## LEAF accreditation guide

## **BRONZE**



## Using this guide

This guide is an accompanying resource for teams attempting the UNSW Bronze LEAF accreditation. Each row corresponds to a bronze accreditation criterion (1-16), each column provides information to help achieve that criterion.

**UNSW audit standards:** This column is used by the LEAF administration team when assessing accreditation submissions. Teams should use this column to ensure they are meeeting the minimum required standard to pass each criterion.

**Submission guidance & examples:** This column offers ideas and example actions for teams to consider implementing when completing criteria. This section also provides guidance on structuring a teams written response and what information to include.

The information presented in this column has been collated from successful UNSW LEAF teams. No team has implemented every system and action listed. Similarly, teams are not expected to implement all actions described in this column. Often, implementing one listed action is enough to pass the criterion.

Furthermore, this column is not an exhaustive list of every way a team can complete criteria. If your team uses a method that is not described in this column, that is acceptable and encouraged.

Please do not copy and paste sections of this guide into your team's written submission. Contact <a href="mailto:LEAFlabs@unsw.edu.au">LEAFlabs@unsw.edu.au</a> with any questions or to request support.





Criteria	UNSW audit standards	Submissions guidance & examples
Waste  1. The lab possesses required waste bins (possibly clinical, glass/sharps, hazardous etc.), as well as recycling/general waste bins with appropriate and clear signage.	✓ All necessary bins must be present.	Ensure all required waste bins are present within your lab. They should possess clear signage that limits the possibility of staff confusion and waste contamination. Ideally signage would have pictures of the appropriate items for each bin type. In colour coded waste bins (biological, clinical, cytotoxic, etc.), the correct liners must be used.  Common waste streams:  Domestic waste (red lidded bins with black bin liners)  Paper & carboard (blue bins)  Sharps/ glass  Biological (yellow bins with yellow bin liners)



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People  2. The lab has an induction procedure in place for all new arrivals, explaining the sustainable practices to take	<ul> <li>✓ There must be an induction procedure for all new laboratory members.</li> <li>✓ It should include explicit references to sustainable lab practices.</li> <li>✓ Sustainability resources must be easily accessible for new staff.</li> </ul>	Describe the sustainable practices that you have included in lab inductions and training material.  For example:  Shutting the sash on fume cupboard  Turning equipment off  Using freezers efficiently  Correct sample and chemical management  Waste and recycling processes  Explain how these practices are communicated. Is it in person, during online induction sessions, training courses, or through reading material?  Although many sustainable lab practices also align with standard lab best practices, it is important that training explicitly reference sustainability as a reason for why these practices are required.  Make sure to provide new lab users with all necessary sustainability materials from your lab. Inform them that they can access more information at the UNSW Sustainability website.
3. The lab has a system in place to clear or track materials left by departing staff.	i annionijajejy manaded	<ul> <li>There are several ways teams can fulfill this criterion. You may find one or more of the below systems works best in your lab.</li> <li>Exit checklist – By requiring departing staff to complete an exit checklist, laboratories can ensure that materials are tracked, redistributed and/or disposed. The checklist may require departing staff to dispose of material themselves or just make lab members aware of what is being left behind.</li> <li>Inventory database – Many labs use an online inventory database to track their chemicals, samples and materials. This database could be a simple excel spreadsheet or a dedicated lab management platform.</li> <li>Jaggaer - The most common system used by UNSW staff to manage chemicals is the Jaggaer Chemical Inventory Management system. This provides a complete chemical management life cycle from sourcing through acquisition, receipt, tracking, and disposal.</li> <li>UNSW mySample – is the upcoming sample management system for UNSW. The system will provide a single, secure, cloud-based solution to catalogue all research samples at UNSW. See the public mySample SharePoint page for more information.</li> <li>Audits – Regular audits or clean-outs are a good way to ensure unneeded material left by departing staff doesn't build up. At a minimum, teams should be holding these audits annually.</li> <li>Shared materials – When materials are shared and managed collectively, as opposed to individuals owning their own items, there is a reduced chance of materials being forgotten about when staff leave.</li> <li>Designated lab storage – Assigning dedicated physical storage locations (cupboards, shelves) to staff makes it simple to dispose materials upon their departure.</li> <li>Agenda item – Some LEAF teams have a standing agenda item in regular lab meetings to discuss outstanding materials left by departing staff.</li> </ul>



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People  4. Either the lab has a nominated person to drive sustainability forward or a group of people that meet to address sustainability. They should be a lab member within the online LEAF platform. Sustainability has been added as a standing agenda item into regular meetings and/or relevant networks (e.g. Health & Safety).	given.	Teams should name the individuals who have committed to driving sustainability within their lab. It is recommended that these individuals complete the MyGreenLab - Ambassador program. This is an optional, free, and engaging learning module that gives lab users useful information to be a successful LEAF member.  Describe your LEAF team structure – i.e., an individual effort, a team, a working group. If you have joined other sustainability groups or networks explain that too.  Explain how your LEAF team has communicated its formation, members, and goals to your broader lab. It is important that your colleagues are aware of your team's efforts to achieve LEAF accreditation. This can be done during a lab meeting, over email or on Teams.  Consider and describe how new LEAF representatives will be appointed upon your departure (this is particularly important in student teams). This could be a simple commitment by senior staff to appoint a LEAF representative or to include sustainability responsibilities in future job descriptions.  You must seriously consider adding sustainability as a standing agenda item in regular lab meetings. If this cannot be achieved or you believe it unnecessary, explain your choice or provide an alternative strategy.
5. The lab (or relevant group) has taken part in 1 team activity of sorts over the course of the year, or one is imminently planned.	✓ The lab can evidence at least 1 social activity done within the past 6 months or have one imminently planned.	This activity should be a <b>social team event</b> , not laboratory work. It also does not need to relate to sustainability. E.g., pub trivia, beach trip, lunches, sport, board games, coffee trips.  The goal of this criterion is to foster an environment of collaboration and friendship within the LEAF team. This will make implementing lab changes more effective and will help ensure the continuation of LEAF after the initial driving members leave.  Ideally, this activity will involve all members of your lab, but at a minimum, it should include all members of the LEAF team. Committing to a recurring activity (i.e. a monthly book club) is preferable to one-off events.



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Purchasing  6. Energy and materials consumption have been considered during the purchase of new materials. Ideally users should request life-cycle assessments (LCAs), though should be prepared for vendors to not have these available.	<ul> <li>✓ Teams must describe their sustainability considerations when purchasing new equipment and consumables.</li> <li>✓ In the absence of any recent purchases, teams should explain how they plan to purchase sustainably in the future.</li> </ul>	Describe how the purchasing of consumables and equipment occurs within your LEAF team.  Do you have complete autonomy, some input, or no control over purchases?  What are your lab's sustainability considerations when purchasing materials? For example:  Energy efficiency  Consumable efficiency for equipment  Locality and shipping distances  Effective lifetime  Sharing or borrowing items first  Bulk ordering  Packaging  Renting equipment  Provide examples of any recent sustainable purchases made in your lab.  Have you formalised these considerations in your procurement practices? For example:  A sustainable procurement policy or guide  A sustainability checklist when purchasing  Do you request life cycle assessments from suppliers? What is your experience with this? Even if you cannot always procure the most sustainable option, it is important to put market pressure on lab suppliers by requesting LCA's and other sustainability information.  For more information check out our procurement guide in the LEAF library.
Equipment  7. Heat sources on cold storage equipment are not blocked, and any filters are cleaned regularly.	<ul> <li>✓ Heat sources on cold storage units must not be blocked and have at least 10-20cms of clearance. Under bench units may be excluded.</li> <li>✓ There must be regular cleaning of freezer filters (e.g., every 3, 6 or 12 months).</li> </ul>	<ul> <li>Perform an inspection of your lab's cold storage equipment. Checking that equipment has:         <ul> <li>Approximately 20cm clearance on all sides where possible (particularly for -80 ULT freezers)</li> <li>Nothing blocking heat sources or vents (boxes, equipment, storage containers)</li> <li>Clean filters</li> </ul> </li> <li>Is the cold storage unit kept in a temperature-controlled room (often called a freezer room)? These rooms reduce the strain and energy requirements of cold storage equipment.</li> <li>Consider implementing a cleaning roster to ensure filters are regularly cleaned (ideally every 3 months). Affixing a cleaning checklist to fridges and freezers is an effective way to remind users of their responsibilities.</li> <li>For more information on cold storage best practice (operation, cleaning, maintenance and sample management) check out our ULT freezer guide in the LEAF library.</li> </ul>



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Equipment	✓ There must be no ovens,	Teams should confirm if all cold storage, ovens, incubators, and similar style equipment are being operated at <b>near</b>
8. Cold storage, ovens, or incubators are only operated when they are as full as possible.	incubators, freezers, fridges or similar equipment in use at less than 50% capacity, unless required.  ✓ All lab users must be aware of this policy.	full capacity (at least 50% full).  Is this a lab policy? Explain how this is enforced and how lab users are made aware of this policy. Do they get told during inductions, via training, with signage, or in SWPs and SOPs? Consult with lab users to determine their understanding of these practices.  When this style of equipment is not needed, how does it get turned off? What process would a general lab user need to follow to get an empty piece of equipment turned off (particularly incubators)?  Where possible, provide specific examples for how this criterion has been achieved. For example:  Team members have a packing schedule to coordinate efficient oven operation.  Samples have been consolidated into one freezer, allowing another to be turned off.  In situations where this is not possible, provide justification. For example:  Empty backup freezers for emergency use  Quarantine incubators



	Criteria	UNSW audit standards	Submissions guidance & examples
	<pre>9. There is a system in place to</pre>	<ul> <li>A system to ensure         equipment and lights are         turned off is present and         described.</li> </ul>	Describe the system your team uses to ensure equipment and lights are turned off. All lab users should be aware of this system or at least understand their responsibilities. Where possible, equipment should be switched off at the power outlet.
	in place to ensure equipment and lights are turned off when they are not needed.	described.  All lab users must understand the system and their responsibilities.	You may find a combination of the below systems works best in your lab.  Signage or stickers – a common and effective strategy to encourage users to turn equipment off. Students and new lab users are often unsure what can and can't be turned off, and so to avoid mistakes they opt to leave equipment on. The Environmental Sustainability team provides 'Switch off' stickers for equipment. For more information and to submit a request, visit the LEAF products page.  Automated – particularly for lighting, many labs use motion sensors or have lighting schedules that automatically turn off ceiling lights at set times. Make sure you understand which lights are automatic and which need to be switched off. Do not assume all lights in your lab are the same. Reach out to emgeneralservices@unsw.edu.au with questions or to change lighting schedules.  Training – when training or inducting staff on the use of equipment it is a good idea to specify if/ when they can turn it off.  Process manuals – many labs use SOPs or SWPs to ensure staff complete procedures correctly. Where possible, include descriptions for how and when to turn equipment off in these documents, induction documents and general lab manuals.  Regular checks – perform regular equipment checks to ensure items are switched off. Often this occurs at the end of every day. Equipment checks can be the responsibility of a whole lab team or a specific individual. This is also a good opportunity to identify the offenders leaving equipment on.  Lab exit checklist – some teams use a physical checklist to ensure equipment is switched off before exiting the lab.  Outlet timers – these are particularly useful for equipment that is left on indefinitely. Often this occurs because the equipment has a slow starting procedure, or needs to warm up before use (e.g., water baths, ovens). The timers can be set to turn off at the end of the day and switch back on in the morning before staff arrive. Consult with all users prior to timer installations, and ensure they understand how to cir
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Criteria	UNSW audit standards	Submissions guidance & examples
IT	✓ Monitors cannot be left on	Consider implementing these rules for shared computers & monitors:
10. Cold storage, ovens, or incubators are only operated when they are as full as possible.	when not in use for more than 15 mins.  ✓ Display settings should be optimised.	<ul> <li>Screen savers are not used.</li> <li>Brightness settings are as low as possible, without causing eye strain.</li> <li>Monitors are turned off when not in use.</li> <li>Time to sleep settings are as low as practicable. Aim for 3 minutes if possible, 15 minutes maximum.</li> <li>The simplest way to optimise these settings on Microsoft computers is by going to Settings&gt; Systems&gt; Power &amp; Battery&gt; Energy recommendations. Apply all recommendations.</li> <li>For large lab groups it is important to consult all lab users and communicate expected settings of personal computers. Provide information and guidance on changing these settings.</li> <li>If your team has a large quantity of computers and monitors, consider engaging your IT representative first. Check what the preset display settings are, and if possible, request more efficient settings.</li> <li>For computers and monitors connected to lab equipment, the same switch off rules and systems (see criterion 9) should apply.</li> </ul>



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Sample & Chemical Management	<ul> <li>✓ A consistent labelling system must be in place.</li> <li>✓ There should be no</li> </ul>	Describe your team's system for ensuring samples and chemicals are properly labelled. See the systems other LEAF teams use below:  • Audits – regularly auditing stored chemicals and samples helps ensure all labels a present and legible. Describe
11. All samples and chemical containers have legible labels, or there is a system in place to ensure that going forward all samples will be consistently labelled.	unlabelled or illegibly labelled chemicals or samples.  ✓ Lab groups must pass a spot check during LEAF accreditation.	<ul> <li>Adults Segually adding stored clientals and samples ristide an labels a present and legislate. Describe how often these audits occur (annually, quarterly, monthly, etc). Sometimes it can be useful to conduct random audits to ensure lab users are always prepared.</li> <li>Policies – are labelling requirements formalised in laboratory policies, manuals or codes of conduct?</li> <li>Barcoding – some teams use barcodes of QR codes to help automate certain aspects of their labelling.</li> <li>Training – it's necessary to conduct specific training that ensures users are aware of correct labelling practices and their personal responsibilities.</li> <li>Templates – Providing pre-printed labels, stickers and templates is a common way to ensure chemicals are labelled correctly and consistently.</li> <li>Jaggaer - the Jaggaer Chemical Inventory Management system provides a complete chemical management life cycle from sourcing through acquisition, receipt, barcoding, tracking, and disposal.</li> <li>ChemAlert – it is highly recommended to use the ChemAlert database when labelling chemicals. ChemAlert allows you to search for a chemical then access and print off safety data sheets (SDS), ChemAlert reports, GHS reports or labels.</li> <li>UNSW mySample – is the upcoming sample management system for UNSW. The system will provide a single, secure, cloud-based solution to catalogue all research samples at UNSW. See the public mySample SharePoint page for more information.</li> <li>Understand how the below considerations may affect the efficacy of your labelling system.</li> <li>Responsibility – Who is responsible for the correct labelling of chemicals and samples (individuals, teams, team leaders, technical staff)?</li> <li>Lasting legibility – It is necessary to ensure the lasting legibility of your labels, especially when kept in cold storage. This can be done through lamination or using freezer and chemically resistant labels and markers.</li> <li>Required information</li></ul>





Criteria	UNSW audit standards	Submissions guidance & examples
Sample & Chemical Management  12. The lab has a system in place for sharing chemicals between users within the lab group.	✓ A system for chemicals to be shared must be present (both within and across lab teams).     ✓ All lab users should understand how to request shared chemicals.	Describe how chemicals are managed within your lab. Do individuals purchase their own chemicals or are all chemicals centrally owned and shared?  What system do you use to share chemicals between lab users? You may wish to use some of the below solutions:  Jaggaer - The Jaggaer Chemical Inventory Management system can provide a complete list of chemicals currently owned by your school. A record of the owner and location of the chemicals is available. Use this to determine if new chemicals need to be bought or if they can be borrowed and shared with other groups.  Communal spaces - The simplest method for sharing chemicals is by designating locations for shared chemicals. This allows users to access shared chemicals without having to ask permission and gives a second life to unneeded or left over chemicals. It can be a shelf, cupboard, a dangerous good cabinet or a storage room. Make sure to clearly label the space so there is no confusion.  Digital chemical inventory - Using a shared and open-access digital inventory allows lab users to search up and locate chemicals they require before purchasing new. LEAF teams commonly use ChemAlert, OneDrive, excel, and laboratory management software for this.  Bulk production - Commonly used solutions, like buffers, can be made in bulk and shared between all lab users, saving time and money.  Redistribution - regular chemical audits can be used to identify unused chemicals and redistribute them to new homes.  Consult staff and students to design and communicate this system. Use signage, regular communications, training, and lab meeting announcements to ensure users are aware of chemical sharing options.
Research Quality  13. Common protocols and methods are centrally shared and available to all lab members.	✓ Lab members performing common processes and methods must have a way to share their protocols. ✓ Lab members must be able to evidence a folder (physical or digital) in which common protocols are shared.	Describe the platform your lab uses to share methods and protocols. Is it easily accessible to all lab staff and students?  Examples of open-access platforms used by some LEAF teams include:  Lab Archives Shared drives/ folders SharePoint Salus Microsoft Teams OneDrive  Sometimes it is beneficial to have hard copies of protocols available at specific workstation or piece of equipment where that protocol occurs.  Describe the process lab staff and students go through to update or add new protocols to this system. How and when are protocols reviewed and approved?



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<b>Criteria</b>	UNSW audit standards	Submissions guidance & examples
Research Quality  14. The lab has had its pipettes, scales, and any such equipment calibrated in the past year, or has them scheduled to be done.	<ul> <li>✓ There must be a system in place to regularly calibrate pipettes, scales, and measurement equipment.</li> <li>✓ Calibrations must be up-to-date and performed on a regular schedule.</li> </ul>	Confirm with lab managers or tech teams if these equipment types have all been calibrated within the last year. Are calibrations performed in house or through an external contractor?  Describe how your team ensures the calibration of these pieces of equipment remains up to date. Do you use a software or management system that schedules calibrations for equipment?  Other equipment that requires calibration includes pH meters, spectrophotometers and centrifuges. If your lab does not contain any of this equipment, you can describe the maintenance schedule of any other piece of equipment.
Ventilation	✓ There are no present, unreported issues with	Describe the <b>process</b> or 'chain of command' when lab users report facility issues within your lab. When and how are new staff trained in this process?
15. Any issues that estates must address have been reported. This includes ventilation, room pressure, water leaks, heating & cooling, & etc.	cooling, heating, or ventilation.  ✓ Teams should be able to demonstrate their understanding of how to report estate issues.	Provide examples of any recent or current estate issues in your facility. There should be no unreported estate issues during LEAF accreditation.  For repairs, relocations, waste, cleaning, complaints or general inquiries, you can request assistance through  Archibus or by submitting an online form. For more details see the Estate Management website.
16. Fume cupboards and safety cabinets possess signage encouraging good practice.	<ul> <li>✓ There must be clear signage encouraging researchers to lower fume cupboard sashes and to turn off safety cabinets when not in use.</li> <li>✓ The use of fume cupboard sash alarms has been considered.</li> </ul>	<ul> <li>List the measures you have taken to encourage good fume cupboard practices. For example</li> <li>Sash stickers – the Environmental Sustainability team provides these stickers if needed. For more information and to submit a request, visit the LEAF products page.</li> <li>Sash signage – Making your own signage can provide more detail stickers alone or highlight lab specific protocols for users.</li> <li>Switch off stickers – For more information and to submit a request, visit the LEAF products page.</li> <li>Training – Explain any training or induction procedures that cover this topic.</li> <li>Sash alarms – Installing UNSW made sash alarms are a good way to alert users when a sash has been left open. These are effective as they don't rely on just the fume cupboard user doing the right thing. For more information and to submit a request, visit the LEAF products page.</li> <li>There are three general types of fume cupboards. It's a good idea to understand which type is in your lab.</li> <li>Constant volume</li> <li>2-speed – should have sashes lowered and lower speed engaged when not in use</li> <li>Variable-air volume (VAV) – these are the most common unit type at UNSW</li> <li>All unit types should have sashes lowered whenever possible.</li> </ul>

