

CAREER PLANNING RESOURCES

A wide spectrum of tools is available to the job seeker in the chemical sciences

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DESPITE THE RECENT ECONOMIC downturn, there are still lots of job openings in the chemical sciences. But there are also a great number of candidates to fill these positions. Fortunately, job seekers have a rich variety of self-assessment and job-hunting tools available to them, including American Chemical Society career and employment services, the Internet, the Yellow Pages, periodicals, newspapers, books, and networking. Of these diverse resources, here is a sampling of tools that chemical scientists may find useful for career planning.

ACS CAREER SERVICES. ACS provides a variety of career resources and services to ACS members and student affiliates through its Career Services office. For more information about services listed here, contact ACS Career Services, 1155—16th St., N.W., Washington, DC 20036; phone (800) 227-5558; ext. 4432; e-mail: career@acs.org; Internet: <http://www.chemistry.org/careers>. Products listed here can be ordered through the ACS Office of Society Services, phone (800) 227-5558; e-mail: help@acs.org.

As part of ACS Career Services' Career Consultant program, more than 60 ACS members volunteer their time to assist members with any aspect of career development and employment, including job-search strategies, interviewing techniques, career transitions, résumés, salaries, and benefits assessment.

ACS Career Services' expert staff provides one-on-one résumé review services, job-search strategies, and advice on employment issues at ACS national and regional meetings. At national meetings, they also offer mock interview sessions, where job seekers can videotape a practice interview and receive feedback from ACS Career Services' staff on how to improve their interview skills.

The ACS Employment Clearing House, available at ACS national and regional meetings, provides ACS members and national and student affiliates with the opportunity to interview on-site with em-

ployers. Registration fees for ACS national meetings can be waived for unemployed members who register as job applicants at the clearinghouse.

Many workshops and presentations designed to improve job-search skills and provide education on emerging chemical employment opportunities are conducted by Career Services. These programs are offered at national meetings, local meetings, and colleges and universities. Topics include targeting the job market; résumé preparation; interview skills; strategies for career transitions; employment outlook, security, and marketability; technical writing; and communication and presentation skills. In addition, videos on career transitions, résumé preparation, job hunting, interview skills, and career assessment are available for \$20 each.

Salary information and workforce analysis can be invaluable to the job seeker. ACS publishes annual surveys of the employment status and salaries of its members. The annual salary survey analyzes the employment and salaries of ACS members who have been working for two or more years. A special report on the 2001 survey appeared in C&EN (Aug. 20, page 51). The annual starting salary survey analyzes the employment and salaries of new chemistry and chemical engineering bachelor's, master's, and Ph.D. graduates. A summary of the results of the 2000 survey was published in C&EN (Sept. 3, page 48). An overview of both surveys appears on page 47, and comprehensive results of both surveys are available on the ACS Career Services website.

ACS Career Services also offers a slew of job-related publications, including "Professional Employment Guidelines," "Academic Professional Guidelines," "What a B.S. Chemist Should Expect Before Accepting a Position," "Targeting the Job Market," "The Interview Handbook," "Tips on Résumé Preparation," "The Chemist's Code of Conduct," "Coping with Job Loss," "Resources for Career Management," and "Employment Guide for Foreign-Born Chemists in the U.S." Electronic versions of these resources are avail-

able free on the Career Services website. In addition, two books published by ACS, "Careers for Chemists" and "Career Transitions for Chemists," discuss personal assessment, salaries, résumés, and networking for careers in chemistry. The books cost \$15 each or \$25 for both.

OTHER ACS RESOURCES. C&EN classifieds appear each week in the print edition of C&EN and are available to ACS members for two weeks in the classifieds section of *C&EN Online*.

The ACS Education Division offers several resources for undergraduate and graduate students considering careers in chemistry. For more information about products listed here, contact ACS Education, 1155—16th St., N.W., Washington, DC 20036; phone (800) 227-5558; e-mail: education@acs.org; Internet: <http://www.chemistry.org/education>.

For undergraduates, the "Careers for Chemists" series includes "An Inside Look: Chemists at Work," a one-hour video profiling 16 career areas in industry, government, and academia; "A World Outside the Lab," a video describing careers for chemists outside the lab; and a CD-ROM packed with career information for undergraduates studying chemistry. The "Chemical Careers in Brief" series describes 30 career areas within the chemical sciences, and "Futures Through Chemistry: Charting a Course" discusses career options available to B.S. chemists, including graduate school and entering the workforce. Contact the ACS Education Division for pricing information on these products.

Students planning to attend graduate school may find these two books valuable: "ACS Directory of Graduate Research," which lists master's- and Ph.D.-granting institutions in the U.S., and "Planning for Graduate Work in Chemistry," which is a guide to graduate school in the chemical sciences. Both resources are available on the ACS Education Division website, <http://www.chemistry.org/education>.

Graduate students in chemistry considering careers in academia can gain on-site teaching experience in diverse venues in addition to their degree-granting institution through the Preparing Future Faculty program at participating institutions. More information is available on the ACS Education Division website.

EXPERIENCE OPPORTUNITIES. Completing an internship or co-op is a great way to decide whether a career is a good fit for you and often gives you a leg up

when searching for a permanent position. The ACS Experiential Programs in Chemistry (EPiC) office collects information for and distributes a directory on internships, co-ops, summer jobs, study or work abroad programs, and service learning opportunities. The listings are primarily for undergraduates, but some opportunities for graduate students are also listed. The 2001 "Directory of Experience Opportunities" is available free on the Internet at <http://center.acs.org/applications/epic/epicmain.cfm>.

INTERNET RESOURCES. The Internet is an increasingly popular source of career and employment information. Job hunters can search job listings, post résumés, research employers, and get career advice at a huge variety of websites. Although the Internet can be an essential part of your

JOBSPECTRUM.ORG: ACS'S NEWEST CAREER SERVICE

Job seekers have increasingly turned to large online recruitment sites such as Monster.com and HotJobs.com as part of their job-hunting strategy. Recently, however, targeted career and employment sites such as HealthHire.com and ComputerJobs.com have become popular. These niche sites attract candidates with specific skills and talents and often produce more successful job-search results than the general, large sites.

JobSpectrum.org is a niche site created for chemical scientists and employers. Its specialized focus aims to generate faster, cleaner, and more specific results for chemical job seekers and employers than do larger sites. Services are free to all job seekers. Job hunters may search job postings, post résumés to a secure database, receive e-mail alerts of new openings, and apply for jobs online. Career management information is also available on the site.

In the future, JobSpectrum plans to expand its offerings to include a campus career center to connect college and university chemistry departments and students with jobs and internships.

A joint effort between the American Chemical Society's Publications and Membership Divisions, JobSpectrum is designed to complement the society's career and employment offerings and *Chemical & Engineering News* classified ads. You can find JobSpectrum on the Web at <http://www.jobspectrum.org>.

job search, Web-based career and employment sources should supplement a job-search strategy that also includes scouring classified listings such as C&EN Classifieds (see pages 62 and 69), using the Yellow Pages to identify potential employers, writing an effective résumé, networking, and thoroughly preparing for interviews. Following is a sampling of career and employment sites that may be useful to chemical scientists.

Chemsoc, <http://www.chemsoc.org/careers/careers.htm>—Hosted by the Royal Society of Chemistry, Chemsoc offers listings of industrial and academic vacancies in the U.K. and Europe, as well as career profiles of chemists, a long list of international Internet resources for job hunting, and information on continuing professional development.

Chronicle of Higher Education Career Network, <http://chronicle.merit.edu/jobs>—One of the best print sources of academic openings, the *Chronicle of Higher Education* has recently expanded and improved its online career offerings. Job seekers can now search listings by keyword within categories and sort the results by date posted, by institution, or by state. An advanced search allows *Chronicle* subscribers to search using any combination of category, keyword, and geography. New faculty positions, administrative positions, executive positions, and jobs outside academe are posted here every weekday. The site also features critiques of curricula vitae, advice on how to turn a curriculum vitae into a résumé, and faculty salary information.

JobSpectrum.org, <http://www.jobspectrum.org>—Produced by ACS, the site allows the job seeker to search for a job, post a résumé, receive e-mail alerts of new jobs, and gather information on the current job climate and salary trends commensurate with education and experience (see box).

Medzilla.com, <http://www.medzilla.com>—Medzilla lists job openings in the fields of biotechnology, health care, medicine, pharmaceuticals, and science-related industries. The site offers searchable job postings, career development forums, and a résumé-posting service, as well as a salary database.

MonsterTrak, <http://www.monstertrak.com>—Formerly JobTrak, MonsterTrak partners with more than 1,000 college and university career centers to provide

job seekers with job listings, company profiles, and job-searching tips. The service is free to students at participating schools; other job seekers should contact the career center at their alma mater for access.

Naturejobs, <http://www.naturejobs.com>—This site features a résumé database, career center, and job postings. Searchable listings are primarily for jobs in the U.K. and Europe and are indexed by subject, type of organization, country, and position.

Science Careers, <http://www.sciencecareers.org> and Science's Next Wave, <http://nextwave.sciencemag.org>—Published by *Science* magazine and the American Association for the Advancement of Science (AAAS), *Science Careers* offers free access to job listings as well as résumé posting, e-mail notification of job listings, career advice, and employer links and profiles. Job seekers can also access the AAAS 2001 salary and employment survey at this site. More extensive career development resources are available at *Science's Next Wave*, a weekly online publication geared for younger scientists. Next Wave includes features, news items, and forums on scientific training, career development, and the scientific job market, but most resources are accessible only with a subscription. Many universities, research institutions, government agencies, and associations have institution-wide subscriptions to Next Wave. ACS members can access Next Wave through <http://www.chemistry.org>.

Sciencejobs.com, <http://www.sciencejobs.com>—Sponsored by BioMedNet, ChemWeb.com, *Cell* magazine, and *New Scientist* magazine, Sciencejobs.com offers job-posting services for chemistry and bio-science careers. The site contains a good mix of postdoctoral positions and full-time jobs in the U.S., the U.K., and Europe, as well as information on job hunting and career management and a résumé-posting service.

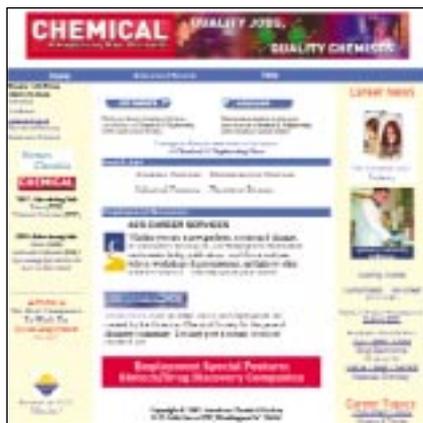
Scijobs.org, <http://www.scijobs.org>—Users of this site can browse employer information, register for automatic e-mail notification when jobs that match their interests are added to the database, and post résumés. Searchable job listings are indexed directly from employers' websites to ensure that postings are up-to-date.

USA Jobs, <http://www.usajobs.opm.gov>—Managed by the Office of Person-

nel Management, this site is the U.S. government's official employment site. Visitors can browse federal job listings and apply for jobs online as well as find information on internships with federal offices and salary and benefits information.

Although not tailored for scientists, general career-focused websites such as Monster.com (<http://www.monster.com>), Yahoo Careers (<http://careers.yahoo.com>), CareerJournal.com (<http://www.careerjournal.com>), and America's Job Bank (<http://www.ajb.dni.us>) contain thousands of job listings. *The Wall Street Journal's* Career Journal site, <http://www.careerjournal.com>, features job listings, information on human resource issues, salary data, industry profiles, résumé analysis, and employment-centered analysis.

Corporate websites are also a valuable source of vacancy listings and company information. Almost all large chemical employers and many smaller chemical employers use their own websites to advertise employment opportunities. More than four-fifths of C&EN's Top 75 U.S. chemical producers (C&EN, May 7, page 28) provide career information on their sites, and about half post job listings. Many firms also provide extensive career and benefits information on their sites.



CLASSIFIED ADS. Despite the abundance of online job banks, classified ads in magazines and newspapers still may be your best bet when searching for job listings. Because these sources advertise job openings targeted to those with specific skills or residing in particular geographical regions, classified ads result in more successful searching. The classified ads of many regional and national newspapers as well as of a number of magazines are available on the Web.

American Journalism Review Newslink, <http://ajr.newslink.org/news.html>—A

joint venture between the *American Journalism Review* and the online research and consulting firm Newslink, this site provides links to the online versions of more than 4,000 U.S. newspapers. The classified and employment sections of these newspapers contain both regional and national job advertisements.

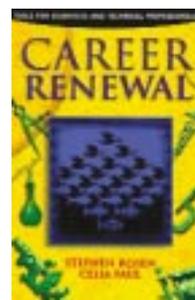
C&EN Classifieds—Long recognized as the premier source of quality jobs and quality job applicants, C&EN classifieds appear each week in the print edition of C&EN. They are also available to ACS members for two weeks in the classifieds section of *C&EN Online* (<http://pubs.acs.org/cen/classifieds>), and then for two subsequent weeks to the general public at <http://www.jobspectrum.org>. ACS members may also place situation wanted ads in C&EN at little or no cost.

CareerBuilder, <http://www.careerbuilder.com>—Owned by media giants Tribune Co. and Knight Ridder, the site allows users to search the job listings of more than 70 employment sites, including the online classified sections of 35 major newspapers such as the *Los Angeles Times* and *USA Today*.

BOOKS. Although the Internet is a rich source of information, books are still a great source of useful career and job-hunting advice. The following books may be helpful in choosing a career and finding a job. The books listed here offer not only general guidance on career assessment, job hunting, résumé writing, and interviewing, but also specific advice on how to find an academic job, a government job, a job in the drug industry, or a nontraditional job. Most of these titles are available in bookstores or through online booksellers such as Amazon.com (<http://www.amazon.com>) and Barnes & Noble (<http://www.barnesandnoble.com>).

■ "Alternative Careers in Science: Leaving the Ivory Tower," edited by Cynthia Robbins-Roth (Academic Press, 1998, \$29.95). This book presents detailed and frank case studies of 23 alternative careers—including technical writing, publishing, science journalism, consulting, entrepreneurial business, patent law, public policy, and research administration—written by scientists who made the switch.

■ "Career Renewal: Tools for Scientists



and Technical Professionals," by Stephen Rosen and Celia Paul (Academic Press, 1997, \$24.95). Written for those suffering from career burnout or considering a career change, this book describes the stories

of real-life career-changers and offers career assessment exercises. This book was reviewed in C&EN (April 6, 1998, page 72).

■ "Careers in Science and Engineering: A Student Guide to Grad School and Beyond," published by National Academy Press (1996, \$11.95), describes how to get the education and skills necessary for specific career goals. The book also profiles scientists and engineers in a range of careers.

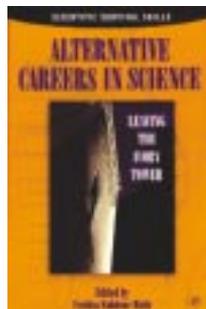
■ "The Directory of Executive Recruiters 2002," compiled by Llc Kennedy Information (Kennedy Publications, 2000, \$47.95). Dubbed the "Red Book," this annually updated reference lists recruiters by industry, expertise, and geographic region. Those seeking executive positions can easily identify headhunters who can best match their skills and interests to job openings.

■ "Guide to Non-Traditional Careers in Science," by Karen Young Kreeger (Taylor & Francis, 1999, \$34.95). This book describes the benefits and trade-offs of alternative fields available to scientists, including publishing, law, public policy, and business and includes bios and interviews with scientists holding various jobs within these fields. For each alternative field, Kreeger lists pertinent trade organizations, what they offer, and how to contact them.

■ "How to Succeed in Academics," by Edward R. B. and Linda McCabe (Morgan Kaufman Publishers, 2000, \$29.95). Starting with selecting a graduate program and choosing a job, this book leads the student or faculty member through the academic maze of developing and marketing your career; writing grant proposals; preparing presentations; and negotiating with department chairs, grant officers, and journal editors.

■ "Job Opportunities in Health and Sciences 2000," published by Peterson's Guides (1999, \$18.95), lists company descriptions and human resources contact information, supplied by Hoover's Online (<http://www.hoovers.com>). Company listings are arranged by state and by industry segment.

■ "Jobs in the Drug Industry: A Career Guide for Chemists," by Richard J. Friary (Academic Press, 2000, \$39.95). A must-



read for job seekers interested in careers in the pharmaceutical industry, this book delineates the various types of positions available in the industry. Friary describes likely job responsibilities based on education, experience, and position, as well as what to expect in interviews and how to evaluate salary and benefits packages.

■ “Occupational Outlook Handbook 2000–01,” compiled every two years by the U.S. Department of Labor (McGraw Hill, 2000, \$49). This book describes a wide range of occupations—including what workers do on the job, working conditions, the training and education needed, earnings, and expected job prospects. The handbook is also available free on the Internet at <http://www.bls.gov/oco/>.

■ “Put Your Science to Work: The Take-Charge Career Guide for Scientists,” by Peter S. Fiske (American Geophysical Union, 2001, \$19.95). This practical career guide for new bachelor’s, master’s, and Ph.D. graduates includes personal accounts from scientists in various jobs. Fiske provides thorough coverage of a broad range of job-search and career issues, including the job market, career planning, self-assessment, curricula vitae and résumés, cover letters, and interview skills.

■ “Tomorrow’s Professor: Preparing for Academic Careers in Science and Engineering,” by Richard M. Reis (IEEE, 1997, \$49.95). This primer for landing an academic job describes the university structure and culture in detail, discusses the training and particular experience that identifies a good candidate, and examines job identification and application strategies.

■ “What Color Is Your Parachute? 2002,” by Richard Nelson Bolles (Ten Speed Press, 2001, \$16.95). The 2002 edition of this job-hunting classic has been completely rewritten to include the effects of the Internet on job hunting. The book includes a step-by-step plan for identifying a new career, detailed strategies for finding the job you want, an outline of interview questions and the kinds of answers employers are looking for, and hints for salary negotiation. Bolles also reviews the statistical success of each job-hunting method and presents exercises to help you identify your strengths and dreams. Supplemental information is available on the book’s website, <http://www.jobhuntersbible.com>.

■ “Working for Your Uncle: The Complete Guide to Finding a Job with the Federal Government,” assembled by the Federal Jobs Digest (Breakthrough Publications, 1998, \$19.95). This guide shows you how to prepare a federal job application and land a high-paying, secure government job. ■

SALARIES

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Those whose primary field is medicine enjoy the highest median salaries—\$145,000 for those in academia and \$140,000 for those who are not. For those in biotech, the median for academics is \$63,000; for nonacademics, \$100,000. Biochemists have medians of \$71,000 for academics and \$92,000 for nonacademics. For microbiologists, the medians are \$70,000 for academics and \$83,000 for nonacademics; for cell biologists, the corresponding numbers are \$68,000 and \$85,000.

ALL OF THESE FINDINGS compare fairly favorably with the median salaries of \$63,000 for academic chemistry Ph.D.s and about \$88,000 for nonacademic Ph.D.s obtained from the 2001 ACS member survey.

The analyses of salary by geographic region show the same profile for both the AAAS and ACS surveys. In both cases, pay tends to be higher on the Pacific and Atlantic coasts. With one exception, chemists’ salaries more or less hold their own with those of life scientists. The exception is the clear salary advantage for life scientists who work in medical schools—and therefore are more likely to have an M.D.

Data obtained by a survey of the readers of *The Scientist*, a news biweekly for the life sciences, indicate generally lower salaries than those indicated by the AAAS survey. This is probably because readers of the publication are generally younger and less well qualified than those who responded to AAAS.

The Scientist poll (Sept. 17, page 30) gives a snapshot of the salaries of life scientists earlier this year. It does not give information on either salary increases or employment status. It was conducted by Abbott, Langer & Associates, an Illinois firm that specializes in salary surveys. It involved the publication in e-mailing invitations to participate to almost 24,000 print subscribers and to just over 27,000 registrants on its website. Responses totaled 7,902.

The three best-paying disciplines were bioengineering, clinical research, and bioinformatics, with medians for “salary plus cash compensation” of \$77,000, \$75,500, and \$75,000, respectively.

Like the AAAS survey, *The Scientist* reveals that nonacademics earn more than academics, and that M.D. scientists earn more than Ph.D. scientists. ■

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