ST0759 - Level 7 Research Scientist: End-Point Assessment

Occupational Profile

This occupation is found in a wide range of industries including Pharmaceutical, Clinical Trials, Personal Care, Analytical, Manufacturing, Water/Environmental, Energy, Agricultural, Food Science, FMCG, Petro-Chemical, Nuclear, Aerospace, Oil, Gas, Materials, Renewable, Bio medical, NHS, Diagnostics and MOD/Defense. The broad purpose of the occupation is someone who is primarily involved in planning, leading and conducting experiments and analysing results, either with a definite end use, for example to develop new products, processes or commercial applications, or to broaden scientific understanding in general. They provide scientific and technical leadership, giving a clear sense of purpose and driving strategic intent. They can expect to lead on business critical projects - managing the design and implementation of such projects both internally and externally, disseminating findings to internal and external stake-holders and making strategic recommendations based upon the findings of the project. They take into account new scientific methods and breakthroughs, identifying longer-term opportunities and risks. They will be able to effectively collaborate with both industry and academia, working in multidisciplinary teams, to apply results of research and develop new techniques, products or practices. They are responsible for developing ethical, innovative research practices and programmes with the ability to deliver results. They are a role model, with responsibility for those in senior positions and significant organisational budgets. In their daily work, an employee in this occupation interacts with a wide range of individuals and teams. This is due to the varied work and leadership roles that the individual undertakes through their work. This means that these varied interactions require them to communicate across businesses and industries and lead on ensuring scientific information is communicated in efficient ways, examples of these varied interactions are;

Internal - Direct Reports/teams, Project Teams, Line Managers, Senior Managers, Company Boards, Global Heads of Departments, Teams in other International Regions, Manufacturing Sites, Legal Teams, Sales and Marketing teams, Data Management, Securities Teams, Quality Control and Design Teams

Externals - Compliance, Legislation (court/legal) , Regulatory Bodies, Professional Bodies, Universities and Educational Bodies, Customers, External Partners, NGOs, Contract Research Organisations, Sector forums, Patient groups, Media, Technical Specialists, Suppliers andSector skills councils,

The working environment may also be varied and change from day to day due to the diverse nature of the projects and work that the individual may be working on, but can include;

Lab Based, Manufacturing Plants, Field based - External sites(out side), office based, home based, Customer sites, Conferences and education facilities. An employee in this occupation will be responsible for autonomously managing their own work programs and time while maintaining their own CPD and continuing to develop and update the knowledge and skills of others (coach develop/lead). They are responsible for direct line management of research teams or leading peer groups and collections of scientists in programs/experimentation's to achieve required goals. They report to senior level management/heads of functions while also being accountable for reporting to board members within the company, clients and research councils. They will be responsible for budgetary control of their projects and advising on wider company impacts of research around production costs and profitability of research results.

They will be responsible for managing different streams of work and leading on/designing and carrying out trails of process and procedures and Translation of science to action. Alongside also designing , developing, implementing and evaluating these business changes.

The volumes and breath of this may vary due to the size of the organisation. With smaller companies also requiring their research scientists to be responsible for acquiring business through communication with customers and leading in this area.

End-Point Assessment

The Research Scientist is assessed through two End-Point Assessment (EPA) methods as set out in the assessment plan:

- Project Report (based on pre-gateway, work-based research project), Presentation and Questioning
- Professional Discussion underpinned by a Portfolio of Evidence

Apprentices typically spend 30 months on-programme (before Gateway) working towards the occupational standard with a minimum 20% off-the-job training. All Apprentices must spend a minimum of 12 months on programme.

Once the Employer is satisfied that the Apprentice is consistently working at or above the level set out in the standard, and that all Gateway requirements have been met, the Apprentice can proceed to their End-Point Assessment (EPA).

Gateway requirements for End-Point Assessment:

- English and mathematics Level 2 as a minimum (GCSE equivalent grade A-C / 4-9)
- Apprentices must compile a portfolio of evidence to support the criteria being assessed in the Professional Discussion

Marshall Assessment will provide the following documents which must be used as part of the Gateway process:

- Gateway Declaration – HEI / Training Provider
- Gateway Declaration – Employer
- Gateway Declaration – Apprentice
- 1a Project Report Title and Scope
- 2a Portfolio Log - to map the Apprentice's specifically complied Portfolio of Evidence to support the Professional Discussion

The EPA will usually be completed within 3 months of Gateway approval (the EPA period), which will happen once the Project Report title and scope is agreed by Marshall Assessment.

A summary of the assessment methods and how Marshall Assessment deliver them has been provided below. Further support can be found in the following documents which will be provided as part of our EPA support and customer / Apprentice engagement pack.

- 1 Project Report, Presentation & Questioning Guidance – detailed guidance to help the Apprentice to plan and prepare their Project Report and Presentation. The document includes guidance on the grading descriptors that must be met for this assessment, which will also support the Apprentice to prepare for the questioning by the Marshall Independent Assessor (IA). Marshall Assessment have also provided the following documents to support with the delivery of this assessment:
    - 1b Project Report Declaration. This should be submitted with your completed Project Report.
    - 1c Project Report & Presentation – Mapping document. This should be completed to demonstrate to the Marshall IA where you feel you have met the required criteria, in your report or in your presentation.

- 2 Professional Discussion Guidance – detailed guidance to help the Apprentice to prepare for their Professional Discussion underpinned by a Portfolio of Evidence. Marshall Assessment have also provided the following document to support with the delivery of this assessment:
    - 2a Portfolio log - to ensure the Apprentice compiles relevant evidence in their portfolio to support the grading descriptors being assessed in this discussion – this should be submitted at Gateway with the Portfolio of Evidence, for review by the Marshall IA ahead of the agreed date of assessment.

Project Report, Presentation & Questioning.

Timescale:
Min. 20 – max. 30 minutes for the Presentation (plus 10%).

Min. 20 – max. 30 minutes for the follow up Questioning (plus 10%).

Takes place in a quiet location, free from distractions with no other personnel present other than those with prior arrangement (Marshall IQA).

Apprentice will need access to a PC/laptop with a webcam as delivery will be over Microsoft Teams, unless otherwise requested.

Assessments will be recorded for quality and training purposes in line with GDPR and Marshall Assessment Data Protection Policy.

Grading outcomes:
Fail, Pass or Distinction.

- Before this element of the EPA can be assessed, Apprentices must produce a Project Report during the **post-Gateway**, EPA period. The Project Report must be based on a **real research project** carried out in the Employer's workplace as part of the Apprentice's day to day activities whilst on programme.
- The Project Report will form the basis of a presentation which must be delivered to the Marshall Independent Assessor (IA) and will be followed by a Questioning session for the IA to draw out any further information to meet the required grading descriptors for this assessment.
- The proposed Project Report title and scope (a template has been provided in the resource pack, *1a Project Report Title and Scope*) must be submitted by the Apprentice at Gateway for review by Marshall Assessment. It should include a summary of the stage of the research project which they plan to base their Project Report on, and an overview of the tasks, as well as responsibilities, undertaken by the Apprentice.
- Work must not begin on the Project Report until the title and scope has been agreed, written confirmation will be provided.
- Once the title and scope are confirmed by Marshall Assessment, this will start the EPA period and the Project Report can be written.
- The Project Report must be 4,000 to 4,400 words, **excluding** tables, figures, references and annexes. There must also be an annex containing a maximum of 10 pieces of evidence relating to the project. The evidence must be attributable to the apprentice, in part or in full.
- The completed Project Report must be submitted to Marshall Assessment a maximum of **three weeks** after agreement of the proposed Project Report title, along with the completed Project Report Declaration form provided (*1b Project Report Declaration Form* in resource pack).
- The Apprentice will also need to prepare and deliver a presentation based on their Project Report.
- The presentation itself, and any supporting evidence/ notes and the completed document *1c Project Report & Presentation mapping* must be submitted a **maximum of five weeks** from the confirmed start of the EPA period.
- Deadline dates for submission of the Project Report and presentation/ presentation materials and mapping document, will be confirmed in writing at the point of agreement of the Project Report title and scope (see *1a Project Report Title and Scope* in resource pack). Any Project Reports or Presentation materials submitted past the stated deadline dates will result in the final grade outcome being capped at a PASS.
- Mitigating circumstances application form available if required if a deadline will be missed due to circumstances beyond the Apprentice's control.
- On the assessment day, following the Apprentice's presentation of their Project Report, the IA will ask questions to clarify their understanding of the content of the report, or the presentation, to allow the opportunity for the Apprentice to clarify their understanding of the pass grading criteria, or to demonstrate that they can meet the higher-level distinction criteria.
- Grading outcomes; FAIL: not all pass criteria met, PASS: all pass criteria met, or DISTINCTION: all pass criteria met and a minimum of 5 of the available distinction criteria met.

Professional Discussion (underpinned by a Portfolio of Evidence)

Timescale:
Max. 1 hour (plus 10%)

Takes place in a quiet location, free from distractions with no other personnel present other than those with prior arrangement (Marshall IQA).

Apprentice will need access to a PC/laptop with a webcam as delivery will be over Microsoft Teams, unless otherwise requested.

Session will be recorded for quality and training purposes in line with GDPR and Marshall Assessment Data Protection Policy.

Grading outcomes:
Fail, Pass or Distinction.

- The Professional Discussion element covers the Knowledge, Skills & Behaviours (KSBs) that are not likely to naturally occur during the research project, and which are best evidenced in a Professional Discussion underpinned by a Portfolio of Evidence, allowing the apprentice to demonstrate competence using real-life, work-based examples.
- The Apprentice must submit a specifically compiled Portfolio of Evidence at Gateway.
- A Portfolio Log document is provided (see *2a Portfolio log* in resource pack) and should be completed and submitted alongside the Portfolio of Evidence to clearly map the evidence selected for submission to the required grading descriptors for the Knowledge, Skills and Behaviours (KSBs) for this part of the assessment.
- The Apprentice should be prepared for questions, where appropriate, to be based on this evidence.
- The purpose of the Professional Discussion is to:
    - clarify any questions the Marshall Independent Assessor (IA) has from their review of the Portfolio of Evidence,
    - explore aspects of the work, including how it was carried out, in more detail
    - require the Apprentice to draw on their evidence to demonstrate the required KSBs showing the depth of their knowledge and understanding.
- To encourage a discussion, the grading descriptors have been split into components alongside the associated KSBs and grouped into discussion topics (see Appendix II in Professional Discussion guidance).
- The IA will ask an opening question on each topic area. In the discussion that follows, the Apprentice must draw on examples from their own workplace using evidence from their submitted portfolio to support the discussion.
- The Apprentice can have access to their Portfolio of Evidence and their Portfolio Log during the discussion.
- The IA will take notes during the discussion to record their assessment decisions, the assessment will also be recorded.
- Grading outcomes; FAIL: not all pass criteria met, PASS: all pass criteria met, or DISTINCTION: all pass criteria met and a min. 5 of the available distinction criteria met.

Remote Assessments - any breaks in connectivity will be dealt with in the following way:

- A short break of up to 10 minutes will be acceptable, this must be recorded by the IA and they will confirm the test can continue once connectivity has resumed.
- If there is a break in connectivity once a question has been asked, once resumed, the IA will ask a different question.
- If the break is during a response – the Apprentice will be allowed to continue as long as the break is less than 5 minutes. More than this, a new question will be asked.

Grading outcomes:

The Apprentice must, as a minimum, pass each element to achieve their apprenticeship certificate. If any 1 element is graded a fail, the overall grade result will be a FAIL.

To achieve a distinction, the Apprentice must be awarded a DISTINCTION in both assessment methods.

If the Apprentice fails one or both elements of the EPA, a resit/ retake can be arranged for the failed element(s), however the final grade outcome will be capped at a PASS. Apprentices cannot resit an element to improve their grade.

If the Project Report, Presentation and Questioning needs a resit / retake, the same project title may be used. The Apprentice and Employer should decide whether to resubmit the Project Report or to resit the Presentation with Questioning based on the initial Project Report.

Any assessment method re-sit or re-take must be taken during the EPA period, otherwise the entire EPA must be taken again, unless in the opinion of the EPAO exceptional circumstances apply outside the control of the Apprentice or their employer.

All evidence from the assessments is submitted for Internal Quality Assurance (IQA) before confirmation of the final grade outcome, which will be released to the HEI /Training Provider by Marshall Assessment.

Following confirmation of results from Marshall Assessment, the Apprentice or Training Provider have 15 working days to request a review of the grade. Appeals policy also available at https://www.marshall-assessment.com/our-policies If no request is made, the certificate claim will then be submitted to the Apprenticeship Service (this may take up to 4 weeks to arrive following a claim being made) and will be sent directly to the Employer unless otherwise specified.

Link to IfATE Assessment Plan: https://www.instituteforapprenticeships.org/apprenticeship-standards/research-scientist-v1-0

The Knowledge, Skills and Behaviours required to be met for this Standard are listed in the assessment plan and also below. A detailed guidance pack with assessment criteria, amplifications, exemplifications, mock material where appropriate and support to prepare for EPA will be provided on registration with Marshall Assessment as the EPAO.

Knowledge, Skills and Behaviours	
Knowledge	
K1:	Subject specific knowledge: A deep and systemic understanding of a named / recognised scientific subject as found in an industrial setting, such as biology, chemistry or physics, found in the nuclear, food manufacture, pharmacology or energy production sectors, at a level that allows strategic and scientific decision making, while taking account of inter relationships with other relevant business areas / disciplines
K2:	Management, leadership and effective communication. Organisation objectives and where their role contributes to the success achievement of these objectives. How to communicate effectively with a wide range of senior leaders across different departments, up and down the supply chain, within their own team. Advanced mixed media communication, such as presentations, report writing (technical and non-technical) negotiation and influencing. Leadership within a team of multi discipline specialists at different levels across the organisation, ensuring a shared vision and commitment to success. Effective project management as used in their employer's environment with regard to quality, cost and time. The employers organisational structure and where their own role fits
K3:	Ethics, regulation and registration: All current relevant national and international regulations needed to carry out the role. This will include scientific regulation, health and safety and laboratory safe practice, anti-bribery and anti-corruption. Ethical scientific practice and the employers processes and procedures surrounding professional conduct. How to identify, record, mitigate and manage risk. The impact of failure and how to manage risk on the business. The benefits of equality of diversity in the workplace
K4:	Research methodologies: Methodologies appropriate to the sector and how to formulate and apply a hypothesis. Appropriate application of scientific process. The unpredictability of research projects and the need to adapt and adjust daily planning needs to accommodate new developments
K5:	Data analysis and evaluation: Statistical analysis techniques, numerical modelling techniques and how they are applied in context. How to interpret and categorise data to make informed and objective decisions against the goals and targets of the project. How to evaluate and interpret the data and associated analysis against company objectives
K6:	Data management: How to safely store and handle data in line with national and international data protection and cyber security regulations that apply to the role. How to manage and store data in line with employer processes and security approach. How to create an appropriate data management plan
K7:	Entrepreneurial and enterprise: How to consider a multi solution approach to the objective in the key stages of a project. Market analysis awareness (SWOT / PESTLE / feasibility studies) and how to assess the impact of the project on the business. Intellectual property rights as they apply to the role and specific projects. Value for money and the ability to use market analysis to make go / no go decisions
K8:	Development of self and others: The importance of continuing professional development and how to maintain their own specialist knowledge in an ever evolving environment. How to effectively coach and mentor colleagues, peers or team members to address identified skills gaps, using appropriate methods. How to upskill non-technical colleagues to enable them to complete their own role as needed.
Skills	
S1:	Application of Scientific Knowledge: Apply a range of advanced, new and emerging practical and experimental skills appropriate to the role (e.g. chemical synthesis, bio analysis, computational modeling).

S2:	Data Collection and Reporting: Capture and evaluate data critically drawing a logical conclusion, e.g. Case Report Forms, Data Management Plans, Data Review Plans, edit checks and User Acceptance Testing Plans
S3:	Commercial and Business Issues: Identify issues, including intellectual property and the commercial demands of the business environment. Understand the scientific objectives of work undertaken and its relevance to the organisation
S4:	Communication Skills: Write extended reports and critique others' work across a range of documentation, e.g. protocols, consent forms and scientific reports. Deliver oral presentations and answer questions about their work and/or the work of their team. Utilise interpersonal skills, communication and assertiveness to persuade, motivate and influence. Discuss work constructively and objectively with colleagues customers and others; respond respectfully to and acknowledge the value of alternate views and hypothesis
S5:	Project Management and Leadership: Generate effective project plans to include management of scope, schedules, budget and risk. Organise resources, budgets, tasks and people. Co-ordinate team activities to meet project requirements and quality processes. Adapt scientific strategy/delivery to be consistent with requirements. e.g. client, regulatory, ethical, geographic
S6:	Critical Thinking: Conceptualise, evaluate and analyse information to solve problems
S7:	Research and dissemination: Frame research questions and methodology drawing from current sources e.g., literature and databases. They can produce intellectual insight and innovations in their own discipline to be shared with colleagues, peers and wider stakeholders internal and external to the business
S8:	Developing others: Apply a range of coaching and mentoring techniques with colleague's peers and team members, selecting the correct method to suit the situation and the person being coached / mentored
Behaviours	
B1:	Team Working: Collaboration, influence, and respect for others
B2:	Flexibility and Adaptability: Responsiveness to change, adjusting to different conditions, technologies, situations and environments
B3:	Integrity and Reliability: Respect for the confidentiality of individuals and company information. An intrinsic ethical stance to all aspects of day to day activities. Reputation of trust internally and externally
B4:	Management of Expectations of senior management, study sponsors, vendors, investigational sites and key opinion leaders
B5:	Accountability: For self and others to ensure that actions are in the best interest of affected parties
B6:	Planning, Prioritisation and Organisation: Effective time management
B7:	Continuing Professional Development (CPD): Accountability of own and others development needs, undertaking CPD. Curiosity of science and proactively develops knowledge to ensure that scientific and business decisions are based on strong science.