Essential Laboratory Skills: Laboratory Behaviour and Techniques

Skills and Training Laboratories Training Course
Sycamore House
Cell and Gene Therapy Catapult

CATAPULT
Cell and Gene Therapy

Essential Laboratory Skills:
Laboratory Behaviour and Techniques

This two-day course equips GLP laboratory staff with essential skills to work safely, effectively, and accurately while maintaining high-quality standards. Participants receive instruction in operating key laboratory equipment (fridges, freezers, pipettes, pH meters, microscopes, centrifuges) and practice hands-on activities such as solution preparation, serial dilutions, and standard curve generation using a spectrophotometer.

Learning objectives:

- Appreciate the regulatory requirements which apply to the biomanufacturing GLP laboratory environment and demonstrate the ability to always work to these expectations.
- Gain an awareness of the Health and Safety requirements relating to a biomanufacturing laboratory and demonstrate the ability to follow SOPs including; handling of process samples, maintaining cold-storage, storage and handling of hazardous materials, waste management and the cleaning and maintenance of equipment.
- Develop the capacity to managing samples correctly, measuring accurately on the correct choice of equipment and understanding both intra- and inter-process variation.
- Master pipetting skills: including the appropriate choice of pipette and pipette tips, for different volume and media requirements, demonstrating accuracy in different scenarios.
- Reliably calculate and prepare solutions of a required molarity in a dilution series in order to prepare and use a standard curve in calibration and quantification applications.
- Understand the principles and demonstrate the appropriate operation of standard laboratory instruments including microscopes, and pH measurements.
- Master basic manual and automated cell counting techniques whilst demonstrating basic aseptic principles.

Essential Laboratory Skills: Laboratory Behaviour and Techniques

Course title	**Essential Laboratory Skills: Laboratory Behaviour and Techniques**
Course level	Introductory
Course fee (per delegate)	£1250 plus VAT
Course date	Available upon request
Venue	CGT Catapult Skills Training Lab, Sycamore House, Stevenage

Who should attend

Ideal for newcomers to biotherapeutics or advanced therapies labs, and current staff seeking to strengthen GLP skills. Suitable for equipment and materials operatives in cleanrooms/isolators, maintenance technicians, QA/QC staff, and R&D personnel.

Pre-course expectations and recommendations

- Ideally, delegates will have had some exposure to laboratory-based work such as through college or university biology or chemistry practical sessions. Delegates will also benefit if they have a basic understanding of bioprocessing, for delegates without this understanding we recommend attendance on our *Introduction to Biomanufacturing and Advanced Therapies* course.

- If you are unsure if this course is suitable for you, please contact our Skills team via skillstraininglabs@ct.catapult.org.uk and we will be happy to advise.

- **Important** - once enrolled, delegates will be asked to complete a pre-course questionnaire. Your comments will enable our trainers to gauge the experience and expectations of the attendees, and where appropriate tailor the content to the audience.

Assessment

Assessment is through integrated discussions and trainer observations, plus at the end of the course, delegates will be asked to submit an observational work-place based assessment within 2 – 3 weeks of completing the course showing how and where they have applied their new knowledge in their workplace.

Agenda

Day 1 - Time	Session Title and Description
9:00 - 9:30	Welcome and introductions. Health & safety briefing. Course overview and ice breaker activity.
9:30 - 10:30	Basic laboratory etiquette – Introduction and overview Practical activity 1: Hand washing best practice
10:30 - 11:00	**Break**
11:00 - 12:30	Measurement, calculations, sample management, calibration and accuracy, and associated equipment overviews: fridges, microscopes, pH meters, centrifuges and pipettes
12:30 - 13:15	**Lunch**
13:15 - 15:15	Introduction to lab equipment Practical activity 2: Working with solutions – concentration and volume measurements, single point dilutions.
15:15 - 15:30	**Break**
15:30 – 16.30	Practical activity 3: Serial dilutions and determining an unknown concentration: produce serial dilutions and use a spectrophotometer to generate data for a standard curve, plot and determine the concentration of an unknown sample.
16:30 - 17:00	Practical activity 4: Fridge etiquette including sample labelling.
17:00 - 17:30	Day 1 - Review and feedback

Agenda

Day 2 - Time	Session Title and Description
9:00 - 9:30	Welcome & review of previous day – discussion including common issues encountered with experiments and instrumentation
9:30 - 10:00	Overview and operation of standard laboratory microscopes
10.00 – 10.30	The role of pH monitoring in bioprocessing Practical activity 5: Measuring pH – Calibration and reading an unknown
10:30 - 11:00	**Break**
11:30 - 12:30	Practical activity 6: Centrifugation and microscopy for manual cell counting and cell viability assessment, including the use of haemocytometers (cell counting chambers)
12:30 - 13:00	**Lunch**
13:00 - 16:00	Practical activity 7: Automated cell counting and cell viability assessment using the Chemometec 3000 and N202 automated systems. Comparison of manual versus automated cell counting and cell viability methods.
16:00 - 16:15	**Break**
16:15 - 17:00	Review, questions and feedback. Complete post-course questionnaire.
17.00	**End of course**

Final agenda subject to change.

Visiting Sycamore House

Address:

Sycamore House
Leyden Road
Stevenage
SG1 2BP

How to find us

Driving – to park in our carpark use the vehicle security gate on Leyden Road. What3words ///slip.cakes.owners

By taxi or on foot, use the pedestrian security gate on Gunnels Wood Road. What3words ///parent.risk.lines

Once on site proceed to the main reception located on the south-west side of the building

No smoking

Please be aware that Stevenage Science Park is a no smoking site.

Contact us

We want you to enjoy this training course, but if you have any concerns, please do not hesitate to contact us at skillstraininglabs@ct.catapult.org.uk.

Sycamore House is located just outside Stevenage city centre.

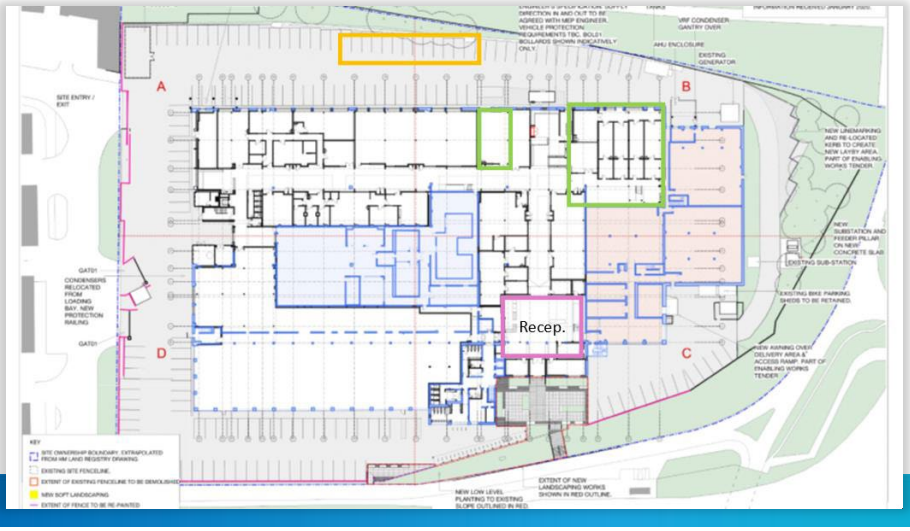
Sycamore House is close to the A1(M) via junctions 7, the connectivity of the campus by car is considered good. Stevenage is well connected to major hubs. Cambridge is only 40 kilometres away and reachable within 40 minutes by train, and it takes only a 21 - minute train journey to reach King's Cross in London. In addition, Luton and Stansted international airports are reachable within 40 minutes and Heathrow within 1 hour.

Parking

There are 18 car parking spaces available to building users of Sycamore House car park including one electric charging parking space. Additional parking at Stevenage Football Club is available for nine cars for Catapult employees. The car park will be based on first-come, first-served basis. Dedicated parking spots are marked with Catapult logo/sign.

There are four parking spots for visitors that is shared among the other tenants in the building. These spots can be booked via building reception in advance.

Directions

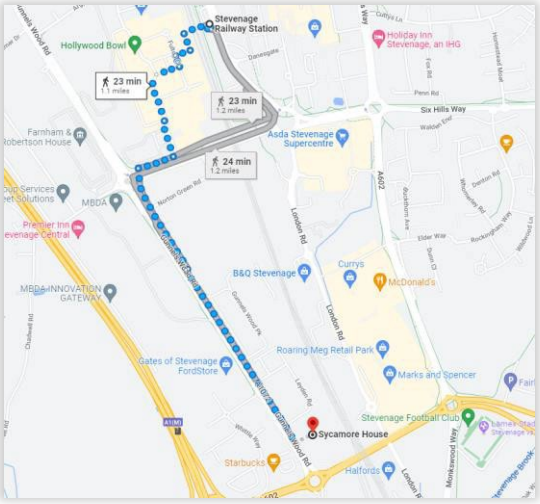


Area marked in orange is car parking allocated to CGT Catapult employees on a first-come, first-served basis.

The building entrance / reception is marked with purple, and the CGTC ground floor areas, including our Skills and Training Laboratories are marked in Green.

Walking and cycling

Although the walk from the town centre and station takes approximately 25 minutes, there are continuous footpaths and cycleways, and safe crossings all the way to our entrance.



There are 33 cycle spaces for general use. There is a bike store located at the front of the building entrance accessed via Gunnells Wood Road. The spaces for the bikes are available on a first-come, first-served basis.

Car Parking at Stevenage Football Ground

Map showing the additional parking available at the East and West areas of Stevenage football ground.