UNIVERSITIES

What Can You Do With A Chemistry Degree?

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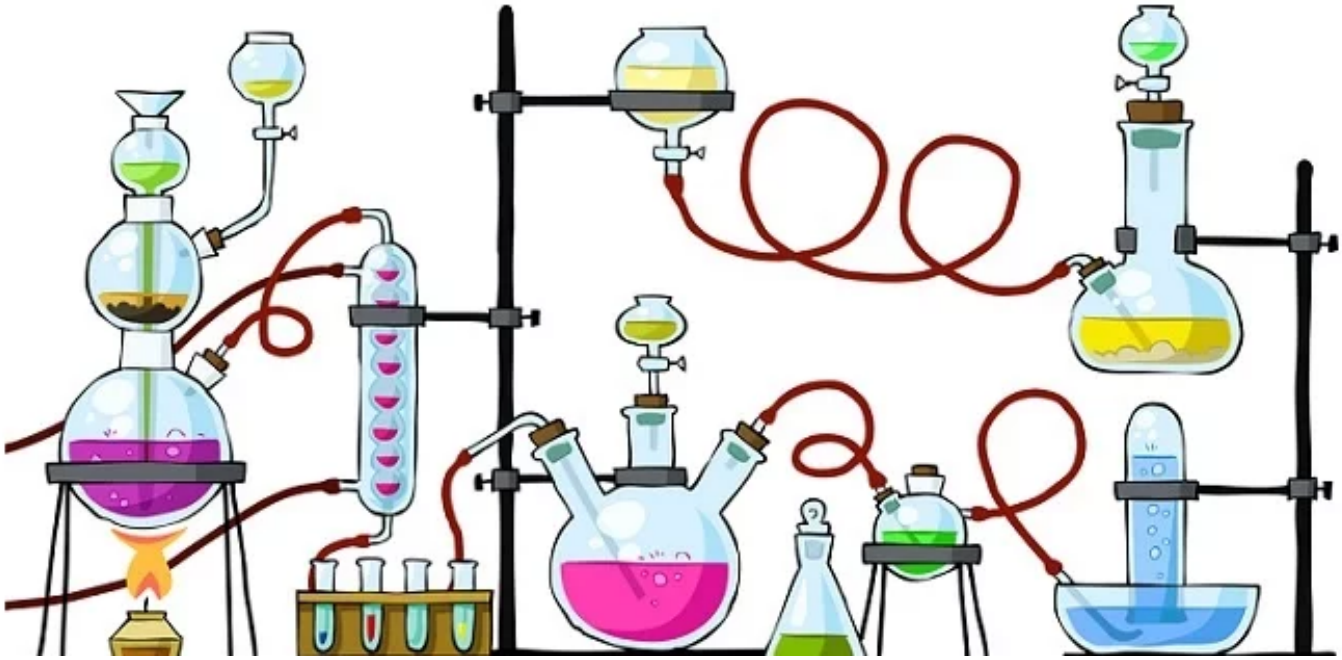
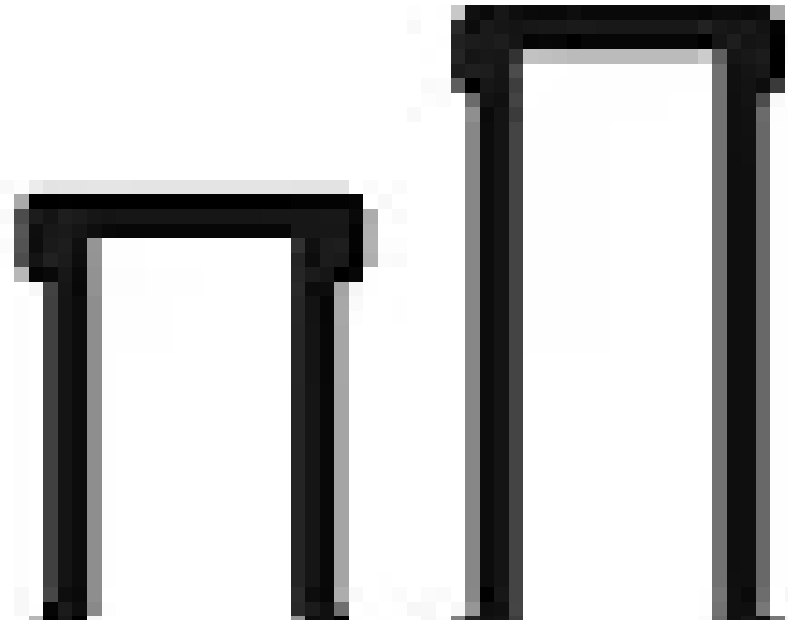


Career opportunities within science and technology are seeing unprecedented growth across the world, and so those who **study chemistry** (https://www.topuniversities.com/courses/chemistry/guide) or another natural science (https://www.topuniversities.com/courses/natural-sciences/guide) at university are seeing their career prospects develop right before their eyes.

Chemistry involves the study of all things chemical – chemical processes, chemical compositions and chemical manipulation – in order to better understand the way in which materials are structured, how they change and how they react in certain situations. Having gained chemical understanding at molecular level, chemistry graduates may choose to apply this knowledge in almost unlimited ways, as it can be used to analyze all matter and therefore our entire environment.

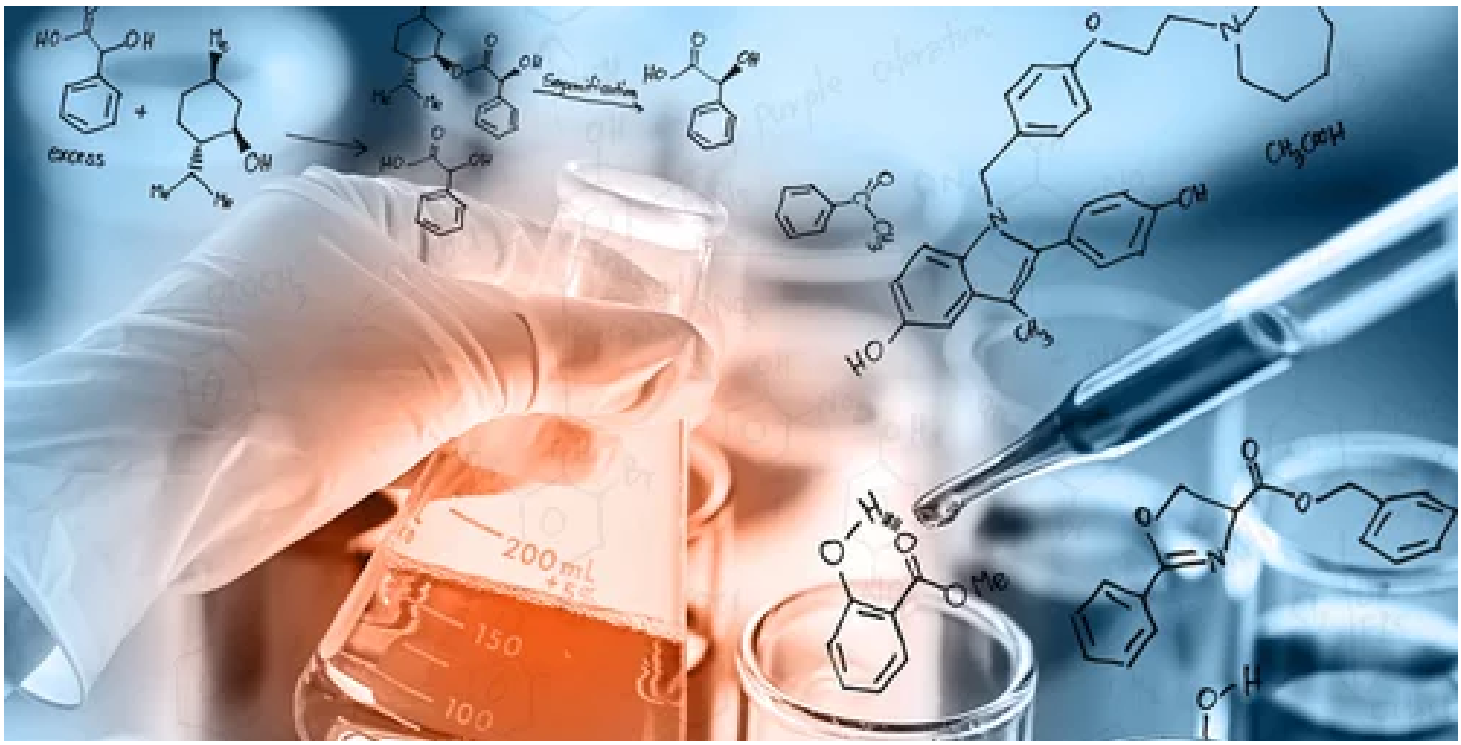


So, what can you do with a chemistry degree?

Those who study chemistry go on to do many exciting things in a whole range of industries. If you were to follow in the footsteps of past chemistry graduates for example, you could become Prime Minister of the United Kingdom á la Margaret Thatcher, or you could even become a heralded writer like Kurt Vonnegut, famed author of many satirical novels including *Cat's Cradle,* a fictitious story about the man who invented the atom bomb.

While these are two particularly notable examples, it's still true to say that chemistry graduates can go on to pursue a wide range of career paths. For some common answers to the question '**what can you do with a chemistry degree**?' as well as some new and emerging career paths you may not yet even have considered, keep reading!

Chemistry careers in research



Chemistry graduates have much scope to use their knowledge within a range of research sectors, including roles within chemical engineering, chemical and related industries, healthcare and more. Research careers are more diverse than they might first appear, as there are many different reasons to conduct research and many possible environments. You could be based in a university, combining research with teaching; in a pharmaceutical company, working on developing and trialing new drugs; or in a public-sector research center, helping to ensure national healthcare provision keeps pace with new discoveries.

While the job of a research scientist varies, most **chemistry careers** in research are based in laboratories, where research is conducted by teams following rigorous scientific methods and standards that you'll already be acquainted with, having completed a chemistry degree.

Some examples of the diverse research done by chemistry experts include discovery of new medicines and vaccines, forensic analysis for criminal cases, improving understanding of environmental issues, and development of new chemical products and materials (e.g. cosmetics, paints, plastics, food and drink).

But chemistry careers don't begin and end in the lab; there are also many career paths for those who want to work elsewhere, such as within new and emerging industry areas or even just outdoors. Read on for a range of non-research **careers in chemistry**.

Chemistry careers in chemical engineering

Chemical engineers work across a number of sectors including oil and gas, energy, water treatment, plastics, toiletries, pharmaceuticals and food and drink. Although processes differ within each of these areas, chemistry and chemical engineering roles are found throughout, and are directly involved in the design, development, creation and manufacturing process of chemical products and materials. Researchers are common within chemical engineering and are often tasked with creating and developing new chemical techniques, often combining other advanced and emerging scientific areas such as nanotechnology or biomedical engineering.

Daily tasks for chemical engineers include ensuring the efficiency and safety of chemical processes, adapting the chemical make-up of products to meet environmental or economic needs, scaling up chemical processes for manufacturing purposes, and applying new technologies to improve existing processes. Although those who study chemistry at undergraduate level are good candidates, many more engineering-related and specialized roles will be reserved for engineering graduates and

postgraduates.

Chemistry careers in healthcare

Healthcare careers for chemists are once again largely based in laboratories, although increasingly there is opportunity to work at the point of care, helping with patient investigation. Often called clinical biochemistry or healthcare science, your tasks will be to analyze blood, urine and other bodily fluids in order to aid in the investigation, diagnosis and treatment of disease and illness.

While some roles will require clinical expertise (and a medical qualification), many scientific roles in healthcare simply require scientists to liaise with clinicians in order to interpret patients' test results, acting as support in diagnosis and assessment. While chemists are unable to advise on medical treatment, their work is vital in ensuring results are accurate, root causes are found, reports are accurately kept and research is applied.

If you pursue healthcare careers in chemistry, you'll likely be working as part of a team comprised of fellow chemists, biochemists, biologists, clinicians and pathologists.

Chemistry careers in pharmaceuticals

Closely related to the healthcare industry, the pharmaceutical sector is huge in its own right, offering a correspondingly large employment market. As demand for specialty and new drugs grows, pharmaceutical chemists are relied upon to design, develop, analyze, evaluate and regulate new and existing pharmaceuticals. These chemists, as well as holding technical expertise, will also possess strong team, communication and management skills and have understanding of areas such as mathematics and analytical thinking.

While synthetic pharmaceutical chemists, or medicinal chemists as they are also known, focus on researching and developing new, cost-effective drugs for market, analytical pharmaceutical chemists focus more on the testing and chemical analysis of new drugs, ensuring each product is suitable for public consumption and in accord with governmental regulations. Toxicology is another fast-growing field for careers in chemistry, in which specialists are tasked with identifying chemical risks and damaging toxins in any chemical that is to be used for public consumption.

While a bachelor's degree in chemistry will open many entry-level doors in this field, a master's or even PhD in a related specialization may also stand you in good stead for particularly high-level research roles.

Chemistry careers in the public sector

As well as careers for chemists as researchers in state-led initiatives, there are a growing number of government-funded careers in chemistry within areas such as law,

policy, defense, public health and the environment.

Within law and policy, forensic careers are growing, particularly as the techniques used within forensic research continue to undergo rapid development. This is not all about collecting evidence; forensic experts may also be called upon to discuss findings in court, and chemical experts are needed to run analysis on existing policies in order to ensure they're up to date with scientific developments. While advanced careers in law are out of reach with just a chemistry degree, many entry-level roles and specialized consultancy jobs may be available to chemistry graduates with a particular interest in law and/or policy.

If you decide to pursue scientific roles in public policy, there's a chance you'll get to conduct research that will help shape your country's science policy, and national health and safety regulations.

There are also many public-sector opportunities for chemistry graduates keen to focus on environmental issues. Environmental consultancy, agriculture and chemical diagnostics are three such career paths for chemical experts, all focusing on the chemical state of the Earth's environment and analysis of relevant data, (e.g. meteorological data or chemical analysis of soil, water and by-products). The aims of such work will vary, including for example, identifying ways to improve crop yield, or providing reports on the effects of certain chemicals on the natural environment. This knowledge can then impact on future environmental policy and regulations.

This 'What Can You Do With a Chemistry Degree?' article is part of series of careers advice articles published on *TopUniversities.com*.

We have also covered art (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-art-degree), biology (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-biology-degree), business (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-business-degree), communications (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-communications-degree), computer science (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-computer-science-degree), English (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-english-literature-degree), engineering (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-engineering-degree), fashion (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-fashion-degree), history (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-history-degree), geography (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-geography-degree), law (https://www.topuniversities.com/blog/what-can-you-do-law-degree), marketing (https://www.topuniversities.com/blog/what-can-you-do-marketing-degree), mathematics (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-mathematics-degree), performing arts (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-performing-arts-degree), philosophy (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-philosophy-degree), politics (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-politics-degree), psychology (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-psychology-degree), sociology (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-sociology-degree), economics (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-economics-degree) and physics. (https://www.topuniversities.com/student-info/careers-advice/what-can-you-do-physics-degree)

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6 Comments