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What can I do with a degree in Chemistry?

The information below describes typical occupations and employers associated with this major. Understand that some of the options listed below may require additional training. Moreover, you are not limited to these options alone when choosing a possible career path.

DESCRIPTION OF CHEMISTRY:

Chemistry is the science that deals with and investigates the composition, properties, and transformation of substances and various elementary forms of matter. The chemistry major provides broad and comprehensive training in all areas of modern chemistry. The program includes course work in the major sub-disciplines of chemistry - organic, inorganic, physical, biological, and analytical. The curriculum is designed to permit the student a wide range of career choices including, but not limited to, chemistry, medicine, law, business, chemical physics, environmental science, and secondary school teaching.

POTENTIAL OCCUPATIONAL OPPORTUNITIES:

Chemists have an extremely marketable skill: they are able to improve and create new materials. Therefore, career options for chemists are endless.

POSSIBLE JOB TITLES OF *CHEMISTRY GRADUATES:

| | | |
|------------------------------|-----------------------------|-------------------------------|
| Air Analyst | Food/Scientist/Technologist | Perfumer |
| Analytical Chemist | Forensic Chemist | Pharmaceutical Sales |
| Assayer | General Surgery Resident | Pharmacy Technician |
| Biochemist | Geochemist | Product Tester |
| Brewer Lab Assistant | Geologist | Psychiatrist |
| Chemical Engineer | Glass Industry Manager | Radiologist |
| Chemist | Hydrologist | Registered Nurse |
| Clinical Specialist | Industrial Hygienist | Research Analytical Chemist |
| Color Development Chemist | Inorganic Chemist | Research Associate |
| Combustion Engineer | Laboratory Tester | Sanitarian |
| Computer Software Eng. | Metallurgical Engineer | Science Laboratory Technician |
| Cosmetics Engineer | Microbiologist | Surgeon |
| Crime Lab Analyst | Narcotics Investigator | Teacher |
| Dentist | Nuclear Chemical Technician | Textiles Industry Chemist |
| Developmental Scientist | Nutritional Chemist | Toxicologist |
| Electron/Chemical Researcher | Oceanographer | Veterinarian |
| Entomologist | Optometrist | Water Purification Chemist |
| Environmental Engineer | Organic Chemist | Yeast culture Developer |
| EPA Inspector | Paint Industry Scientist | |
| Fire Protection Engineer | Patent Agent | |

* Many of these occupations may require graduate degrees.

POSSIBLE EMPLOYERS WHO MIGHT HIRE CHEMISTRY GRADUATES

| | | |
|---------------------------|-------------------------------|------------------------------|
| AstraZenca Pharmaceutical | Pfizer | Proctor & Gamble |
| Chevron | Rockland React-Rite | BASF |
| Goodyear Tire & Rubber | DuPont | Local/State/Federal Agencies |
| Dow Chemical | Bristol Myers Squibb | Union Carbide |
| Eastman Chemical | Springborn Testing & Research | Johnson & Johnson |

SAMPLE WORK SETTINGS:

| | | |
|----------------------------|-------------------------------|--------------------------|
| Aerospace Firms | Environmental Protection | Pharmaceutical Companies |
| Agricultural Organizations | Forestry Centers | Public Health Service |
| Airlines | Fuel Dealerships | Research Laboratories |
| Analysis and Testing | Glass & Textiles Industry | Rubber Processing Firms |
| Atomic Energy Firms | Hospitals | Schools and Colleges |
| Biotechnical Firms | Machinery Industry | Scientific Journals |
| Ceramic Manufacturers | Medical Laboratories | Soap Manufacturers |
| Chemical Manufactures | Medical Services | Tobacco Companies |
| Consulting Organizations | Metal Manufacturing Companies | Utility companies |
| Cosmetics Industry | Mineral Products Companies | Veterinary Hospitals |
| Drug Industry | Mining Companies | |
| Electronics Industry | Packing Industry | |
| Engineering Firms | Petroleum and Coal Firms | |

SKILL SETS AND INTERESTS ASSOCIATED WITH CHEMISTRY MAJORS:

Leadership Skills:

- Identifying the critical issues and making decisions quickly and accurately
- Ability to do self-directed work
- Managing time, energy and resources effectively
- Organizing, analyzing, conceptualizing

Communication/Writing Skills:

- Comprehending written material
- Writing factual material clearly and concisely
- Summarizing

Analytical/Research /Problem Solving Skills

- Sorting data and objects
- Applying information creatively to solve specific problems
- Understanding and using organizing principles

Artistic/Creative Skills

- Designing and using audio-visual aids

Other Skills:

- Ability to work independently and as a team
- Ability to operate, and use information derived from computers
- Good vision and manual dexterity
- Strong background in mathematics

WAYS TO GAIN EXPERIENCE AND STRENGTHEN YOUR RESUME:

- Join and participate in science clubs and their projects
 - Chemistry and Physics webpage for Augusta State University: <http://www.aug.edu/chemphys/>
- Attend science fairs, exhibits, and demonstrations
- Read chemistry and science related journals
- Work part-time or volunteer in a hospital, chemistry lab or pharmaceutical firm

STRATEGIES

- Seek opportunities within chemistry to investigate, collect, and analyze data in a variety of specializations.
- Supplement curriculum by working on Chemistry Department research teams.
- Gain experience collecting and reporting relevant data while perceiving patterns and structures in every study discipline.
- Attain an internship in an applied field of Chemistry to ensure major choice.
- Seek research experiences that allow for attendance to appropriate conferences and make presentations if possible.
- Develop the ability to prepare poster presentations and volunteer to help chemistry faculty with programs.
- Develop research skills at away locations through study abroad or through national research internships.
- Access appropriate internships, work experiences and laboratory assistant opportunities locally throughout your 4 years & maintain correspondence with contacts.
- Consider the full variety of options and PhD programs in the field and continue correspondence with all previous contacts.

ONLINE CAREER RESOURCES: Georgia Career Information Center via www.aug.edu/career_center

EMPLOYMENT OPPORTUNITY ELECTRONIC RESOURCES

Science Jobs

www.sciencejobs.com/search.action;jsessionid=CLEFGPLFHCPJ

ChemistryJobs.com

www.chemistryjobs.com

Nature Jobs-Chemistry

www.nature.com/naturejobs/index.html

Chemistry.org Jobs

www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=chemjobs%5Cindex.html

PROFESSIONAL ASSOCIATIONS/INSTITUTES

American Association for Clinical Chemistry

www.aacc.org

American Institute of Chemical Engineers

www.aiche.org

Federation of American Scientists

www.fas.org

National Science Foundation

www.nsf.gov

Royal Society of Chemistry Chemsoc Network

www.chemsoc.org

American Chemical Society

www.acs.org

American Institute of Chemists

www.theaic.org

WAYS TO GAIN EXPERIENCE AND STRENGTHEN YOUR RESUME

- Join chemistry related clubs and organizations
- Keep abreast of related journals and publications
- Attend conferences, lectures, symposiums on related subjects
- Gain strong computer skills and computer programming skills
- Work part-time or volunteer in Chemistry Department research or lab activities
- Obtain an internship/co-op at a local engineering firm, medical unit or manufacturer

GENERAL INFORMATION

- Undergraduate degree sufficient for entry-level positions such as lab coordinator, research assistant, product testing or analysis, technical sales, or service representative.
- Master's degree sufficient for most applied research positions, industrial work, and some community college teaching.
- Ph.D. degree required for university teaching and advanced positions in management and research and development.
- Advanced degrees help speed career advancement.

WAYS TO PREPARE FOR DIFFERENT CAREER PATHS

The Chemistry major provides a strong background for employment in a number of different areas, and you certainly do not need to know what you are going to do after graduation in order to design your initial curriculum. As students proceed through their undergraduate years, however, they become more aware of their interests, strengths, and limitations, and may wish to tailor their coursework to their expected employment after graduation. Some suggested strategies follow:

Students Planning Graduate Study in Chemistry, Mathematics, or another Science:

Graduate schools pay the most attention to GRE scores, grades in math/science courses, letters of recommendation, and undergraduate research. Courses in other disciplines and extracurricular activities may make you a better person but probably won't help much with your graduate school application. However, communications skills are important, so it would be useful to take at least a few courses where you are required to do a lot of writing and engage in community/volunteer work that demonstrates your communication skills. And, obviously, the more chemistry and math courses (as well as perhaps courses in related disciplines, such as physics, astronomy, or geology) that you take, the better prepared you will be.

Students Planning Employment in Industry or the Government:

Knowledge of chemistry or mathematics is important here and communication and interpersonal skills are heavily emphasized. You will likely spend a lot of time writing or making verbal presentations, so anything you can do to brush up these skills is helpful. Computer skills always seem to be in demand, so taking computer courses or teaching yourself computer skills on your own is a good idea. Exposure to technical writing can help with documentation and writing skills pertinent to government work or corporate documentation. Industry, in particular, values the team player much more than the brilliant prima donna. Accordingly, extracurricular activities that demonstrate your ability to work with others could enhance your resume.

Students Planning to Teach High School:

There are actually two routes to follow. Students looking for a position in a public school system will need to be certified in the state they will be working in. It is advisable to attend a certified Master's program in teaching or obtain required secondary education courses with the Chemistry major in your undergraduate program. To teach in a private school, on the other hand, you need not have a teaching certificate; you just have to impress the headmaster or principal of the school you want to teach in. In either case, communication and interpersonal skills are obviously essential. What is less obvious is that you will have a greater chance of being hired if you can present yourself as being qualified in several different areas. Accordingly, the more classes in a wide variety of sciences you take, the better prepared you will be.

Students Interested in Jobs in the Financial Sector:

It turns out that many financial companies, such as banks, insurance companies, investment firms, etc., are interested in hiring math and science majors. They find these students often are not afraid of computers or messy-looking equations. To impress a potential employer in this area, experience with numerical computation would be helpful; experience with statistics and perhaps differential equations would also be helpful. And it wouldn't hurt to take a few economics course or even an accounting course.

Students Interested in the Medical Professions:

Students planning to apply to medical school, dental school, etc. are encouraged to seek advice from the pre-medical advisor early in their careers to determine which other courses (e.g., biology, genetics) will be required. Job shadowing and applied learning through volunteer or internship experiences are also helpful.