

Sectoral Skills Assessment Life Sciences

October 2024



Sectoral Skills Assessments

First launched in 2017, Sectoral Skills Assessments (SSAs) provide a robust and consistent evidence base to support partners in strategic skills investment planning. Skills Development Scotland (SDS) has worked with key partners and stakeholders in the production of SSAs to ensure an inclusive approach to their development, dissemination and utilisation.

SSAs include published data sets. Inevitably, when using published data there is a time lag, but the data contained is the most up-to-date available at the time of writing. SSAs also include forecast data that has been commissioned through Oxford Economics. The Technical Note¹ provides full detail on the caveats that must be applied when using forecast data, but broadly, it should be noted that:

- Forecasts are based on what we know now and include past and present trends projected into the future.
- The more disaggregated they become, especially at smaller geographical units, the less reliable they are likely to be.
- Their value is in identifying likely directions of travel rather than predicting exact figures.
- The forecasts do not account for national or sectoral activities, initiatives or investments that are planned.

Industries and occupations used in the SSAs are defined by standard industrial classifications (SIC)² and standard occupational classifications (SOC).³

This SSA report is for the Life Sciences sector. The sector includes the Manufacture or Research Associated with Medtech, Digital Health, Pharma Services and Contact Research Organisations, Therapeutics, Agritech, and Stem Cell and Regenerative Medicine. Please see Appendix 1 for the SIC definition used in this report.

Key Sectors are central to our Skills Investment Planning approach. Each Key Sector has a tailored Skills Investment Plan (SIP) which outlines trends in skills and qualification supply and employers' perspectives on the skills issues affecting the sector. Regional SIPs have also been developed and are available alongside SIPs on the SDS website.⁴

The SSAs are part of a suite of Labour Market Insight publications by SDS. Other products in the suite include:

Economy, People and Skills report which

provides succinct and up-to-date evidence on Scotland's economy, businesses and people. It is updated monthly.

Regional Skills Assessments provide a

coherent, consistent evidence base to inform future investment in skills, built up from existing datasets and forecasts for Regional Outcome Agreement areas, Rural Scotland and all City and Growth Deals regions. They are updated annually.



The **Data Matrix** is an interactive tool, offering more detailed data from a variety of sources in a visually engaging format. It is updated frequently.

Alongside the suite of Labour Market Insight publications, SDS also produces a wide range of reports such as statistics on Modern Apprenticeships and the Annual Participation measure for 16-19 year olds. This includes a wide range of data related to equalities. Further information can be found on the Publications and Statistics section of the SDS website.

We value user feedback on the Sectoral Skills Assessments. If you would like to provide feedback, please do so here. For any further information or queries on the SSAs or any of our other products, please contact: **RSA@sds.co.uk**

We held a series of webinars to complement the publication of the Sectoral Skills Assessments.



The recording of the Life and Chemical Sciences webinar can be found on the SDS YouTube Channel here.

You can also watch the webinars for other key sectors and regions in Scotland here.

1. SSA Technical Note (2024).

2. Office for National Statistics UK Standard Industrial Classification (SIC) 2007.

3. Office for National Statistics UK Standard Occupational Classification

(SOC) 2010.

4. Skills Development Scotland Skills Investment Plans.

The Context for Scotland's Labour Market

Within the last 10 years, the economy has faced significant disruption due to events such as the pandemic, Brexit, the war in Ukraine, and the cost-of-living crisis. In addition, megatrends around demography, technology, and the environment have continued shaping Scotland's economy and labour market, many of which are interdependent. Below is an overview of the drivers expected to have the greatest influence on Scotland's labour market outlook in the near term, based on a comprehensive analysis of structural and cyclical factors.



The economic outlook for Scotland has improved, but growth is still expected to be modest in 2024, after annual GDP figures estimated the Scottish economy (like that of the UK) remained broadly flat throughout 2023. While inflation rates have eased from their peak in October 2022, the effects of rising prices and high interest rates continue to impact Scottish households and businesses. Scotland has experienced a tight labour market in recent years, but there have been signs of this loosening in 2024.



Scotland has an ageing population. In 2022, around 20 per cent of Scotland's population was aged 65 years or over, and around 15 per cent were aged under 15 years old. Population growth is also expected to slow in the next decade, and it is anticipated that the country is likely to rely on in-migration for population growth. These demographic changes in Scotland have important implications for the labour market and economy.



Inclusive Growth and Equality

Scotland continues to experience inequality, which can impact individuals' access to labour market opportunities. Cost-of-living pressures have affected different groups disproportionately, particularly in lower-income households. Geographical inequalities also exist across Scottish regions that can affect individuals' access to opportunities. There have been some advances in improving diversity within the workforce and reducing inequality, but challenges remain.

Technology and Automation

Scotland has a strong technology sector, with specific strengths in digital technology, life sciences and financial technology (fintech). The current makeup of the technology sector suggests AI will likely be the most important technological advance for the foreseeable future. It is estimated that 60 per cent of jobs in developed countries will be affected by AI. This could be disruptive within the labour market, creating challenges and opportunities for job roles and businesses.



The Scottish and UK governments have committed to meeting targets for Net Zero carbon emissions. The transition to Net Zero will directly impact jobs, with potential for job growth in Scotland. Upskilling and reskilling will be vital to equip Scotland's workforce with the skills needed to meet the transition. Scotland is well placed to take a lead in the development of new green technologies building on its significant natural resources and strengths in key sectors.

 \mathbf{I} A fuller report on Scotland's Labour Market Drivers can be found <u>here</u>.

Sectoral Insight¹

The previous page provided an overview of the key drivers expected to have the greatest influence on Scotland's labour market. Below, we explore how some of these drivers, and others, may influence the sector.

Patient Data and Personalised Medicine:

Healthcare is shifting from large patient population products, to personalised products targeted at specific patient groups. These require the manipulation of very large volumes of data, up-todate health informatics and bioinformatics skills, alongside advanced pharmaceutical skills.

Digitalisation and Continuous Innovation: Technological innovation, automation and the expansion of roles at the interface of therapeutic manufacturing and medical devices, require regular (and interdisciplinary) upskilling and reskilling of the workforce.

Demographic Changes: The population in Scotland is ageing. Life-changing and lifelengthening medicines are constantly being developed and are in demand. People are living longer and living with chronic conditions, increasing the focus on both prevention and treatment. The Life Sciences sector continues to be an important part of the Scottish economy. From a Scottish perspective, the sector is identified in both the <u>National</u> <u>Strategy for Economic Transformation (NSET)</u> and <u>Scotland's National Innovation Strategy</u>.

In 2022, the sector achieved the Life Sciences Strategy's aim of contributing £8bn to the Scottish economy, three years ahead of target.

Life Sciences in Scotland benefits from a globally recognised and highly skilled workforce. Yet insight from industry and trade bodies identifies the following current and future skills needs: Laboratory technicians; Total quality; Regulatory affairs; Manufacturing; Digital and data analytics; Commercialisation and business development.

The Life and Chemical Sciences Skills Group provides strategic direction for evidence-based skills interventions and aligns and supports wider strategic groups for the sector, such as the Life Sciences Industry Leadership Group. The Skills Group consists of industry, academia, public sector agencies and trade bodies.

In 2024 a consortium, that includes Heriot Watt University and IBioIC, was awarded over £5m in UK Government funding to establish the RESILIENCE Centre of Excellence for UK Medicines Manufacturing Skills. RESILIENCE is delivering training and outreach materials and programmes that help to address the skills demands in the Life Sciences sector.

There are also various regional investments, highlighting clusters of activity and growing demand in regions across Scotland including:

- Tay Cities Growth Deal (Biomedical Cluster £25m, Life Sciences Biomedical and Biotechnology Skills project £2m);
- Aberdeen City and Shire (ONE BioHub £40m);
- Highlands and Islands (Life Science and Innovation Hub £9m);
- Glasgow (Living Laboratory £90m);
- Renfrewshire (Oligonucleotide Manufacturing Innovation Centre of Excellence £20m).

It is important to note that the forecasts used in this Sectoral Skills Assessment are policy and investment neutral.

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This means the figures present a baseline outlook that takes into account historical trends and external economic conditions, but the figures do not reflect investment or policy that is unconfirmed or at planning/development stage. Therefore, the forecasts should be used in conjunction with other sources, and readers are encouraged to overlay these with their own local and sectoral knowledge.

The Economy¹





In 2024, GVA in the Life Sciences sector was estimated to be £4,531m, generating 3.1% of Scotland's total economic output. Between 2014 and 2024, GVA in the sector was estimated to have increased by 5.1% on average each year, compared to growth of 0.5% across Scotland over the same period.

Due to economic uncertainties and high inflation, consumption and investment decreased in 2023 causing a decline in the Life Sciences sector output. Even though demand in the sector is still likely to be comparatively weak due to wider economic conditions, it was estimated that GVA output in the sector would grow by 1.0% in 2024.

Looking ahead, GVA in the Life Sciences sector is forecast to grow on average 1.8% each year between 2024 and 2034, which is slightly above Scotland's average. In 2034, the Life Sciences sector is forecast to account for 3.3% of Scotland's total economic output.



2019 prices.

3. Productivity is the measure of goods and services produced per unit of labour input. The Oxford Economics forecasts of productivity shown here

Productivity (GVA per job)³

In this report, we have used Oxford Economics' measure of productivity, which is calculated by dividing total sectoral GVA by total sectoral employment (measured by jobs). Please note, there are different ways of calculating productivity, and caution is needed when interpreting productivity data presented in this report. It must be considered in the context of other data and insight.

In 2024, productivity in the Life Sciences sector was estimated to be £180,300. In comparison, the Scottish average was £52,000.



have been calculated by dividing total sector GVA by total sector employment (measured by jobs).

1. SDS (2024). Oxford Economics Forecasts.

2. GVA is the measure of the value of goods and services produced within the economy and is an indicator of the sector's health. GVA in constant

Current Demand¹



Workforce size 2024: 21,400 people

The sector's workforce was estimated to have **increased** by **27.0%** or **4,500** people between 2014 and 2024.

This compares to a Scotland wide increase of **3.8%** or **97,300** people between 2014 and 2024.

Workforce Qualifications, 2024

It was estimated that workers in the **Life Sciences** workforce had higher qualifications than the Scottish average, with 66% qualified to SCQF Level 7 and above in 2024.²



Employment by Region (people), 2024

The greatest number of people employed in Life Sciences were estimated to be in:

Edinburgh, East and Midlothian	Glasgow College Region*	Lanarkshire V	West Lothian
5,400	3,400	2,100	1,900

Top 10 Employing Occupations (people), 2024



1. SDS (2024). Oxford Economics Forecasts.

2. See <u>SCQF Framework</u> for further information on SCQF qualification levels.

*Glasgow College Region covers East Dunbartonshire, East Renfrewshire and Glasgow City local authorities.

Current Demand¹

The proportion of Local Authorities' workforce employed in Life Sciences, 2024²

In 2024, the **Life Sciences** sector was estimated to account for **0.8%** of Scottish employment.

Scottish local authorities have sectoral strengths that make them unique. This means that the **Life Sciences** sector may be more important to some local economies, as a higher proportion of the local workforce is employed in the sector.

The sector was most prominent in these local authorities:

East Lothian 4.1%

Midlothian 3.1%

West Lothian 2.5%

Clackmannanshire 2.3%

Real Living Wage and Gender Pay Gap³

Individuals earning Real Living Wage or more:

In April 2023, the real living wage rate for employees who did not work in London was £10.90.



Manufacturing 2022: 90.6%

All sectors 2023: 90.6% 2022: 90.6%

2022: **90.6%** 2023: **89.9%**

Professional, Scientific & Technical Activities2022: 94.6%2023: 94.4%

Gender Pay Gap for median full-time hourly earnings:



 Manufacturing
 Scotland

 2022: 16.6%
 2023: 13.9%
 2022: 3.0%
 2023: 1.7%

 Professional, Scientific & Technical Activities

 2022: 24.5%
 2023: 25.2%

Due to data availability, a 'best fit SIC code approach' has been used, so sectors definitions here may not fully match key sector definitions.

Modern Apprenticeships⁴

00	MAs starts for Chemicals & Biotechnology Related*:			
	Q4 2022/23: 29	Q4 2023/24: 27	Q1 2024/25: Less than 5	
	MAs in training for Chemicals & Biotechnology Related*:			
	Q4 2022/23: 72	Q4 2023/24: 69	Q1 2024/25 : 61	

* Based on SDS Occupational Groupings.

For data on FAs and GAs please see the Publications section of our <u>website</u>. For data on colleges and universities please see <u>Scottish Funding Council</u> and <u>Higher Education Statistics Agency</u>.

1. SDS (2024). Oxford Economics Forecasts.

2. The proportion of the workforce in the Local Authority employed in the sector is calculated by dividing the sectoral employment in the area by total employment in the area.

3. Scottish Government (2023). Annual Survey of Hours and Earnings: 2023. Due to data availability, a 'best fit <u>SIC code</u> approach' has been used, so the sectoral definitions and totals in this section may vary from those we have used elsewhere.

4.1

0.1

% share of employment

4. SDS (2024). Modern Apprenticeship Statistics, Quarter 1, 2024/25.

Job Postings^{1,2}



Spotlight on... Biological Scientists³

Between July 2023 and June 2024, there were **460 job postings**. Job postings were high during 2022, and as a result the number of job postings has decreased by 13.6% compared to the period between July 2022 and June 2023 (21% decline across all occupations comparatively). Despite the decline, the number of job postings remained above the pre-pandemic level for Biological Scientists.

Top Locations between July 2023 and June 2024 were:



Glasgow City 110 job postings

Aberdeen City 30 job postings

The largest growth in job postings between July 2022 - June 2023 and July 2023 - June 2024 was in Aberdeen City (+10) and East Lothian (+8).

Specialised skills and knowledge requested (July 2023 - June 2024) included:



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Biochemical Assays

Median real-time advertised salary July 2023 - July 2024: £40,600

1. Lightcast 2024. Online job postings data provides a useful barometer for the health of the jobs market. It is important to note that the data does not capture all activity, so it should be considered as an estimate of activity. 2. Job postings are rounded to the nearest 10.

3. Data is based on SOC 2112 for the whole of Scotland. Median salary based on 39% of job postings. 4. Data is based on SOC 3111 for the whole of Scotland. Median salary based on 34% of job postings.



Spotlight on... Laboratory Technicians⁴

Between July 2023 and June 2024, there were **570 job postings**. Job postings were high during 2022, and as a result the number of job postings has decreased by 25.2% compared to the period between July 2022 and June 2023 (21% decline across all occupations comparatively). Despite the decline, the number of job postings remained above the pre-pandemic level for Laboratory Technicians.

Top Locations between July 2023 and June 2024 were:



Glasgow City 90 job postings West Lothian 60 job postings

The largest growth in job postings between July 2022 - June 2023 and July 2023 -June 2024 was in Falkirk (+20) and Edinburgh City (+14).

Specialised skills and knowledge requested (July 2023 - June 2024) included:



Chemistry and Biology



Good Laboratory Practices



Analytical Techniques



Laboratory Equipment and Housekeeping



Median real-time advertised salary July 2023 – July 2024:

Future Demand: Mid-term (2024-2027)¹

In the mid-term (2024-2027), **the number of people in employment is forecast to grow by 4.3% (900 people)** in the **Life Sciences** sector. This is a larger percentage growth than is forecast overall across Scotland where employment is predicted to rise by 1.9% (49,800 people). In 2027, the top employing regions in the sector are forecast to be **Edinburgh**, **East and Midlothian** and **Glasgow College Region**, the same as in 2024. Similar to 2024, **the largest proportion of the workforce** is forecast to be educated **to SCQF 7-10**. The top employing occupation is forecast to be **Science and Technology Professionals**. Forecasts for the mid-term (2024-2027) suggest there could be demand for **1,500 people in the sector**, as a result of the need to replace workers leaving the labour market and opportunities created through expansion demand. Whilst positive, caution is needed as a wide range of factors may impact the future labour market.



Future Demand: Long-term (2027-2034)¹

Employment growth in the Life Sciences sector is forecast to continue, with an increase of 5.9% (1,300 people) in the long-term (2027-2034). This is a larger percentage growth than is forecast overall across Scotland where employment is predicted to rise by 1.2% (32,000 people).

In 2034, Edinburgh, East and Midlothian and Glasgow College Region are forecast to remain the top-employing regions in the sector. The largest proportion of the workforce employed in the sector is forecast to be educated to SCQF 7-10, and Science and Technology Professionals is forecast to remain the most in-demand occupation within the sector. Forecasts for the long-term (2027-2034) estimate that **2,800 people** could be required in the sector. This will be driven by **the need to replace workers** leaving the labour market **and the creation of opportunities** through expansion demand.



Appendix 1: Life Sciences Sector Definition (SIC 2007)

SIC	Name
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
26.6	Manufacture of irradiation, electromedical and electrotherapeutic equipment
32.5	Manufacture of medical and dental instruments and supplies
72.11	Research and experimental development on biotechnology
72.19	Other research and experimental development on natural sciences and engineering



For further information or queries on the SSAs or any of our other products, please contact: **RSA@sds.co.uk**