

# Job hunting by the industrial microbiologist: Art and science

## Published by the SIM Education Committee

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## Decisions-Decisions

You're a microbiologist or a biochemical engineer. You may be about to graduate with your bachelor's degree. You may have had a job but have lost it. You may have an advanced degree. You may have a job but for some reason you're not doing what you want to do or going where you want to go. The **SIM Education Committee** hopes that you will find this helpful in searching for a job and useful in pursuing the next stage of your career.

For the most part we are targeting the new BS graduate who is making his or her first career decision. For those with professional experience, the process of job hunting is not new but we hope you will also be able to benefit.

What does the information contained in this pamphlet have to offer over and above the usual resources of your college placement office? This pamphlet is only one of several resources available to a person seeking a job. If you rely on any one resource for such an important decision in your life, it may mean you need a few more experiences before you make a commitment of this magnitude. There are references listed throughout this pamphlet to other sources on job hunting. Follow up on at least some of them.

## For the student about to graduate - Do you want a job?

Are you ready to pursue your career now? You may be prepared to enter your chosen profession but if you have any doubts, now is the time to work them out. There are many alternatives to a job, including graduate school, medical school, law school, travel or work in the family business. We only bring this point up because how you pursue your career is going to not only take your time, but that same valuable commodity of many other people as well, especially your teachers and other referees who will be called upon to vouch for you in the form of letters of recommendation and references.

## Be yourself

The worst thing a referee can observe in a candidate for a job is indecision. Be decisive and be yourself. There is much groundwork to do before undertaking a job search. Take an objective look at yourself. Know your strengths and weaknesses, career interests and career goals. Also know the requirements of the jobs you will be seeking. Perhaps some of these generalized ideas may help: Teaching - Problem Solving - Data Organization and Analysis - Coordinating Events (conferences and meetings) - Managing Other People - Researching Ideas or Information - Making Decisions about Finances or Equipment Purchases - Preparing Documentation - Sales - Service - Laboratory (bench) Work - Editing Written Work - Pilot Plant Work.

**Answer these questions about yourself:** How do you want to spend your time at work and during leisure? What do you do better/worse than most people? What have been your best five accomplishments in the past four years? If you could write your own job description, what would it look like? What would you like to accomplish in the next 5-6 years? In 20 years, what would you like your autobiography to say about you?

Now, for the next half hour write about yourself - anything. What you think is important to you, the people around you, your friends, how you want to change the world or just your corner of it. Have a friend read it. Discuss it. Don't be surprised if during an interview something like this happens.

Now, for a half hour write how you feel about diversity, working with people whose race, religion and ethnic origin are different from yours. What positive things do you get out of interactions with others that are culturally different from you? Write how you feel about global issues and how We (you as one part of We) need to understand the world if We wish to capitalize on the world market. Write how technology is changing the world, e.g., communications, medical technology, computers. Finally write about quality and how important it is in the future of any organization and how quality can be achieved through not only machines but the people

within the organization. These are favorite subjects of Human Resource Officers! You may have to make a statement about one or more of these at an interview. Your response will reflect the real **YOU**.

The career path you choose should reflect you and not necessarily your academic major. You must factor in all your needs, priorities and values: Prestige - wealth - challenge - integrity - security - enjoyment - power - expertise - societal values - leadership - work environment - learning new things - working with others - creativity - location - friends and family.

Young job seekers usually have fewer geographical preferences than older people with families. Youth often breeds mobility and the desire to see new things. Nevertheless, if you have geographic restrictions it is better to come to grips with them now.

### **Types of jobs available in your field**

**Research and development.** Universities and hospitals, research foundations, the federal government and private companies conduct research. Research positions usually require a commitment of continued learning and to work day and sometimes nights, weekends and holidays. You must be willing to learn about the current research methods and techniques. A 40-hour work week is probably not going to be sufficient if you want to achieve at more than a “technician” level. If you contribute to the success of a research venture, you should be rewarded by being listed as a co-author of a scientific article or a co-inventor, having a patent in your name. Research is often slow to progress and your supervisor or employer may change direction even before you realize success.

**Education.** High school teaching of biology and science has proven extremely rewarding to graduates who want to interact with young people. Community and junior colleges very often hire MS level scientists as teachers and introductory microbiology is offered at numerous two-year colleges. BS level graduates prove valuable as laboratory managers in science departments of universities. The PhD is the degree expected for those who wish to teach at the 4-year college level.

**Technical products or ideas.** Here you take the information created by the research staff and massage it into a product (or idea) with potential commercial value. (No 40-hour work week here either). Being able to identify with the user of the product is useful here.

**Sales.** The more you sell the more you earn (usually). If you like catching a big fish and successfully landing it, this may be your forté. A certain kind of personality is required for this work. You must be people-oriented to sell to people. Also, the more you work, probably the more you sell.

**Characteristics of the job - Do your homework.** Find out what the earnings potential of your job interests are, where in the country those kinds of jobs are most likely to be found, what kinds of working conditions can you expect, your title, the potential for advancement and the fringe benefits. Which of these are most and least important to you (prioritize everything on paper). Remember, there are few 40 hr/week jobs

out there. If you want anything with potential for advancement be prepared to work hard and long hours.

**Identify your strengths.** You may not work (forever) in a field directly related to your undergraduate major. However, you may use what you learned and apply it to another field (you may major in microbiology but find that selling analytical instruments best suits you). Such is life. So don't ask, “What can I do with a major in —?” What you should be doing is identifying what you have to offer, technically and personally. List your courses, grades, projects, internships, specific interests and summer or co-op jobs. Next list community service, campus, fraternal or civic positions you have held. Ask questions such as:

“How well do I relate to other people?”

“Am I happy in a big city or the country?”

“Do I want to continue my education?”

“Do I want to climb in a corporate structure?”

“What kind of lifestyle do I want?”

### **Finding job openings**

**College Placement Office (CPO).** The function of the College Placement Office (CPO) is to provide a service which brings students and employers together. You should by all means utilize the placement office **at least a year** before you actually start job hunting, because the names of companies on file there may actually be helpful in finding a summer job before your senior year. You will probably be asked to fill out a form or provide information for computer processing to initiate the process. Some CPOs even collect confidential letters from faculty and have these on file to send to prospective employers at your request. These letters may be kept on file for years after you graduate and serve you several times during your early career period. Your CPO should have available the following:

a. A placement manual written and published “in-house” (which may be in large part redundant with this document).

b. The “College Placement Manual” for your graduation year (by the College Placement Council, Inc.).

c. A library of books dealing with job hunting, résumé writing, interviewing (you personally wouldn't want to buy all these books yourself).

d. Video tapes on job hunting/interviewing.

e. Employment newsletters (usually free).

f. A list of and information on specific employers who will be visiting the campus this year.

You may have the opportunity to visit with many well-trained interviewers who are recruiting students for entry level positions. The more interviews you have the more comfortable and at ease you will feel. The CPO may help you better prepare for interviews with formal seminars on this and other matters, such as preparing your resume. Make sure you not only take advantage of this important service but that you learn as much as you can about the companies with whom you intend to interview before you go to the interview. In certain new fields such as biotechnology, there may be very little on-campus recruiting. However, the traditional compa-

nies (pharmaceutical, agriculture, food and chemical and federal and state governments) may be looking for your specialty without designating it specifically with the CPO. If you need special counseling, remember that your placement director is a professional who is probably the most qualified person on campus to lend assistance.

As an alumnus of a college, your CPO may publish a monthly report of nationwide or regional jobs. Ask about this service which is often free or a subscription cost may be requested to cover publication and mailing.

For those who haven't had to look for a new job in the past few years, you should go to your local bookstore and/or library and select a few books on this subject which may help to get you back on track in the job search arena.

**News media.** The classified ads in major newspapers (usually Sunday editions) can generate ideas while giving information about job opportunities. Start reading the classifieds a year before you will be looking for a job to get a good idea of what is available. Some major newspapers have special weekly employment editions. A number of other employment newsletters are often available locally (free). Generally, newspaper ads are placed to seek out experienced persons. Entry-level positions are often not advertised, except for the more low-paying positions. Out-of-area newspapers are often available at local libraries or at specialized media stores and news dealers.

**Employment services.** Generally, the low "Finder's Fees" for entry-level personnel are not conducive to employment services. However, advanced-level jobs may be available through these services.

**The Internet and computer searches.** Job listings are posted, mostly for MS and PhD level openings, at several internet sites, but things change quickly. By the time you read this, companies may have found Internet postings to be useful as well as inexpensive for all levels of work. Of course you will need a computer and modem to access their service. Examples of Internet resources are:

[gopher](#) to ACADEME THIS WEEK - job listings which appear in "The Chronicle of Higher Education"  
[gopher](#) to AAAS/Science Magazine/Science Global Career Network: Science Classified Ads/  
[gopher](#) to Academic Positions Network  
[gopher](#) to Academic Physicians and Scientists

Newsgroups:

bionet.jobs  
misc.jobs.misc (information on job searches, interviews, etc.)  
misc.jobs.offered (jobs offered)  
biz.jobs.offered (business jobs offered)

World Wide Web Sites:

<http://www.augsburg.edu/infinternet/info.html>  
A great amount of information on how to find a job and where.

<http://www.wpi.edu/~mfriley/jobguide.html>  
Margaret Riley's Internet Guide

<http://www.bio.com/>

Association of Biotechnology Companies WWW site: Allows access to a wide range of information about biotech, including names, addresses, telephone numbers and corporate directions of member biotech companies, with a very comprehensive career guide by David Jensen (Search Masters International) at URL: ([http://www.bio.com:80/hr/search/search\\_1.html](http://www.bio.com:80/hr/search/search_1.html))

**e-mail to:** [ysnadm@crow-t-robot.stanford.edu](mailto:ysnadm@crow-t-robot.stanford.edu)

Young scientist network begun by Kevin Aylesworth. In the body of your message ask for "Membership Information." Available six times a week. See MS/PHD 1995-96 issue (address in Reference section).

Although not directly connected to the Internet many states allow residents to access their computer data bases with job listings from both the public and the private sectors. Computers are usually available at state employment offices. An application form must usually be filled out before a password is given.

**Co-operative education.** Many colleges have co-operative education programs which place students into companies before graduation for periods of a half-year or longer. These programs provide experience for students and may prove to be good potential full-time employers for degree candidates. Many companies "pre-screen" potential job applicants through co-op jobs offered through local colleges. If you have completed a co-op program then you should contact the company/organization and the people you know there directly about job openings. You should have an advantage! If there is still time for you to do a co-op, then go directly to your co-op office now!

**Personal contacts (Networking).** Any time you meet another professional you have established a potential contact for a future job: a speaker at a seminar in college, a salesperson, contacts at professional meetings, other classmates, contacts made at civic or fraternal/sororal organization meetings. Make a note of each person you meet (in your notebook - see part C.5), their phone numbers, e-mail addresses, fax numbers, what they do in their company and for whom they work. These people make up your "network."

## **Job search strategy**

**Preliminary considerations.** The Personnel Office of most companies has now become more fashionably named the Human Resources Office. Most job searches start here. Human Resource Officers (HROs) look for many qualities in candidates, but pay attention to some qualities more critically than others. Grades are important as are communication skills. Communication skills must be developed while in college and few businesses have an interest in beginning this task from scratch. Candidates with communication skills will often prevail over those who lack such skills. Written documents submitted by the job candidate may be evaluated. Course lab reports, a senior thesis or an essay for an English class demonstrate those skills. Keep copies of them in folders, ready to provide them if needed. An ability to work as a member of a

team is becoming more important. You should be able to state your contributions to any team (not athletic necessarily) effort. In many college courses group projects are now assigned, written or laboratory, to better prepare students to work on team efforts in industry.

**The résumé.** The résumé is a statement about your professional qualifications. Prepare it yourself since no one knows you better. The rule of thumb is that the résumé should be no longer than 1 page for every 10 years of experience. A new grad must therefore limit his/her resume to 1 page. Do not use a very small font size to get more on the page. More is not necessarily good. Also many companies now put résumés in databases by electronic scanning technology which precludes the use of “bullets” prior to those aspects you wish to highlight or to underlining. General construction of the résumé includes:

**Personal Information:** Name, address (home and college), telephone number (home and college), e-mail address, marital status, number of dependents, health, military training (if any).

**Objective:** Your entry level career goals—be broad to avoid being excluded from a potentially interesting job. Be exciting, e.g., “To obtain a position that applies my education in microbiology and biotechnology in a dynamic and growing pharmaceutical company.”

**Education:** List degrees in reverse chronological order, PhD, MS, BS (or BA), with college name, major and year. List special courses taken, e.g., “Cell Culture with Lab,” “Computer Applications in Biotechnology” or “Recombinant DNA with Lab.” Do not provide course numbers or use abbreviations of any kind.

**Experience:** Summer jobs, previous employers, co-op sponsor. (Give name, dates, positions and a one or two sentence description of responsibilities).

**Special Skills:** List any special training (such as DNA sequence analysis; fermentation of 20L yeast culture; cloning in yeast, etc.)

**Related Activities:** Tutor for college or high school students, senior project title and brief description, other projects of academic value.

**Extracurricular Activities:** Student, campus, fraternal activities, scouting and other youth leadership experiences, community activities, professional societies (even if a student member), offices held, special projects, committee assignments. Listing of your religious or political affiliations may not necessarily be of any advantage.

**References/Transcript:** Usually a statement that “References and transcript available upon request” is sufficient. It is useful to ask possible references well in advance if they would be willing to provide a letter (or phone call) in your behalf.

**Location:** Where will you work (No preference?)

**Publications and Technical Reports:** List in chronological order any papers and/or technical reports you wrote or contributed to, starting with your undergraduate research project or MS thesis. General format: Author(s), year published, title, journal where published, volume, pages. Journal and technical article listings are allowed in addition to the

page limit for a résumé. If you prefer a different format, then use it as long as it is clear and concise. In a way, it denotes some of your personality.

**Response to ads.** Cover letter: Since newspaper employment ads usually ask for specific kinds of education, training and skills, a letter testifying to your ability to meet those requirements must be sent in response to every ad. A general format for such a letter (see typical letter in this document) might include: (1) Identify the ad, position sought and newspaper carrying the ad; (2) Briefly state how your qualifications match the ad and any special qualities you wish to emphasize (it should also appear in your résumé); (3) Limit your letter to one page. Include your résumé - there is no need to revise it for every different potential job.

**Blind mailings.** Even if you have no information on jobs available at a particular company you may still have an interest in working for that company. Mailing a cover letter and resume without any lead whatsoever is called a blind mailing. Blind mailings should never be totally “blind.” When sending any job-seeking correspondence to a company or university, take the time to send it to a member of management or administration in the area you wish to work. A phone call will identify who the boss is in a specific research area, e.g., Dr. Joe Dokes-Director of Life Sciences or Dr. William Smith-Director of Microbiology. If you send a generic form letter, expect to get one back saying that they have put your letter “on file.” Be prepared to invest in your future — use the phone. You will identify the specific person and department you want; then send your letter. Blind mailings can be done quite easily to many companies simultaneously. The only thing you will wish to change on the cover letter is of course the address of each company. Company names can be obtained from the college placements office or from listings in trade publications. An annual list of over 1200 biotechnology companies in the U.S. is published by *Genetic Engineering News* and is available in hard copy or on disk for a fee. Noting the cautions above, address your letters to the “Personnel Manager” or the more modern “Human Resources Manager.” These letters must be general and may not, of course, address the topics which interest the personnel manager. Blind mailings are not generally an efficient way to find job openings. A typical biology department may collect over 100 blind applications yearly from PhD graduates for an assistant professor position which may not even exist.

**Notebook.** Keep a notebook of all letters written, to whom, date mailed, job applied for, telephone number of company, etc. If a personnel manager calls you, you can quickly look up the pertinent information. With 20-30 job applications (maybe over 100) out, you will not be able to remember every aspect of every one. It is advisable to sound as alert as possible if a phone call should come through about one of your letters for a primary interview. Have someone call you and practice a response.

**References.** As noted, when resume construction was discussed, ask your teachers and other colleagues if they would serve as references for you. While government agencies may

send form letters to your named referees, research and hospital laboratories and many companies simply telephone referees for comments. Ask your referees if they could provide you with a strong reference. Most will reply honestly. Most do not enjoy giving weak recommendations. In any case, take considerable time to fill out the letters and respond to phone calls. If you can make things easier for your referees (by providing stamped, addressed envelopes) then do so.

**Use word processor or photo-offset service.** Since letters may be similar but not identical (sometimes with only the address changed) use a word processor to formulate your letters. Letter quality (LQ) and laser quality print is mandatory. Most colleges have word processing machines with sophisticated laser printers available for student use which produce the finest quality print. The quality of the letter is still in your hands and mind however. In some cases, such as with your resume, you may be able to have it typed and 200 copies printed by photo-offset for less than \$1.00 per page.

**The interview.** Through your college placement office you may be able to have a number of on-campus interviews. Interviewing is an art in many respects rather than a science. The way you dress, hold yourself erect, demonstrate poise and self-confidence as well as how you demonstrate knowledge are all important.

One thing about interviews: the more of them you have, the better you get at them. The interviewers have conducted hundreds of interviews and you will probably never be as good as they. Placement offices may offer special interview training through seminars or video tapes. Nevertheless, it is best to be prepared for anything during an interview. In one case, during a medical school interview, the poise of a student was tested by the interviewer asking him/her to open a window, which was nailed shut. Another student, after hearing about a company and position in a half hour dissertation by the interviewer was asked to speak for 20 minutes about herself. During the interview you should exercise your right to interview as well as to be interviewed. Try to learn as much as you can about whatever you think is important about the company. By all means, be yourself!

**Follow up - Do it for your own good.** This is the most important factor in looking for a job or anything, for that matter. When you send your letter (to a person), call him/her on the status of the letter. Ask questions: Did you receive my letter and resume? Are there any positions now available in your area? Are you the right person to contact? Who else should receive my resume?

If you are interviewed at a company, it is customary for the company to pay all of your reasonable costs. Check to make sure that the company will pick up the cost if extensive travel is necessary. Be cautious about a company that is reluctant to do so. After an on-site interview, send a letter to thank your host for the opportunity to interview and submit your travel expense report. Without follow up, much of your work will be in vain; do not sit by the phone waiting for a call. Call them up!

## What do you do when you get an offer?

**Written offer.** You will receive a confirming written letter of a job offer, usually after a telephone offer. The letter should include your salary, list of fringe benefits such as educational benefits and the conditions under which they may be used.

**Inform your first choice.** If you have received an offer from a company that is not your "first choice," you may be able to accelerate the company which may be your first choice by informing them of this. You may have to make a choice and not accept the first offer if other pending jobs are more appealing. In many cases a decision on your application may have already been made by your first choice employer.

**Another visit.** If you still have any doubts, you may wish to pay another visit to your new employer. You may wish to explore such things as availability and cost of apartments, recreational opportunities in the area (skiing, swimming, boating, fishing, mountain climbing, etc.), as well as firming up the job description. You may have to pay for this visit yourself because the company already may have given you ample opportunity to investigate them.

**Communicating with prospective employers.** On this and the following pages are forms for various letters you may wish to write. **Always** check spelling, grammar and accuracy of names, places, etc., before sending to prospective employers!

## Bibliography

- R.N. Bolles, "What Color is your Parachute?" A practical manual for job hunters and career changes (1979), Ten Speed Press, Berkeley, CA., 7 ch., appendices, updates (develop self-confidence).
- C. Billy and J. Wells, editors, "Engineering, Science and Computer Jobs, Current Year," Peterson's Guides, Princeton, N.J., 1985.
- Superintendent of Documents, U.S. Government Printing Office, "Occupational Outlook Handbook," U.S. Bureau of Labor Statistics, Washington, D.C., Current Year.
- Go to your local bookstore - there are many more good books on job hunting!
- Graduating Engineer, 16030 Ventura Blvd., Suite 560, Encino, CA 91436 (publ. 5 times a year), available at GPO office.
- Graduating Engineer - Minority Issue (same publisher as above).
- The Black Collegian (Published two times during the school year), Black Collegiate Services, Inc., 140 Carondelet St., New Orleans LA 70130.
- David Jensen, Search Masters International, Association of Biotechnology Companies, Career Center at URL: [http://www.bio.com:80/hr/search/search\\_1.html](http://www.bio.com:80/hr/search/search_1.html)
- American Association for the Advancement of Science web page on Alternate Careers in science: <http://sci.aaas.org/nextwave/nextwave.html>
- MS/PHD (Published annually), Peterson's/COG Publ. Group, 16030 Ventura Blvd., Suite 560, Encino CA 91436 or 153 Lantern Ridge Ct., Alpharetta GA 30201 (current year).

## Examples of sample letters

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### General letter of application for companies not recruiting on campus

Your address  
City and State  
Phone  
Date

Name of Company  
Company Address

Dear — —: (Sir or Madam if you don't know)

First Paragraph - tell why you are writing, position you are applying for and how you heard of the opening.

Second Paragraph - state why you are interested in this position and working for this employer. If you have experience, point out what achievements you have accomplished or skills learned in this field.

Third Paragraph - close but also pave the way for an interview by requesting an application form; offer to get together for an interview at a "mutually convenient time."

Very truly yours,

Signature  
Typed Name  
e-mail address

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### Follow-up letter for secondary interview (At Company offices)

Your Name  
Address  
Telephone  
Date

Name of Company  
Company Address

Dear — —:

First Paragraph - Thank him/her for the interview and/or express appreciation for the courtesy and consideration extended to you. State the job for which you were interviewed and place (laboratory) where it was conducted.

Second Paragraph - Reaffirm your interest in the position and the company. Mention any specific aspect of the position which interests you and how you could become an effective part of the company.

Third Paragraph - Show a willingness to provide any additional data or statements and submit further information they may need to complete your application.

Fourth Paragraph - Close with a suggestion for further action, e.g., that you will be available for an additional interview at their convenience.

Very truly yours,

Signature  
Typed name  
e-mail address

## Sample letters continued

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### Cover letter for on-campus interview through CPO

Your address  
Telephone  
Date

Name of Company  
Company Address

Dear — — —:

I thank you for the opportunity to interview for the position of \_\_\_\_\_ with your company on \_\_\_\_\_. I am enclosing my resume for your consideration. Currently I am a semester senior majoring in \_\_\_\_\_. So far I have developed several strengths through courses in (list 2 or 3), a senior research project on (title) and summer work at (name of company). My overall GPA is \_\_\_\_ and in my science/math courses is \_\_\_\_\_.

I am interested in exploring with you the above job opportunity and in discussing how my credentials might enable me to fill that position.

Very truly yours,

Signature  
Typed Name