

MathJobs: Job Application Database

In 2001 the AMS began sponsoring MathJobs.Org, a job application database for mathematics departments. Originally developed by systems programmer Yunliang Yu for the mathematics department at Duke University, MathJobs is a sophisticated, well-functioning system that can manage all aspects of a department's job search in an entirely paperless environment. Although the number of departments using MathJobs is small—about sixty for the 2005–2006 academic year—the number has been growing every year and the response has been positive. The AMS is sponsoring MathJobs in the belief that the system offers great benefits to the mathematical community in providing an efficient, centralized, and secure way to manage the job search process.

Although MathJobs was designed for academic searches, it can be used by any employer seeking to hire mathematicians. An employer can sign up to use MathJobs for US\$350 a year. For that fee, the employer can list up to seven positions on MathJobs. Job seekers, who use the service for free, create personalized password-protected accounts through which they can upload files to create their own personalized portfolios. They can then browse through employment listings and create tailored applications by selecting the appropriate documents from their portfolio. Those asked to write letters of reference for positions advertised in MathJobs receive via email a password for the system so that they can upload their letters directly. Applicants cannot access the letters, but they can check to make sure they have been submitted.

In mathematics departments using MathJobs, one person in the department is designated as the administrator, and that person assigns passwords to other users as needed. The users can then access electronically all of the documentation about the job candidates. MathJobs creates a page for each

applicant that contains his or her application materials as well as information about which documents have and have not been received. On each applicant's page there is a space where faculty can enter comments that can be viewed by colleagues. MathJobs can produce lists of candidates sorted according to various criteria, generate reports (such as equal employment opportunity reports), and send email automatically to candidates to inform them of progress in the job search. One of the biggest advantages of MathJobs is that it frees faculty from dealing with a stack of paper applications. Not only is the information accessible from home, office, or the road, it is also accessible by multiple people at the same time.

The fee the AMS charges departments for use of MathJobs goes towards covering maintenance costs the Society pays to Duke University; all of the hardware and systems support is centered at Duke. The fee also helps to cover the cost of MathJobs user support, which is provided by AMS staff, headed by Diane Boumenot, manager of the AMS Membership and Programs Department. Last year Boumenot's team spent about 500 hours on MathJobs user support. "At first, it was only technically savvy departments that were using MathJobs," Boumenot commented. "They thought it was cool. But now we are getting departments that are less technically savvy too, so we are getting more questions from users." Initially, departments were often using MathJobs simply as a warehouse for the application data, which they would print out and assemble into the traditional paper folders. Fewer departments seem to be doing that now. "We find that departments are now using all the facilities that MathJobs has to offer," she remarked.

Random inquiries to a half dozen departments that have been using MathJobs turned up positive responses and no complaints. "I am very pleased

with MathJobs,” said Ken Brown, chair of the mathematics department at Cornell University. “I find the search features especially useful, and I like being able to use MathJobs during a faculty meeting if someone raises a name without advance warning.” Cornell has been requiring applicants to use MathJobs, and Brown said he is not aware of any complaints from them. Cornell does not require writers of recommendation letters to use MathJobs, and the department still receives a lot of letters on paper that it must scan and upload into MathJobs. Indeed, according to Boumenot, many departments have found it difficult to get letter writers to submit their letters directly into MathJobs. Although the MathJobs interface is quite easy to use, with a simple cut-and-paste operation for submitting letters, some writers do not want to spend the time to log in and figure out how to use the system. Still, Boumenot noted that gradually more letter writers are submitting their letters directly into MathJobs or are naming a proxy, such as a departmental secretary, to do it for them.

“MathJobs saved us a huge amount of time compared to the system we employed the previous year in which we uploaded all the materials we received to our own secure website,” said Simon Tavener, chair of the mathematics department at Colorado State University. “We also found the MathJobs support to be responsive and helpful.” A strict interpretation of state law by the university’s Office of Equal Opportunity and Diversity raised the possibility that the department might have to stop using MathJobs. The difficulty centered on access to recommendation letters. But a small adaptation implemented by the MathJobs staff got around this difficulty, and Tavener expects his department can continue using MathJobs.

Another user of MathJobs is the Mathematical Sciences Research Institute (MSRI) in Berkeley. In 2003 MSRI began using a new online application form it had created. Glitches in the system meant that it was put to full use only in 2004. Although the system works well for applications by participants in MSRI workshops, there were various problems in using it for applications for the approximately ten memberships and postdoctoral positions MSRI offers each year. So MSRI switched to MathJobs to fill memberships and postdoctoral positions, starting in 2005. MSRI’s selection committees consist of mathematicians at various institutions, and wherever they are they can view applicant information on MathJobs. MSRI deputy director Hugo Rossi said MathJobs has worked very well. In the past the MSRI technical staff had occasional struggles when applicants submitted PDF files that were unreadable. That problem is gone: MathJobs has an automated system that produces a new PDF to replace the faulty one. With ten positions to fill, MSRI has to pay double the yearly

MathJobs fee. But, said Rossi, “Compared to cost in staff time without MathJobs, it is extremely inexpensive.”

The mathematics department at Vassar College is small, with just seven tenure-track lines. But their applicant pool is large: in 2005 they advertised one tenure-track and two visiting positions and received around 750 applications. For a small department without a lot of human resources to manage that workload, MathJobs “was definitely a big plus for us,” said department chair Benjamin Lotto. Among the biggest advantages of MathJobs was the ability to produce Affirmative Action/Equal Employment Opportunity Commission reports with the press of a button. “This saved our administrative assistant hours of work,” he said. The department functions as a “committee of the whole” in making hiring decisions, so it was an advantage to have all of the job application information centralized and accessible to everyone, whether they were in the department or logging in from home or from a conference. Lotto downloaded the entire applicant database to his laptop before going to the Joint Meetings in San Antonio in January 2006 so that if he met any applicants he would have their documents at his fingertips.

Lotto called MathJobs “an impressive work” that has the flavor of middle-aged software—not quite mature, but certainly not a “beta version” either. Sometimes, after being away from MathJobs for a couple of weeks, he would find that new features had been added that were not there before. “That was neat—but also a little confusing, because then we had to ask ourselves, ‘Do we now want to use these new features?’” On the other hand, most of the time his department found that when they wanted a certain feature, the feature was already in MathJobs.

Rossi called MathJobs “a great service to the mathematical community,” but said he worries that as the volume goes up and the diversity of job types increases, the workload, in terms of time spent by AMS staffers and the group at Duke, could become insupportable. However, if MathJobs really takes off and a lot of departments use it, the user-support needs might decline as the system becomes more familiar to more people. Clearly the need is there for some kind of automated database system for filling positions in mathematics. If every department developed its own system, applicants might face a nightmare when they apply to, say, forty institutions and must figure out forty different systems. Preventing such a situation is part of the reason the AMS began sponsoring MathJobs in the first place. Time will tell whether the service really catches on.

—Allyn Jackson