

The Job Market's First Steps: Using Research Tools to Simplify the Process

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ABSTRACT Excitement about the political science job market builds around the time of the Labor Day Annual Meeting of the APSA, when schools start to post their openings for the next year. As we entered the job market, we found ourselves repeatedly collecting information about available positions as we prepared application materials. We monitored APSA's eJobs website, cut and pasted relevant job information into a single spreadsheet, and assembled letters using that information. Here, we introduce free and open-source tools to automate these data collection and letter generation procedures using R and LaTeX. Our system minimizes manual data entry by extracting and creating a spreadsheet from APSA's eJobs information. We walk applicants through the initial job search steps, including using eJobs, compiling position information, and producing attractive letters.

As we entered the job market, we found ourselves spending hours collecting information about job openings and preparing applications to send to hiring committees. First, we repeatedly transferred information about dozens of jobs from the web to a single spreadsheet. This process involved line-by-line cutting and pasting for every position to which we applied (most of which were drawn from APSA's eJobs). Second, we manually created customized letters that drew information from our spreadsheet. As users of LaTeX, a free and open-source platform for creating professionally typeset documents, we found no off-the-shelf mail-merge procedure in LaTeX that accepted a spreadsheet as an input.¹ LaTeX is increasingly used by social scientists and taught to graduate students in political science programs because of its flexibility, quality, and affordability (it's free!). We found ourselves wishing we could automate these processes to populate our jobs spreadsheet more quickly and then generate attractive mail-merged letters for potential employers.

To save job-seekers time and effort, we here introduce muRL,² a set of tools for collecting job information and preparing cover letters and mailing labels. These tools can be applied to any mail-merge task (e.g., letters of recommendation), and we provide guidance on special methods to simplify job searches in the field of political science. There are several benefits to our approach. We are able to automate the data entry of job information from APSA's

eJobs listings. Using R and LaTeX, we can create handsome documents and minimize the effort dedicated to word processing and formatting tasks, allowing applicants to focus on creating high-quality content to send to hiring committees. Finally, by automating the creation of letters, we can help prevent small mistakes with potentially large consequences: no search committee member from University X wants to read a cover letter that touts an applicant as "a great match for the position at University Y"!

The next section briefly sketches the job market process and the importance of the cover letter. We then detail the benefits of our approach and how it can be used in your own political science job search. Along the way, we introduce the eJobs interface to readers who may be unfamiliar with this tool.

OVERVIEW OF THE JOB MARKET PROCESS

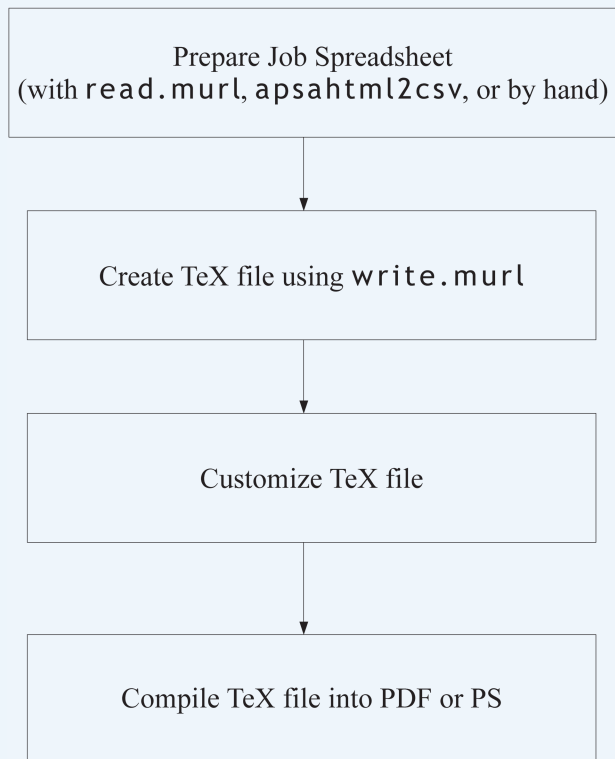
The process of applying for an academic job follows predictable rhythms, and we advise applicants to review the work of other scholars that thoroughly details these patterns in political science (Carter and Scott 1998; Drezner 1998; Simien 2002). We provide a synopsis here, focusing on the creation of the application packet.

Departments begin posting jobs through APSA's eJobs listing service toward the end of the summer. Applications are generally due between early September and December, with most deadlines occurring in October and November. The eJobs listing is a primary source for U.S. academic jobs, although other sources may be consulted.³ After selecting a list of potential jobs, the applicant prepares a packet of materials that search committees will consult in making their decisions about which candidates to bring in for interviews and ultimately hire.⁴ The typical job market packet consists of a cover letter, a curriculum vitae, three letters of recommendation, and one or two writing samples. As Carter and

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Figure 1
The muRL Protocol



Scott have noted, “Without being overly ostentatious, the package should be attractive and effectively organized, and the most relevant and important information that you want to convey should jump out at the reader who just ‘skims’ the materials”

(1998, 617). The applicant will assemble the packets and mail them to the institutions to which he or she is applying. The administrative task of mailing 10, 20, 50, or even hundreds of these documents can be daunting; muRL tames the process by automating several of the most time-intensive tasks.

The Cover Letter

The cover letter is like an abstract of a journal article, but instead of summarizing the arguments and findings of a single piece of research, it highlights and summarizes your career and promise as a political scientist. The cover letter often provides the search committee with its first impression of an applicant, and successful applicants invest significant effort in collecting and presenting its content (Simien 2002). In this letter, you will introduce yourself and provide relevant information such as when you expect to complete your dissertation, what your dissertation is about, the contribution that it makes to the discipline, any publications you have had, and your qualifications as a teacher.

The applicant should carefully consider each department’s advertised needs; evaluate how well he or she fits the department, institution, and position; and then convey this match to the search committee in the cover letter. This letter directs the thinking of committee members as they dig deeper into the file and read the letters of recommendation or the writing sample. A committee member may be reviewing well over 100 files, and so an attractive, high-quality cover letter can distinguish an applicant and spark an interest to further investigate his or her file; as King says, “Quality may be everything, but ... style provides important signals” (2006, 122). muRL ensures an attractive presentation and allows the focus to be placed on the quality of your content.

SIMPLIFYING THE JOB MARKET WITH RESEARCH TOOLS

Political science training increasingly involves learning software for data processing, statistical estimation, and scientific presentation. Having invested time learning these tools for research

Figure 2
Typical User-Created Spreadsheet of Job Entries

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	institution	type	deadline	title	fname	lname	dept	position	address1	address2	address3	city	state	zip
1	University of S	am	12/1/09	Dr. Richard	Sanders	Department	American	Graduate Adm	123 Hello Way			Frederick	MD	21701
2	State Universi	am	12/1/09	Prof. Frank	Bonner	Department	Comparati	Graduate Adm	348 LB Lane			Dept of F Peoria	IL	63112
3	Liberal Arts C	am	12/1/09	Doctor Gary	Sandy	Department	Internatioi	Graduate Adm	63 Nathan Lane			Austin	TX	78702
4	Palomino Stati	am	12/1/09	Mister Howard	Hesseman	Department	Political Th	Graduate Adm	21 Recursive I			Dept of P Topeka	KS	66603
5	Christopher C	am	12/1/09	Rev. Gordon	Jump	Department	Political Mi	Graduate Adm	227 Maria Gibbs Rd			Detroit	MI	48201
6	Chula State U	am	12/1/09	Dr. Loni	Anderson	Department	Public Poli	Graduate Adm	Dept of Political Science			Jackson	WY	83001
7	Newtowne Col	am	1/5/10	Dean Tim	Reid	Department	Public Adn	Graduate Adm	Dept of Politici	123 Main		Beverly H	CA	90210
8	Oak University	am	1/5/10	Sargent Jan	Smithers	Department	Governanc	Graduate Adm	11 Smith Rd.			Allentown	PA	18101
9														
10														
11														

Note. Columns represent fields of job information; rows represent available positions. Columns include the institution name, job type, deadline, contact individual, department and position titles, and mailing information.

purposes, we encourage applicants to exploit them in order to simplify the creation of job packet materials. We employ R to both accelerate the gathering of job data and manage the LaTeX typesetting system to produce a file of ready-to-mail letters.

Why prepare these documents with LaTeX? This free, open-source typesetting system creates beautiful documents so that the user can focus on content and structure. However, until now, LaTeX has been difficult to use for mail-merges, especially when data are being drawn from a spreadsheet. We have simplified and automated this process to allow even novice users to quickly gain LaTeX's typesetting advantages without investing too much time in learning a new way to process documents.

Why do we scrape and process text with R? R is a free language that is well-known for statistical estimation, but it can also collect, organize, and output text as data. For readers unfamiliar with R, a wide array of introductory materials is available (Crawley 2007; Venables, Smith, and the R Development Core Team 2010). R enables users to scrape the web and parse text without being required to learn a new general-purpose computing language. In fact, R users can often harness the strengths of other languages such as Python, C++, or Perl through add-on packages. Jackman (2006) offers a succinct demonstration of these capabilities as applied to vote data on the web.⁵ Scholars have created general tools that can put R to work scraping web pages and manipulating text (Feinerer 2008; Feinerer, Hornik, and Meyer 2008; Temple Lang 2009a; Temple Lang 2009b). Specific implementations include the automatic collection and processing of U.K. House of Commons voting data (Firth and Spirling 2003; Firth and Spirling 2006).

We provide a suite of functions in R that directly imports APSA eJobs data into a spreadsheet, reads any spreadsheet of job information, and outputs a single file of customized letters and mailing labels. The next sections offer examples of how to use these tools to automate data collection and letter creation, so that less time can be spent preparing documents. Users of R and LaTeX should find the implementation of our approach straightforward; for readers who are new to these tools, the process of obtaining muRL, R, and LaTeX is relatively simple and free.⁶ There are many reasons why these free and open-source products are well-suited for conducting analyses and writing papers.⁷ Here, we provide an efficient method of conducting mail-merges

Figure 3
Typical APSA eJobs Search

Welcome to eJobs, APSA's year-round online source of jobs political science. If you have questions be sure to visit the Frequently Asked Questions page.

From this page, you may update your CV/Resume on the **eJobs CV/Resume Database**. Over 800 employers who list position openings on eJobs regularly search this database for candidates to recruit for their jobs.

eJobs CV/Resume Database

Place your cv or resume on the **eJobs CV/Resume Database**. Over 800 employers who list position openings on eJobs regularly search this database for candidates to recruit for their jobs.

[Add your resume](#)

Search for Job Listings

View jobs posted: Or, View all new jobs from the last 2 days

Search includes:

Title of Position:

Deadlines: / Open Until Filled

Start Date:

Subfield:

Area of specialization: Choose from this list or enter your own.

Salary Range:

Type of Institution:

Geographic Region:

Criteria:

The above criteria is:

[Search](#)

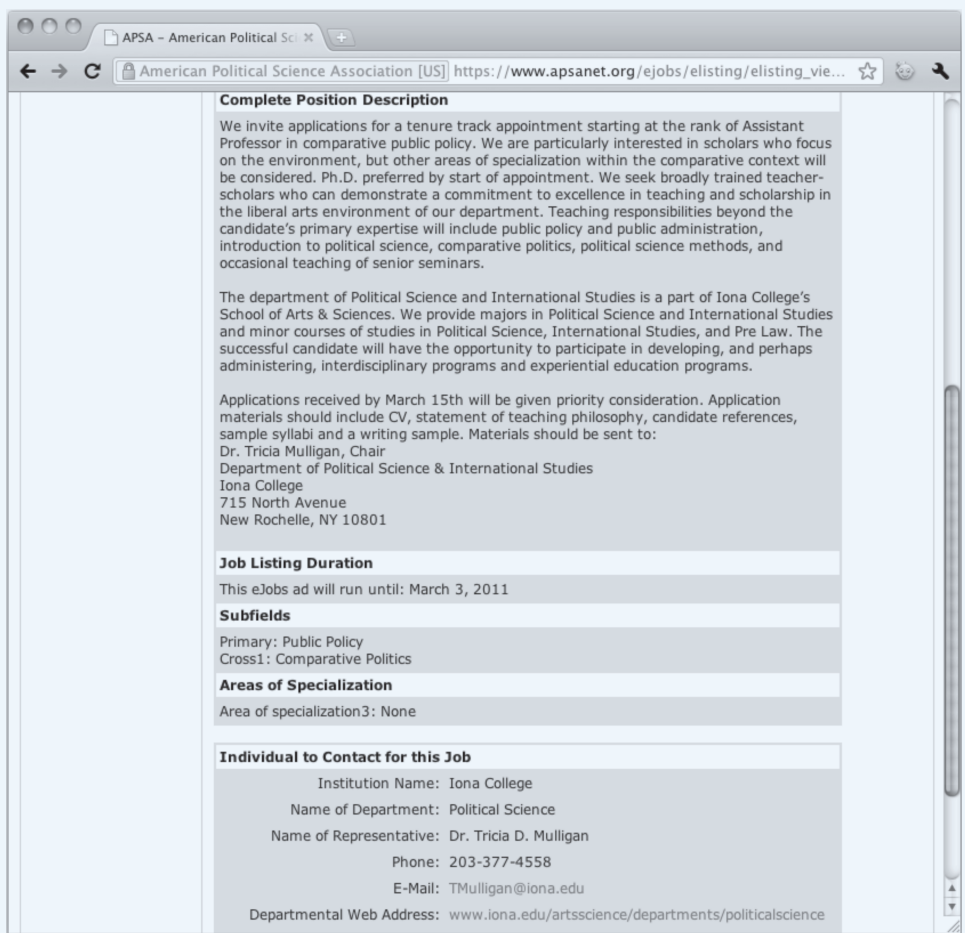
for any purpose, although we focus on political science job application letters.

Figure 1 outlines our method. First, you prepare a spreadsheet of job data, such as that shown in figure 2. This preparation can be done either by hand or automatically by using our `apsahtml2csv` function (which we detail in the following section). Second, `muRL` creates a TeX file using `write.muRL`, a function that processes the spreadsheet and incorporates your letter contents. Third, you customize the letter, which may involve altering the TeX file to adjust margins, font sizes, and so on. Last, you compile the TeX file to create a single PDF or PS file containing all the letters.

AUTOMATED SCRAPING OF APSA EJOBS DATA

The first step outlined in figure 1 is preparation of the job spreadsheet. Without `muRL`, this step involves a substantial amount of data entry. For each job, the user must manually enter the address and other job-specific information into a spreadsheet that will later be used for the mail-merge. If you are applying to positions listed in eJobs, our tool automates the data collection and entry processes for you. Even if you choose to forgo the rest of `muRL`'s functionality, its ability to instantly process many eJobs listings into a spreadsheet can save you considerable time.

Figure 4
Typical APSA eJobs Listing

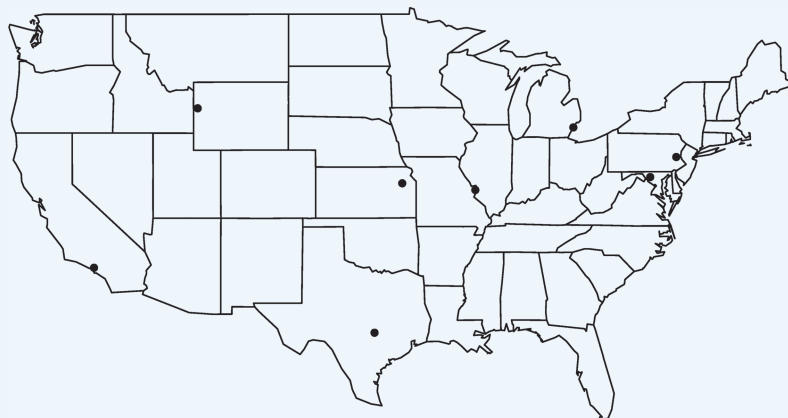


Automatically populating a spreadsheet of APSA eJobs information requires two steps: saving the position information presented in the eJobs listing and processing this information using muRL's `apsahtml2csv` function. To save the job informa-

.html pages is on the desktop⁹ and is labeled "eJobs," (b) the desired output file name is "myjobs.csv," and (c) you saved all the files with extension ".html," then the muRL command will be

```
apsahtml2csv(directory = "~/Desktop/eJobs",
              file.name = "myjobs.csv",
              file.ext = ".html")
```

Figure 5
Typical muRL Map of Job Locations



Note. Data used were drawn from figure 2.

Of course, you could produce the spreadsheet input to muRL in any way you desire. If you are applying to many political science jobs, however, the `apsahtml2csv` function will save a great deal of time. Other tools can be combined with our package to create even greater efficiencies in the job application process. For example, you could use `apsahtml2csv` to create the spreadsheet and then store this information online as a collaborative document using an interface such as Google Documents or Dropbox. Several applicants could split the work of making amendments to the spreadsheet, because a particular position's address, contact person, and so on would be the same for every applicant.¹⁰

FROM THE SPREADSHEET TO THE LETTERS

Once the spreadsheet of job application information has been created either manually or by using the `apsahtml2csv` function, you can process it by calling `read.murl`, a single function from our `muRL` package.¹¹ If the spreadsheet is named `myjobs.csv` on the desktop, `read.murl` processes the data into an R object (here called “`murljobs`”) so that `write.murl` can process it later¹²:

```
murljobs <- read.murl  
 (“~/Desktop/myjobs.csv”)
```

Calling `zip.plot(murljobs)` creates a map of the zip codes in your spreadsheet, allowing you to see the geographic distribution of jobs. Figure 5 displays the locations of the positions from the data in figure 2’s spreadsheet.

Next, you can use a single command (`write.murl`) to create a TeX file. Many options are available to customize the preamble, body, and formatting information to be included in the relevant letters. Full documentation is available for the complete array of options available through arguments in each of `muRL`’s functions. Most important, you should customize your letters to emphasize how your qualifications will benefit the particular department or departments to which you are applying. You can specify the body of the letters directly by using the `letter.text` argument:

```
write.murl(murljobs, letter.text  
 = “This is sample body text.”)
```

Alternatively, you can create the body of your letters in a separate file, using a text editor such as Emacs, Notepad, or TextEdit. If you save this file as `content.txt`, you can use the `letter.file` argument to automatically insert its content into your TeX document:

```
write.murl(murljobs, letter.file = “content.txt”)
```

All that remains is for you to compile the TeX file and send the letters. `muRL` produces a single file of the letters and associated mailing labels (including postal bar codes). Figure 6 presents an example of a letter created by `muRL`; the accompanying bar-coded mailing labels are shown in figure 7. If you compile the TeX file using `pdflatex`, a single PDF file will be created. If the search committee asks that letters be submitted electronically, the PDF file can easily be separated into several letters before uploading or e-mailing. This task can be accomplished by using LaTeX’s `pdfpages` package or other PDF utilities.¹³

Conscientious job seekers are likely to peruse eJobs frequently to stay apprised of the new openings on the market that continually emerge. Prior to mailing applications, we recommend that you regularly add `.html` pages to the chosen directory and then process the full set of pages using `apsahtml2csv`. As positions emerge after you have begun sending out packets, you can simply

Figure 6

Typical `muRL` Application Letter

123 Venus Flytrap Way
Cincinnati, OH 45201
jfever@wkrp.edu
<http://www.wkrp.edu/jfever>
513-555-5664

February 6, 2010

Dr. Richard Sanders
Graduate Admissions Committee
123 Hello Way
Frederick MD 21701

Dear Dr. Sanders:

I will complete my Ph.D. at WKRK University in the Department of Musicology and will defend my dissertation in June 1972.

My dissertation examines . . .

In addition to my dissertation, I have also worked on . . .

In addition to my research, I believe I could be an asset to your department through the courses I could offer . . .

I have included with this letter, two chapters of my dissertation, my *curriculum vitae*, an outline of my dissertation, and a summary of my teaching experiences. You will also be receiving letters of recommendation from Professors Less Nessman, Jennifer Marlowe, and Herb Tarlek, which will arrive under separate cover. Thank you for your consideration of my application. I look forward to hearing from you.

Sincerely,

Johnny Fever

create a new directory with the `.html` pages of the most recent positions and use the function whenever you are ready to apply. Since `apsahtml2csv` scrapes and stores the application closing date, you may also subset jobs by due date, subspecialty, or any other parameter.

CONCLUSIONS

Free and open-source tools exist to automatically produce and format many common types of materials, including statistics exams (Grün and Zeileis 2009), quantitative teaching tools (Dryver 2009), analysis output tables (Malecki 2009), and the like. Our package automates the creation of customized letters for job applications, recommendations, or any other purpose. We are also able to automate the collection of data from APSA’s eJobs webpages, which constitutes the most comprehensive collection of political science jobs in the United States. Routinizing these tasks saves time and allows you to focus on producing high-quality applications and research content.

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