How to Get a Teaching Job at a Primarily Undergraduate Institution

By A. Malcolm Campbell, PhD, Davidson College, NC

Introduction

While seeking a site for my second year as a Pew Teacher-Scholar Postdoctoral Fellow, I had the rare opportunity to visit and interview at eight colleges in the Midwest. This experience gave me a feel for the interview process and insights into the special qualities in prospective faculty members sought by undergraduate institutions. I would like to share what I learned during my time on these campuses, as well as what I have learned as a tenure track faculty member at a small college. There are both similarities and differences to the experiences of candidates interviewing for faculty positions at research universities.[1, 2, 3] Unfortunately, most PhD candidates and postdocs are chastised for any interest they have in teaching (sometimes referred to as the "T-word") and get little support from research mentors for such a career choice. There has been increasing awareness, however, that not everyone who gets a PhD wants to establish a research lab at a large university. In an attempt to assist those seeking "teaching" careers, I offer the following suggestions that may be helpful for those wishing to get a job at a primarily undergraduate institution.

Career Tracks

If you know that teaching undergraduate students is why you are getting a PhD in the first place, then you want to think about the implications of choosing a particular lab for your thesis work. If you choose a lab that does only one technique and your project requires you to work with live Ebola virus, then you are not setting yourself up for a teaching job. Most primarily undergraduate institutions want a person who is versatile and can conduct research that has plenty of opportunity for student participation. Proficiency with a single technique is too limited a technical repertoire and Ebola virus is too dangerous and expensive to manage at a primarily undergraduate institution. Inexpensive and short-term research projects are best suited to an undergraduate college. If you are still keen to choose the Ebola virus project, then recognize that a postdoctoral fellowship will be necessary to add breadth to your training.

Do you have to do a postdoc in order to teach? The answer is yes and no. In today's tight job market (about 100 applicants for each advertised job), those without postdoctoral experience are the exception. Postdoctoral training will be beneficial for several reasons: 1) you may learn more techniques and a different system, which should provide sufficient experience to teach at least one more course; 2) you should gain more experience with writing grants and increase your publication record; and 3) you will develop a degree of maturity that comes from having to adapt to a new area of research.

How do you select your postdoctoral experience? With a few Nobel Prize winning exceptions, the name of your postdoctoral mentor will not be easily recognized; most faculty members only recognize the names within their field. However, you might find that the name of the institution where you postdoc has a greater impact. This does not mean that the quality of your training will be better at a name-brand institution, but some people will find this attractive which may, in some small way, help you get an interview. You should determine before you begin your postdoc whether or not the principal investigator will allow you to take your research with you. The ideal project for a primarily undergraduate institution is one that is cheap, easy to learn, and not subject to intense competition. If you want to teach molecular biology and use this in your research, it is understood that this is an expensive discipline but you might want to work with an inexpensive system such as *Chlamydomonas* or *Drosophila* instead of more expensive ones like mammals or tissue culture.

Should you tell a mentor that teaching is your long-term interest? It is a good idea to be honest up front because you will want a letter of recommendation from the principal investigator, so he or she will find out eventually. If you are considering a lab where the PI is hostile to teaching as a successful career for PhDs, it is better to find this out before you commit yourself to this lab. Do not subject yourself to a lab where the PI resents his or her "wasting time" on someone who will "just wind up teaching anyway". There are plenty of PIs who view teaching as an acceptable career.

One aspect that is often overlooked during doctoral training is teaching experience. Most PhD candidates have to teach for at least two semesters. Often, the courses are huge and allow little room for personal input and control of the course. If you know that teaching at a primarily undergraduate institution is your objective, try to teach more than the bare minimum. Offer to guest lecture for your mentor (very few mentors object to this). You might be able to teach a course for someone on sabbatical at a local college (either a 2-year or 4-year institution). As you gain more teaching experience, ask yourself again if you enjoyed the process. Is this what you want to do for the next 30 years?

Finally, where are teaching jobs advertised? This is the easiest part of the entire process; all jobs are listed either in *Science* or in *The Chronicle of Higher Education*.

There will be some overlap between the *Chronicle's* listing and those found in *Science*, but the *Chronicle's* listing is a week or two ahead of *Science*, which can make the deadlines more user-friendly. In *Science*, most job advertisements appear between late August and early January, but some gems can be found at other times due to unexpected changes in faculty. The Internet can also facilitate the job search (see footnote).

Before applying

There are a number of things any candidate should do before applying for a teaching position. Contact local colleges or your alma mater and offer to present a seminar of your work—then make the time to do it. There is never a good time in your schedule to do this, but the practice is invaluable, and most colleges are happy to have a free seminar speaker. While there, solicit comments on your curriculum vitae (CV), and statements of teaching philosophy, and research interests (see below) and ask for constructive criticism and suggestions for your job search. Once you have seen an ad that is tempting, do a little homework and soul searching. Ask yourself how far you really want to stretch yourself. For example, if the ad is for a geneticist and you are a biochemist who happens to use *Drosophila* tissue—could you really teach genetics?

Consult in the geographical listing, *Science Citation Index's* year end report,[4] which has a state-by-state listing of that year's publications from each department of every institution in the country. Compare the school in question to others with which you are familiar. This will give you an idea of the quantity of research expected at the school in question.

Use the Council on Undergraduate Research's Directory of Biology Departments.[5] It lists most of the top primarily undergraduate institutions in the country and gives a great deal of information about the available equipment and research interests of the faculty.

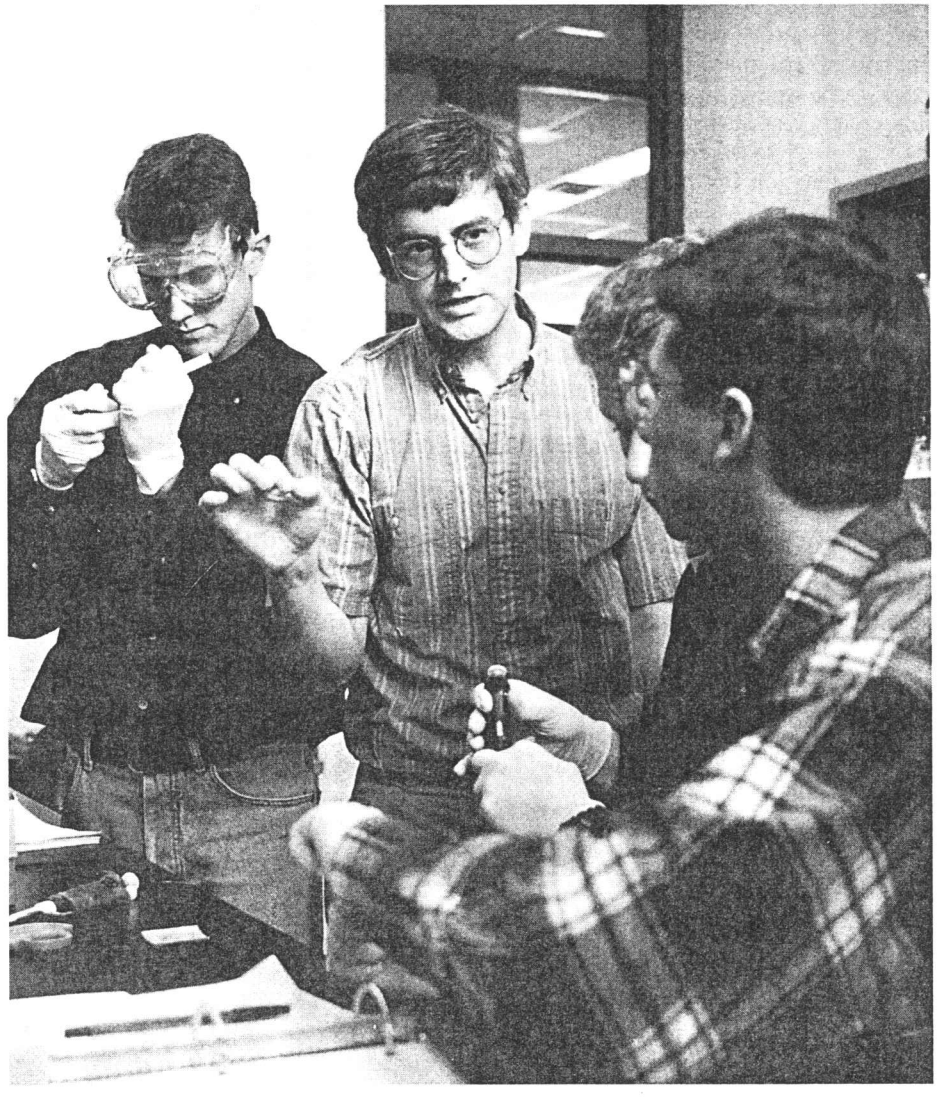
Use *Peterson's Guide to Four Year Colleges*[6] to learn about the students in their geographic and ethnic diversity, average SAT scores, etc. The information on the school's endowment will give you a feeling for how deep the school's pockets may be when it come time for negotiations of salary and set-up money.

Call the chair of the department, or the chair of the search committee, to ask some general questions. The fact that you called will probably be recorded in your file. You can try to get a better understanding of the job: which courses you would teach; how many contact hours you would be expected to maintain; whether there is a research lab available or in the planning stage; whether there is any set-up money; how many majors the department has, etc.

Most academic libraries have a microfiche collection of catalogs from every school in the country. Catalogs allow you to find out who teaches which courses, what courses are offered, and how often. You can also get a feeling for the history of the college, any areas of special pride, and read the school's mission statement. Most undergraduate institutions present information on World Wide Web (WWW) home pages. All of this information comes in handy when you are writing your cover letter.

The Application

You will need to submit four documents for any teaching position where there is also an interest in research: 1) a cover letter; 2) your CV; 3) a statement of your teaching philosophy; and 4) a description of your research interests. Even if the ad does not ask for them all, you should send them. If they really don't want one of the documents you send, they will not read it. However, some institutions will not list all four required documents to save space or money or as a quick way to eliminate those "who don't know better". Some primarily undergraduate institutions ask for transcripts that you might want to have in your files so you can send them copies directly, if this is acceptable. Of the four standard documents, I would rank the four documents in the following order of importance: 1) cover letter, 2) cover letter, 3) cover letter



4) cover letter. Although your CV, teaching statement, and research interests are very important documents for a job that expects both teaching and research, the first round of cuts will be heavily influenced by your cover letter. The cover letter is incredibly important for the following reasons. There is no one in the department who does what you do (if they did, they wouldn't want to hire another one), so no one will understand fully your research or appreciate who has written your letters of recommendation. At some institutions, some faculty may not conduct research at all, and will not be familiar with the latest techniques. You are writing to an audience of administrators and a collection of biologists from every subdiscipline, so your cover letter should be general in nature in order to appeal to everyone but also sufficiently distinct and not generic. There may be as many as 150 applications, so everyone is looking for those applications that can be easily eliminated. With this in mind, the first document most faculty read is the cover letter, so your cover letter should not contain any reasons to justify putting it in the stack of excluded applications.

Now that you know the cover letter needs to be perfect, what should it look like? It should be about 1.5 pages long, explain why you are interested in teaching as a primary focus, indicate clearly that you are familiar with this particular school, and make it clear that you want to work with their undergraduates. (Make sure you use the word undergraduate; some applicants send the same cover letter to research universities and primarily undergraduate institutions—a guaranteed way to be excluded from the search.) If you determined from your phone call that there is an interest in hiring a faculty member with an active research program, you want to describe your intention to involve undergraduate students in your research. The cover letter should be well written, easy to read, and maybe reveal enough of your personality that your application stands out from the others. Have several colleagues critically read and comment on your cover letter.

Your CV should be written as if you were trolling for fish—put out as many hooks as possible to snag as many fish along the way as possible. Sure, you need all the basic facts, but they should be presented in the best possible light. For example, let's say your PhD thesis is on a molecule in the right ear of the tsetse fly, and you got your degree with Dr. X at University Y. You could list yourself as:

- PhD, 1995, University Y.

Or you could say:

- PhD, 1995, University Y.
- Thesis title: "A big and novel molecule in the right ear of the tsetse fly"
- Thesis advisor: Dr. X.
- Comprehensive exams in Entomology and Neurobiology

By listing all this information, you have put out four hooks instead of one. You never know who is interested in some obscure aspect of your research. By providing the thesis title, you have allowed one more person to get hooked. Or maybe there is someone who actually knows your former thesis advisor, likes insects, or likes the idea of hiring an insect neurobiologist. The date may indicate your "scientific age" and the name of the university may also carry some implications. At the top of your CV, you may or may not want to put some biographical information. Your name will probably indicate your gender, so that is not an issue. But do you want to give your birth date, place of origin, or marital status? These are issues that should not be factored into a hiring decision but frequently are (at least subconsciously) by some faculty. So if you think it might help, add it; but when in doubt, leave it out. If you decide to include personal information, do not give names or ages of family members. You might want to include some of the following sections in your CV.

Education

Degrees: (with as many hooks as possible) beginning with the most recent. Some people like to include postdoctoral training under education. Also, non-degree experiences could be added here (e.g. Cold Spring Harbor courses).

Academic Appointments: Temporary teaching positions, such as postdocs or research associates.

Honors: Undergraduate scholarships, cum laude, Phi Beta Kappa, fellowships, awards (especially "TA of the year" or other teaching awards).

Teaching Experience: Beginning with the most recent, list all teaching experiences you've had, even if it was volunteer teaching for public school kids, a single guest lecture for undergrads or grad students, as well as all TA positions. You might want to de-emphasize research assistantships that relieved you of teaching duties. The point here is to indicate your long term interest in teaching. You do not want to give the impression that you have reluctantly decided to settle for a teaching position. Likewise, you do not want to appear to be running from the demands of research in search of an "easy" teaching job.

Professional Activities: Memberships in professional societies (give dates of membership), editorial consulting for journals or funding agencies (you reviewed a paper or grant proposal for them, including those your mentor farmed out to you), committee memberships at the university or professional society level, any invited talks (e.g. your alma mater practice talk), and funded grants.

Publications: If you have any undergraduates as coauthors, set another hook by drawing attention to this fact. For example, *denotes undergraduates as co-authors.

Articles: Begin with the most recent, including those in press. If you have both research and review papers, you might want to list them under separate headings to enhance your professional appearance. If you need to, you can add manuscripts in progress but this should probably be done if you have only two or fewer publications. It tends to draw attention to a weak publication record.

Abstracts: Begin with the most recent, and give where the abstract was published or where you presented the work. You may want to distinguish between oral and poster presentations, if you are keen to do so. Presentations at "in-house" formats should not be included in this list.

References

These are the people who will write your letters of recommendation. You should have their title, name, full address, and phone number; a fax number and an email address might not be a bad idea. Choose people who each have different perspectives of you, especially if they can comment on your teaching ability and your desire to teach. One of your undergraduate teachers might be appropriate if you were close to this person and have maintained contact. To facilitate the process for your references, notify them well in advance and mail them a list of addresses and brief descriptions of the positions.

Writing a teaching philosophy is like trying to photograph a dense fog, but at least you have to write only a maximum of 1.5

pages. (With 150 applications to read, no one wants to read epic statements.) You might explain more about the basis for your desire to teach; what courses you could teach in addition to the ones advertised (based on what you learned from reading the catalog, although this could be a touchy subject if someone on the search committee feels threatened, so use the phone call to help figure this one out); what teaching goals you might have; any basic beliefs about what constitutes good teaching; what you might do in the lab sections that deserves special mention. A good definition of a teaching philosophy is up for grabs, so ask faculty at nearby colleges to critique your statement in exchange for a free seminar. I found that even faculty I had never met were willing to help out a budding young teacher.

The research statement should also be about 1.5 pages and should be in balance with your teaching philosophy; do not present a lopsided picture of yourself. You should not go into too much detail. Make sure to cover three areas of particular importance: the nature of your research, undergraduate student involvement, and the potential for funding your research. If you want to brag a bit, you can add appendices under the appropriate area. Appendices set more hooks but the material is optional reading. The 1.5 pages of your research statement should stand alone, but an appendix may help an interested committee make a more informed decision. If you want to show off your publications, you can squeeze a few reprints into an appendix under the section describing your project. Similarly, a submitted or funded grant can be displayed in an appendix to the fundability section.

The Phone Call

If you get a call from a school requesting an interview, ask about the seminar audience, length of the talk, the presentation format (2x2 slides, etc.),and whether a completed story (your thesis) or ongoing and future work is preferred. Ask to meet with students without any faculty present, perhaps over a meal. Some schools do not automatically schedule this, which might imply what they think about their students. Meeting biology majors is very important since they will be your source of research colleagues and the people with whom you will work the most. Many primarily undergraduate institutions will ask you to present a lecture to a class in addition to your research seminar. If this is not required, you may want to volunteer to give a lecture. This may give you better insight into the caliber of students and enable the faculty to evaluate you more completely.

Preparation for the Interview

From this point on, think of yourself not so much as competing against two or three other candidates but as a prospective employee looking for the best fit. You want to find your niche in the broad spectrum of approaches to answering the question, "How do we teach biology?" Some schools have created "research colleges" where most of the faculty receive extramural funding and have large research labs but do not stress curriculum innovations. Others send their students away for summer research experiences and put most of their resources into the curriculum and intensive student contact. These dichotomous models, and all those in between, can be successful only with the right combination of faculty members.

Mind what you say to everyone from the time you arrive until after you have left, including those delegated to transport you to and from the airport.

Now it is time to get more serious about your homework. Familiarize yourself with the department members and the courses offered. In the most recent March issue of the journal *Academe*, you will find a listing of the average salaries for assistant, associate, and full professor for almost every school in the country. The salary listed for an assistant professor includes those with six years of teaching experience; science faculty often get higher salaries. This information will tell you what to expect as a reasonable salary offer. Read all the papers published by department members during the last five years as listed in *Science Citation Index*. Prepare a five year research plan with an explanation of how it involves students. Also compile a list of equipment (with prices) that you will need to teach and conduct research.

The Interview

The average interview has the following basic format. You'll meet students, faculty, the dean (and maybe the president), give a seminar, go out to eat (and drink, but watch yourself), and generally be kept very, very busy. This process can be exhausting. Mind what you say to everyone from the time you arrive until after you have left, including those delegated to transport you to and from the airport. The interview provides your best chance to get answers to all your questions, so make the most of your visit. Bring a small notebook and take notes during your meetings with everyone - faculty and administration - because by the end, it will be hard to remember all the details. During your time on campus, there are a few things you should try to do. Go to the department and the library after hours to see who and how many are working. While in the library, look for the journals you will need. Ask to look at some housing, and get a feel for the quality and cost of living in the area. Make sure you get a good tour of all the facilities and equipment in the department, as well as the rest of the campus. Note any differences between responses of tenured and non-tenured faculty. Try to detect if this is an embattled department (e.g. animal vs. plant, molecular/cell vs. organismal/field, research active vs. non-active). Make sure that you meet everyone in the department and there are no hidden skeletons. If the occasion presents itself, casually mention the other schools considering you, because this makes you appear more attractive. If no one in the department conducts research, beware of the potential for unrealistic expectations of your research from both the department and the administration. Ask about the possibility of a reduced teaching load in exchange for student involvement in research or extramurally funded grants. Find out how reappointments and tenure decisions are made, who is involved in these decisions, and what percentage of faculty are denied tenure.

Be prepared to be asked illegal questions concerning age, sexual preference, marital status, and children. (Questions concerning religion are legal at church-related schools that advertised as such.) You have three options in response to illegal questions: 1) refuse to answer, 2) note the impropriety (either overtly or subtly) of the questions but answer them anyway, 3) anticipate the

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questions by inquiring about schools, benefits plans, or job opportunities for significant others.

The Dean

Some questions are best asked of the dean. Ask him or her: the salary range offered for this position (this may not be their final offer, but negotiations should wait until after you have been offered the job); set-up funds; and the benefits package including annuity, health insurance, moving expenses, occasional free classes for family members, tuition remission for your children. Sometimes you will be asked open-ended questions concerning set-up money. Dean: "How much were you thinking?" Candidate: "That depends on the institution's commitment to research." This is where your ability to bargain will be useful. Remind the dean that 1X funding gets 1X results and 10X funding gets 10X results. However, this kind of hardball bargaining may put high expectations on your own research performance. Ask the dean to define "scholarly activity" in regards to tenure. It is a good idea to present the dean with a list of equipment which should be prioritized as equipment needed versus wanted, with potential funding sources for the latter. This list should be optimistic but not outrageous, and leave you some room to compromise during the negotiations. It might be worth reminding the dean that time spent on applications for funds to purchase essential equipment is time not spent on teaching or research. The final negotiations will come later, after the job offer is made.

The Chair

The department chair will have control over certain aspects of your position. Ask the chair how long he or she has held this position and whether this is a rotating position or an open-ended one. Have "scholarly activity" defined in the chair's own words and compare this with the dean's response. Does the definition include: attending national meetings (with or without posters and/or students), publications (is there any weight given to one article in a prestigious journal vs. three in obscure journals), publication of text books and lab manuals, national society committee participation, grants applied for versus funded, research with students (with or without resulting publications)? Find out who in the department has gotten grants lately and from which agencies. Ask to see your potential office and research space in addition to the teaching labs. Beware of vague responses and promises of a newly renovated lab space that seem too good to be true. If they do discuss a space that is not currently available, ask about the budget for renovations and to see the blueprints.

Questions for Every Faculty Member

It might prove informative to ask these questions of each member in the department. You might uncover some factions within the department that you might not notice otherwise. What percentage of their time does he or she spend on teaching, research, and service? Compare their responses to what you know about their publications and when they were hired, as expectations at most schools have changed in recent years. What is the average size of classes and labs, and what is the overall work load? How does each member see the new position? The new physiologist position, for example, is it for a plant physiologist, human physiologist/anatomist, or someone who does patch-clamping? Is everyone in agreement, or are there opposing ideas being presented?

One cautionary note, most primarily undergraduate institutions are not accustomed to hardball tactics. Be firm but not pushy as you will need to negotiate a variety of other issues through the coming years.

Questions for Any Faculty Member

Here are some general questions you can ask any department member. Would you have access to email in your office? Does the department use IBM or Mac? Is there a policy concerning sabbaticals for both tenured and non-tenured faculty? Does the department use teaching assistants and work-study students? If so, how are they funded and how are they assigned? Who is responsible for setting up equipment and washing glassware used for teaching labs? Does the college have a license to work with radioactive isotopes? Are science majors required to do research? Do they have to submit a thesis? Are there any curriculum changes in the works? Are there any collaborations currently underway within the department, with other departments, or other schools? Are the sciences coordinated and unified, or split and possibly hostile? Who pays for photocopying, phone calls, interlibrary loans, faxes? Does the administration support travel to scientific meetings? Is there financial support for research expenses or sabbaticals? How can subscriptions to vital journals be requested? Is there access to MEDline or other online source for journal articles? Do you have access to the nearest large university research library? Is there a formal speakers series, and who is responsible for inviting the speakers?

Questions for Students

Often, students will tell you the way they see their school and department without "politically-correct" filters. Ask them: what courses they like and hate, do they read journal articles, what are the strengths and weaknesses of the department and school, do all the faculty get along, with hindsight would they choose the same school again, do they control any aspect of the department (speakers, clubs), do they have any future plans, have any alumni returned to talk with them about life after graduation?

The Job Offer

If you have asked all these questions and the college still wants to hire you, don't jump at the offer right away. Request a few days to consider the offer and ask to come visit again in order to let your significant other see the area and finalize details. You may have to pay for this trip yourself. You might want to call other places you are considering to apprise them of the offer and see if they can match it. Once you have signed the contract, it will become much more difficult for you to directly affect your salary, as your annual wage increases will be percentages of your starting salary. It is worth reminding yourself that you have been selected with much pain and expense and that the first offer may not be as high as they are willing to go. It's like buying a car: some places offer fixed prices whereas others like to haggle. You will have to deduce this distinction on a case-by-case basis. One cautionary note, most primarily undergraduate institutions are not accustomed to hardball tactics. Be firm but not pushy as you will need to negotiate a variety of other issues through the coming years.

After you have the final offer, write down what you understand to be the complete package (e.g. teaching load, set-up money, lab space, salary, and benefits) and send two copies to the dean with one to be signed and returned to you. Explain to the dean that this unwieldy procedure is designed so that neither you nor the college will be surprised later and no one will feel misled.

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4. *Science Citation Index* (Geographical listings) is published annually by the Institute for Scientific Information of Philadelphia, PA.
5. The CUR listing was published (not an annual publication) by the Council on Undergraduate Research of Asheville, NC.
6. *Peterson's Guide to Four-Year Colleges* is published annually by Peterson's Guides, of Princeton, NJ.

Footnote:

Academic positions advertised in Science and in *The Chronicle of Higher Education* can be searched via Internet. See your local computer guru to find out how to access the World Wide Web (WWW). To access The *Chronicle's* job listing by WWW, go to http://chronicle.merit.edu/.ads/.links.html. There you will be able to search by geographical location or academic discipline. Science On-Line, the WWW home page for *Science*, can be found at http://www.sciencemag.org/. Once you have gotten to this home page, you will have several options. Click on the arrowhead next to "Science Professional Network"; you can either choose to browse all of the advertisements as you would for the paper version, or you can conduct a keyword search. Try words like "cell", "undergraduate", "teaching", or "college". You could search for a particular state, or the word "tenure-track". Unfortunately, you cannot search back issues through this medium.

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PROTEIN BIOCHEMIST. The Department of Biochemistry, Microbiology and Molecular Biology at the University of Maine seeks a biochemist with research interests in protein-protein or protein-nucleic acid interactions to fill a tenure track position at either the Assistant or Associate Professor level, available September 1, 1997. Additional research experience in the molecular genetics or developmental biology of aquatic organisms is desirable. A Ph.D. and postdoctoral experience are required. The successful candidate will be expected to maintain a vigorous, extramurally funded research program and contribute to teaching of the undergraduate and graduate curricula in Biochemistry. Minimum salary is $40,000 per academic year. Send a cover letter, description of research interests, curriculum vitae and three letters of recommendation to: Dr. Michael E. Vayda, Chair, Biochemistry Search Committee, 5735 Hitchner-BMMB, University of Maine, Orono, ME 04469-5735. Review of applications will commence June 1, 1997 and applications will be considered until a suitable candidate is located. Women and minorities are encouraged to apply. The University of Maine is an Affirmative Action/ Equal Employment Opportunity Employer.