment was the key to establishing buy-in.

Today, an average of 50 applicants per position and close to 400 applicants for popular positions self-apply and complete the diversity survey online. Traditionally, manual tasks are now handled automatically within Recruit.

Measured diversity

UC campuses are required as a federal contractor to report on and ensure diversity of applicant pools prior to candidate selection. Equal opportunity and diversity are important factors in maintaining a diverse faculty and help reduce discrimination during hiring.

Every applicant who completes an application is offered an optional diversity survey. Recruit allows analysts to generate a point-in-time report on a growing applicant pool. These reports compare the applicant pool with national figures from similar specialties.

Minimized paper archives

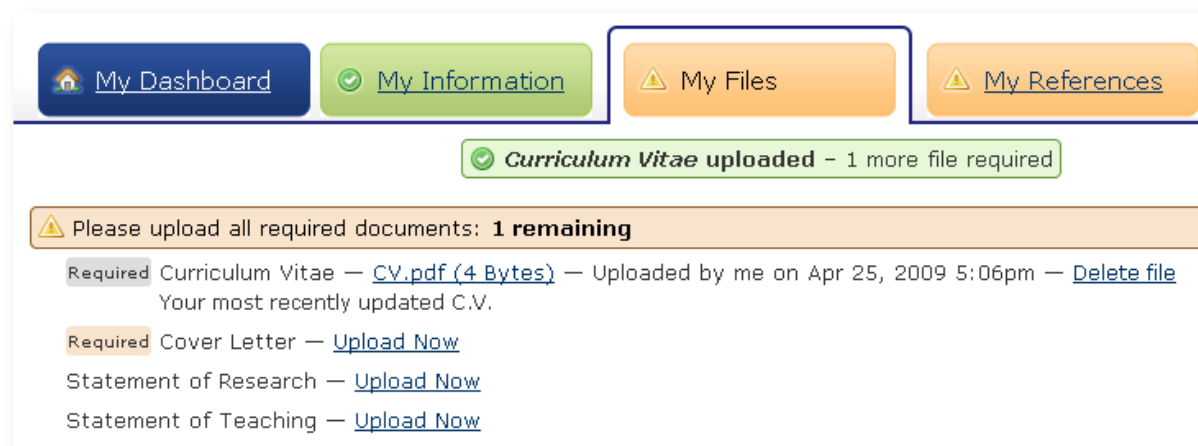
AP is required to retain applicant documents for at least two years. Storing information on roughly 10,000 applicants, 60,000 documents, 30,000 referrals, and 7,000 diversity survey responses can fill a room – and requires meticulous filing practices or we risk losing documents. In a disaster scenario, these files may be lost forever.

Since Recruit was launched, 21GB of files, surveys, and information about applicants have been archived and is accessible from one database server. All data is automatically replicated to a backup database. We perform a second nightly backup and store the data off-site to protect against a disaster in our primary data center

Faster application

We want to make applying at UC Irvine and UC San Diego quick and pleasant for applicants. Unclear application guidelines, insufficient documentation, difficulty correcting mistakes, and time-consuming manual steps can only hinder our ability to hire the best faculty.

From account creation to application acceptance, the applicant is given full control over his or her application. Applicants may incrementally upload files and ask for letters of reference up until the "last modification" deadline. Recruit clearly indicates which documents the applicant needs to upload and how many letters of reference are required.



The screenshot shows a user interface for the Recruit application system. At the top, there are four navigation tabs: "My Dashboard" (blue), "My Information" (green), "My Files" (orange), and "My References" (orange). Below the tabs, a green notification bar indicates "Curriculum Vitae uploaded - 1 more file required". A yellow warning bar states "Please upload all required documents: 1 remaining". Below this, a list of required documents is shown:

- Required Curriculum Vitae — [CV.pdf \(4 Bytes\)](#) — Uploaded by me on Apr 25, 2009 5:06pm — [Delete file](#)
Your most recently updated C.V.
- Required Cover Letter — [Upload Now](#)
- Statement of Research — [Upload Now](#)
- Statement of Teaching — [Upload Now](#)

Faster selection & offer

Search committees are composed of faculty members. We understand that recruiting is just one of their many priorities. Removing conventional constraints to reviewing applicant files and communicating their selection preferences would improve the University's ability to quickly select and send offers to candidates.

Once an applicant completes their application, committee members may immediately begin reviewing their documentation. Multiple individuals may access documents simultaneously, from any Internet-accessible location, 24 hours a day. This online process helps members move more quickly into the selection and offer phases of recruitment.