A comprehensive guide to careers with STEM

As the world of work changes, we need new skills to match. That's why careers in STEM (science, technology, engineering and mathematics) are some of the highest in demand. Whether you're a student contemplating a career in STEM, a professional considering a career shift or simply curious about the opportunities, here are some top careers with STEM, the qualifications they require and emerging trends in STEM fields.

What is STEM?

STEM has become a buzzword in recent years and for good reason. It stands for science, technology, engineering and mathematics. It represents a broad category of academic subjects and related industries that are skyrocketing technological advancements today and driving the careers of tomorrow.

The variety of possible careers in STEM

There are many career opportunities within the field of STEM, ranging from traditional roles like biologists, chemists and civil engineers to more modern positions such as data scientists, cybersecurity experts and AI developers.

In technology and engineering, careers might include software developers, mechanical engineers and renewable energy technicians. Science and mathematics open doors to roles like environmental scientist, statistician and research analyst. All these careers require you to use high levels of critical thinking and problem solving.

Benefits of STEM careers

A STEM career is a rewarding choice for those with an analytical mind. Some benefits of STEM jobs include:

• Job stability: STEM fields are always evolving, with new technologies constantly emerging. This continuous growth means there is always a

steady demand for skilled professionals, offering greater job security compared to many other sectors.

- **Competitive salary:** most STEM fields need specialised technical skills and knowledge. As a result, many career paths in the sector enjoy comparatively high salary ranges. The growing demand for these skills pushes salaries even higher.
- Impact and innovation: careers in STEM are at the forefront of innovation. Professionals in these fields have the unique opportunity to contribute to groundbreaking discoveries and developments that can have a lasting impact on society and the environment.
- **Global opportunities:** the universal nature of STEM skills means that professionals in these fields often have opportunities to work in various locations around the world, broadening their professional and cultural experiences.
- **Diverse career paths:** the interdisciplinary nature of STEM allows for a wide range of career paths. Professionals can choose to work in research, academia or industry or transition into emerging fields. STEM offers a dynamic and flexible career path.

Careers in STEM

The realm of STEM offers several career paths, each with its unique duties, qualifications and prospects. In this section, we'll explore a STEM careers list, providing insights into what each position entails, the qualifications required, salary expectations, job outlook and the typical work environment. These STEM professions not only highlight the diversity within related industries, but also show the dynamic and evolving nature of STEM fields.

1. Software engineer

Software engineers specialise in designing, developing and maintaining software systems. They apply engineering principles and programming languages to create software solutions. Software engineers work in an office or remote setting, often collaborating with other IT professionals and clients.

Common qualifications:

- Bachelor's degree in computer science or related field
- Proficiency in programming languages like Java, Python or C++
- Strong analytical and problem-solving skills

The average salary can vary depending on experience, location and the complexity of projects handled. In Australia, the average salary of a software engineer is from \$110,000 to \$130,000.

The demand for software engineers will likely grow due to the increasing reliance on technology in all sectors.

2. Biomedical engineer

Biomedical engineers combine engineering with medical sciences to design and create the equipment, devices, computer systems and software used in healthcare. They often work in hospitals, universities and research facilities.

Common qualifications:

- Bachelor's degree in biomedical engineering or related field
- Knowledge of medical sciences and materials science

The average annual salary for biomedical engineer jobs in Australia ranges from \$80,000 to \$100,000. The field is growing, driven by an ageing population and increasing technological advancements in medical care.

3. Environmental scientist

Environmental scientists use their knowledge of the natural sciences to protect the environment and human health. They may address pollution, conservation, waste reduction or the effects of climate change, for the private or public sector. Depending on their role, they may work in offices, laboratories and in the field. Some roles might involve travel to remote locations.

Common qualifications:

- Bachelor's degree in environmental science or a related natural science
- Fieldwork experience and data-analysis skills

The average annual salary for environmental scientist jobs in Australia ranges from \$75,000 to \$95,000. Employment is set to grow due to increasing interest in climate change and food security.

4. Data scientist

Data scientists analyse and interpret complex digital data to assist companies in decision-making processes. They may develop expertise in computer science, statistics, economics or business administration. Data scientists are primarily office-based, with opportunities across a wide range of industries.

Common qualifications:

- Bachelor's or master's degree in data science, statistics, computer science or a related field
- Proficiency in data-analysis tools and programming languages

The average annual salary for data scientist jobs in Australia ranges from \$105,000 to \$125,000, though demand for such roles will drive salaries higher. It's a stable career path to take, as organisations increasingly seek the expertise of data scientists to interpret the data they collect.

5. Aerospace engineer

Aerospace engineers design and test aircraft, spacecraft, satellites and missiles. They also create and test prototypes to make sure they function according to design. Aerospace engineers work across a number of different fields, such as the military, telecommunications, airplane manufacturing and space exploration.

Common qualifications:

- Bachelor's degree in aerospace engineering or a related engineering field
- Strong grasp of physics and mathematics

The average salary of an aerospace engineer in Australia is between \$130,000 and \$150,000 per year. Steady growth is expected in the industry, especially in areas focusing on reducing noise pollution and increasing fuel efficiency.

6. Civil engineer

Civil engineers work on infrastructure projects, designing, building and consulting for the public and private sectors. They're responsible for things like:

• roads,

- buildings,
- airports,
- tunnels,
- dams,
- bridges, and
- systems for water supply and sewage treatment.

Civil engineers are usually split between office settings, where they plan projects, and outdoor sites where they collect data and monitor or direct operations.

Common qualifications:

- Bachelor's degree in civil engineering or a related field
- Licensure as a professional engineer (PE) in many cases

The average annual salary for civil engineer jobs in Australia ranges from \$90,000 to \$110,000. The industry is set to grow due to the ongoing need for infrastructure updates and replacements.

7. Genetic counsellor

Genetic counsellors assess individual or family risk for a variety of inherited conditions, such as genetic disorders and birth defects. They provide information and support to other healthcare providers or individuals concerned with the risk of inherited conditions. They work in hospitals, doctors' offices and laboratories.

Common qualifications:

- Master's degree in genetics or genetic counselling
- Board certification and state licensure where required

While salary depends on the healthcare setting and location, it can generally be expected to range from \$80,000 to \$130,000.

8. Astrophysicist

Astrophysicists study space, including the properties and interactions of celestial bodies. They use telescopes, radio waves, infrared light and specialised instruments to gather data on stars, planets and other astronomical objects. They often work for research institutions and universities, with some working in observatories or at remote

field sites.

Common qualifications:

- Doctorate in astrophysics, physics or a related field for research positions
- Strong background in mathematics and physics

Their average annual salary ranges from \$90,000 to \$100,000, with opportunities in research institutes, observatories and academia.

9. Robotics engineer

Robotics engineers design and create robotic systems that can perform duties more efficiently than humans. They work in car manufacturing, healthcare, aerospace and a variety of other industries.

Common qualifications:

- Bachelor's or master's degree in robotics, mechanical engineering or electrical engineering
- Strong programming and systems-integration skills

The average annual salary for robotics engineer jobs in Australia ranges from \$90,000 to \$110,000. With the increasing adoption of automation across industries, you can expect demand for this role to intensify in years to come.

10. Marine biologist

Marine biologists study the biological and ecological aspects of organisms in the ocean (and related bodies of water). They enjoy a combination of fieldwork, lab work and office work, depending on the individual role.

Common qualifications:

- Bachelor's degree for entry-level positions; a master's or PhD for research roles
- Extensive knowledge of marine life and ecosystems

The national average salary for a marine biologist is \$90,000 in Australia, with research, conservation and education opportunities.

The fields of science, technology, engineering and mathematics offer plenty of career

opportunities – many of which are future-proof. These careers demand a high level of technical skill and specialised knowledge and many offer great job security.

STEM careers provide a fulfilling path if you're curious about how things work, love solving problems and want your work to make an impact. As technology continues to advance and filter into every aspect of life, the demand for skilled STEM professionals will continue to rise for the foreseeable future.

FAQs

What education is required for STEM careers?

The educational requirements for STEM careers can vary depending on the specific field. Many STEM careers, such as engineering, IT and environmental science roles, require at least a bachelor's degree in a related field. For more specialised roles, such as biotechnologists, genetic counsellors, or astrophysicists, a master's degree or PhD is often necessary.

What are the most popular STEM career fields?

STEM encompasses a wide range of fields, but some of the most popular include technology, engineering, healthcare, biological sciences, mathematics and data analysis.

What skills are important for success in STEM careers?

Success in STEM careers often requires a blend of technical knowledge and soft skills. The specific technical skills needed for a STEM career depends on the individual role, but analytical thinking and mathematics skills are generally required to get into STEMrelated degrees. Key soft skills are the ability to problem solve, communication and collaboration abilities, open-mindedness and adaptability.