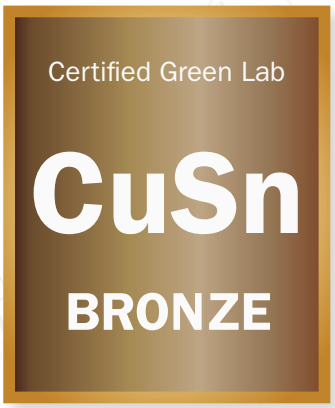
UNIVERSITY of VIRGINIA

GREEN LABS CERTIFICATION

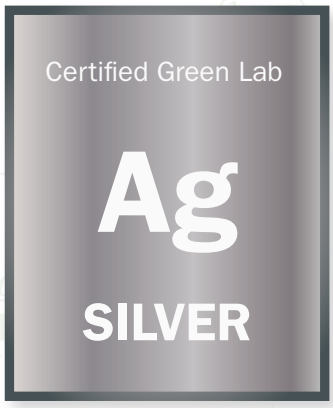
There are 3 levels of Green Lab Certification: Bronze, Silver, and Gold. To become certified, earn the necessary amount of Badges for each level. Each Badge represents a different Green Labs focus area. To earn a Badge, complete at least 4 actions for that focus area. ***Labs can earn up to 2 badges per focus area.***



3 BADGES

COLD STORAGE · CHEMICALS & REAGENTS · ELECTRONICS & APPLIANCES

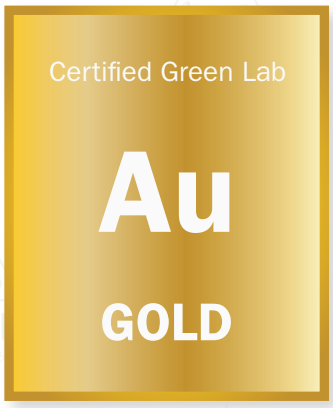
12 ACTIONS



4 BADGES

COLD STORAGE · CHEMICALS & REAGENTS · ELECTRONICS & APPLIANCES · MATERIALS & REFUSE

16 ACTIONS



5 BADGES

COLD STORAGE · CHEMICALS & REAGENTS · ELECTRONICS & APPLIANCES · MATERIALS & REFUSE · ENGAGEMENT

20 ACTIONS

Get started:

1. **Identify your lab's Green Leader.** The Green Leader will be the primary contact between the participating research group and the Office for Sustainability's Green Labs Specialist, and will coordinate their lab's efforts to earn Badges and Certification.
2. **Email greenlabs@virginia.edu** to express interest in pursuing the program.
3. **Fill out the electronic survey** sent to your Green Leader.
4. **Meet with the Office for Sustainability's Green Labs Specialist** for 30 minutes to develop Certification action plan.

Actions completed within the last calendar year qualify as completed pending reasonable verification. To verify, labs describe their approach or explain actions taken for each lab sustainability action item pursued using the Green Labs Badge and Certification forms.

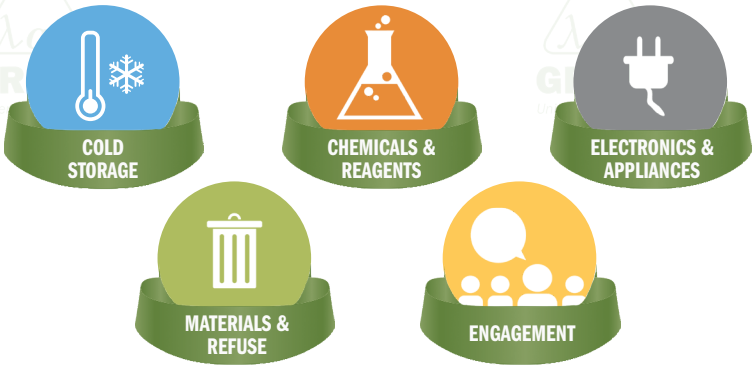
Badge and Certification awards last up to two years following award date. Certification timelines override Badge expiration (if, for instance, a Badge "expires" during the life of an awarded Certification).

Timeline flexibility will be addressed on a case-by-case basis (if, for example, a lab is interrupted by renovations or if the lab can verify that past actions have been updated over time).

Email **greenlabs@virginia.edu** or visit **sustainability.virginia.edu** for more information.

UNIVERSITY of VIRGINIA

GREEN LABS BADGES



To earn a Badge, complete at least 4 out of 9 actions in a single focus area. Labs can earn a maximum of 2 Badges per focus area. Use this checklist to keep track of your lab's progress.

COLD STORAGE

N/A	IN PROGRESS	COMPLETED		
○	○	○	C-1	International Lab Freezer Challenge
○	○	○	C-2	Energy Star freezers & refrigerators
○	○	○	C-3	Warmer storage temperatures
○	○	○	C-4	Cold storage inventories
○	○	○	C-5	Scheduled de-icing and defrosting
○	○	○	C-6	Scheduled preventative maintenance
○	○	○	C-7	Share cold storage space
○	○	○	C-8	Clean out emergency cold storage
○	○	○	C-9	Cold storage innovation

CHEMICALS & REAGENTS

N/A	IN PROGRESS	COMPLETED		
○	○	●	R-1	Shut the Sash competition
○	○	○	R-2	Improved & shared chemical inventory
○	○	○	R-3	Fume hood & cabinet cleanout
○	○	○	R-4	Shut the Sash stickers & questionnaire
○	○	○	R-5	Closed loop or alternative cooling
○	○	○	R-6	Use of high quality water & pledge
○	○	○	R-7	ACS 12 Principles of Green Chemistry
○	○	○	R-8	Green Alternatives Wizard
○	○	○	R-9	Chemical & reagent innovation

ELECTRONICS & APPLIANCES

N/A	IN PROGRESS	COMPLETED		
○	○	●	A-1	Equipment sharing & core facilities
○	○	○	A-2	Timer implementation
○	○	○	A-3	Lights Out best practices
○	○	○	A-4	Holiday Energy Saving Checklist shared
○	○	○	A-5	Equipment temperature settings
○	○	○	A-6	Color Dot, Shut it Off eqipment checks
○	○	○	A-7	Ice maker etiquette pledge
○	○	○	A-8	Autoclave etiquette pledge
○	○	○	A-9	Electronics & appliances innovation

MATERIALS & REFUSE

N/A	IN PROGRESS	COMPLETED		
○	○	○	M-1	Recycling
○	○	○	M-2	UVA reuse & upcycle programs
○	○	○	M-3	Regulated waste disposal with EH&S
○	○	○	M-4	ACT label
○	○	○	M-5	Sustainable vendor programs
○	○	○	M-6	Material sharing
○	○	○	M-7	"Try Just One" signs
○	○	○	M-8	Sustainable printing
○	○	○	M-9	Refuse & materials innovation

ENGAGEMENT

N/A	IN PROGRESS	COMPLETED		
○	○	○	E-1	Lab leadership support for sustainability
○	○	○	E-2	Green Labs Working Group participation
○	○	○	E-3	Sustainability event attendance
○	○	○	E-4	Sustainable lab training
○	○	○	E-5	Sustainability minute
○	○	○	E-6	Certification survey
○	○	○	E-7	Sharing OFS communications
○	○	○	E-8	Lab retreat or activity
○	○	○	E-9	Engagement innovation

COLD STORAGE

C-1 Our lab has registered for and participated in the International Lab Freezer Challenge.

Describe your approach or explain actions taken:

C-2 When replacing old units or adding new cold storage to our lab, we selected an Energy Star freezer or refrigerator.

Describe your approach or explain actions taken:

C-3 We have moved samples and/or reagents to warmer storage temperatures. For example: changing set points on a ULT from -80°C to -70°C, moving DNA samples to standard -20°C, or adopting Room Temperature Sample Storage (RTSS).

Describe your approach or explain actions taken:

C-4 We have sufficiently improved our cold storage inventory systems. For example: performing lab-wide unit cleanouts to discard and organize, unifying sample library label systems, implementing barcoding or electronic inventory systems linked to software programs, etc.).

Describe your approach or explain actions taken:

C-5 We have scheduled times to de-ice ULT units at least once per month and / or defrost standard freezers (-20°C to -40°C) at least once per year. *Note, de-icing is simply the removal of ice and does not require a full shut down like defrosting.*

Describe your approach or explain actions taken:

COLD STORAGE

C-6 We have scheduled bi-annual preventative maintenance on all cold storage units in the lab. This includes vacuuming or effectively removing dust and debris from the base of the unit, wiping or vacuuming coils to remove dust, and cleaning filters.School of Medicine Labs can create a standing Work Order with Facilities Management to perform this service on a prescribed schedule.

Describe your approach or explain actions taken:

C-7 We have consolidated cold storage space with other neighboring lab(s) to prevent unnecessary acquisition of excess cold storage units.

Describe your approach or explain actions taken:

C-8 Any samples or reagents once stored in back-up or emergency freezers or refrigerators have been removed from back-up space and assigned to their appropriate permanent storage space.

Describe your approach or explain actions taken:

C-9 Describe an innovative action implemented in your lab that advances sustainable cold storage.

Describe your approach or explain actions taken:

CHEMICALS & REAGENTS

R-1 Our lab has registered for and participated in UVA's Shut the Sash (STS) chemical fume hood competition.

Describe your approach or explain actions taken:

R-2 We have created, sufficiently updated, or sufficiently improved our chemical inventory and shared it with UVA Green Labs and our Facility Coordinator.

Describe your approach or explain actions taken:

R-3 We have scheduled times to perform bi-annual cleanouts of all chemical fume hoods and flammables cabinets, making sure to contact UVA Environmental Health and Safety (434.928.4911) with any questions regarding these processes.

Describe your approach or explain actions taken:

R-4 Each chemical fume hood in our lab has a Shut the Sash sticker applied to the right-hand side of the hood exterior (under the flow monitor, not obstructing the sash lever with the green arrow in the down position) and 50% of lab personnel have completed the online STS questionnaire.

Describe your approach or explain actions taken:

R-5 We have replaced single pass process water systems (some ice machines, cooling towers, vacuum aspirators) with closed loop or alternative systems (ex. closed-loop portable chillers, findenser, other air-cooling systems, vacuum pumps) to reduce water and electric waste.

Describe your approach or explain actions taken:

CHEMICALS & REAGENTS

R-6 High quality water (i.e., deionized, reverse osmosis, distilled) is used sparingly and appropriately. 50% of lab personnel have read and signed the Green Labs pledge for judicious use of high quality water in lab processes. Email greenlabs@virginia.edu to request a printable pledge sheet.

Describe your approach or explain actions taken:

R-7 Our lab has dedicated 30 minutes of one lab meeting to a discussion about implementation strategies for the American Chemical Society's 12 Principles of Green Chemistry. Subsequently, the lab has documented actions taken that address the Principles in order to verify with Green Labs.

Describe your approach or explain actions taken:

R-8 To green our experiments, our lab has utilized MIT's Green Alternatives Wizard to identify and replace at least one harmful chemical or reagent used in our experimental processes.

Describe your approach or explain actions taken:

R-9 Describe an innovative action implemented in your lab that advances sustainable chemistry.

Describe your approach or explain actions taken:

ELECTRONICS & APPLIANCES

A-1 Our lab contributes to or participates in equipment sharing with UVA labs separate from our own, and/or in UVA Core Facility programs (i.e., School of Medicine's Office of Research Core Administration, SOM's Research Cores Facebook page, implementing your own unique equipment sharing program, etc.). *See credit C-7 to earn points for shared cold storage.*

Describe your approach or explain actions taken:

A-2 We have put at least one piece of equipment on a timer to reduce our lab's energy demand. Candidate appliances include drying ovens, water baths, heat blocks, or anything else that qualifies for overnight downtime before switching back on automatically in the morning.

Describe your approach or explain actions taken:

A-3 Our lab has affixed the Office for Sustainability's "flip the switch" stickers onto or above light switches and the lab practices a culture of actively turning off lights in unoccupied spaces.

Describe your approach or explain actions taken:

A-4 Twice a year, before winter and spring holiday breaks, the Green Leader shares the Office for Sustainability's Holiday Energy Saving Checklist with all lab personnel.

Describe your approach or explain actions taken:

A-5 We have changed temperature settings on equipment (excluding cold storage units) to reduce our lab's energy demand. (i.e. changing thermal cycler forever setting to 12°C for dsDNA programs, setting heat blocks or warm water baths to cooler temperatures, etc.). *See credit C-3 to earn points for changed settings in cold storage.*

Describe your approach or explain actions taken:

ELECTRONICS & APPLIANCES

A-6 Our lab has agreed to turn off designated pieces of equipment at the end of each day using "Color Dot, Shut It Off". Equipment with colored dots affixed to the front are designated to be turned off by the last person to leave the lab. Email greenlabs@virginia.edu to request color dots for your equipment.

Describe your approach or explain actions taken:

A-7 Our lab has posted a "Keep me shut!" sign on lab ice makers and 50% of lab personnel have signed a pledge to only take as much ice as is for the judicious use of lab ice. Email greenlabs@virginia.edu to request color a printable pledge sheet.

Describe your approach or explain actions taken:

A-8 Autoclaves are run at full capacity, only used for sterilization purposes, and our Green Leader reports leaks at autoclave drains. Our Green Leader has made an inquiry with Facility Coordinator about the possibility for putting communal autoclaves on "standby mode" when not in use, and at least 50% of lab personnel have signed a pledge for judicious use of autoclaves. Email greenlabs@virginia.edu to request color a printable pledge sheet.

Describe your approach or explain actions taken:

A-9 Describe an innovative action implemented in your lab that advances sustainable use of electronics and appliances in your lab space.

Describe your approach or explain actions taken:

MATERIALS & REFUSE

M-1 Our lab has a designated recycling station for the collection of paper, plastics (including some lab plastics), and non-laboratory metal & glass. We have also posted lab plastics "Recycling Do's and Don't" signs near the recycling station provided by UVA Green Labs. Visit the UVA Recycling webpage for more information.

Describe your approach or explain actions taken:

M-2 When discarding or procuring materials for lab operations, we prioritize reuse or upcycle programs at UVA. We utilize the hospital's Medical Equipment Recovery of Clean Inventory (MERCI) program (Thursdays, G102 Primary Care Center)), the Reusable Office Supply Exchange (ROSE, open 8am – 3pm, Recycling Warehouse on Leake Drive OR every third Tuesday 9:30am to 2pm, main hospital conference room) and / or the UVA Reuse Store (business hours, Recycling Warehouse) to donate items or shop.

Describe your approach or explain actions taken:

M-3 We have contacted UVA Environmental Health and Safety (434.982.4911) to request appropriate disposal services for regulated, biological, radioactive, or chemical waste generated in our lab. We have also contacted EH&S to discuss any uncertainty regarding the proper storage, use, recycling , or disposal of materials being used in our lab operations.

Describe your approach or explain actions taken:

M-4 Our lab prioritizes the procurement of sustainable research products. At least 50% of lab occupants have read about the ACT Label and have filled out the ACT Label Interest Form to encourage more transparencey from science supply vendors.

Describe your approach or explain actions taken:

M-5 Our lab participates in at least one specialized vendor sustainability program such as New England Biolabs' expanded polystyrene send-back program, Kimberly-Clark's Right Cycle program for nitrile glove recycling, VWR's Gown Up-Give Back program, and others.

Describe your approach or explain actions taken:

MATERIALS & REFUSE

M-6 To prevent material waste from over-purchasing or expiration, our lab utilizes available forums to announce back-stock available for sharing or posting requests when only a small amount of a chemical or reagent is needed. Acceptable forums include departmental email listservs, the UVA Green Labs Facebook page, etc.

Describe your approach or explain actions taken:

M-7 Our lab has posted "Try Just One" stickers on all paper towel dispensers throughout our lab space.

Describe your approach or explain actions taken:

M-8 Our lab prints sustainably. We use printer paper with at least 30% recycled content and have set all printers and computers to a double-sided printing default setting. If double-sided defaults are not possible, we have posted signs on printers or near printing stations to remind users to manually flip their pages to maximize the use of paper.

Describe your approach or explain actions taken:

M-9 Describe an innovative action implemented in your lab that advances sustainable processing of trash or refuse, and use of materials in your lab space.

Describe your approach or explain actions taken:

ENGAGEMENT

E-1 Someone in a leadership role (Principal Investigator or Lab Manager) has formally announced that the lab will participate in and prioritize efforts to advance sustainability initiatives at the University of Virginia.

Describe your approach or explain actions taken:

E-2 Someone from our lab has attended at least two Green Labs Working Group meetings within the last year. Email greenlabs@virginia.edu to be added to the Working Group email list.

Describe your approach or explain actions taken:

E-3 Someone from our lab has attended at least two Office for Sustainability or Green Labs-hosted event within the last year. Email greenlabs@virginia.edu to be added to the UVA Sustainability Newsletter.

Describe your approach or explain actions taken:

E-4 At least 50% of the lab has undergone a 30-minute Sustainable Lab Training with the UVA Green Labs Specialist.

Describe your approach or explain actions taken:

E-5 Once a month for at least ten months, our Green Leader shared or will share a “Sustainability Minute” at a lab meeting. Email greenlabs@virginia.edu for green tips to share as your sustainability minutes, or search for and share new tips!

Describe your approach or explain actions taken:

ENGAGEMENT

E-6 At least 50% of the lab (not including the Green Leader) has taken the Green Labs Certification Survey.

Describe your approach or explain actions taken:

E-7 The lab's Green Leader has posted at least five different OFS print communications throughout the shared lab space and has forwarded OFS electronic communications to the rest of the lab via email at least three times within the last year.

Describe your approach or explain actions taken:

E-8 Within the last year, the lab has organized a retreat or off-campus activity and at which 50% or more lab members were in attendance.

Describe your approach or explain actions taken:

E-9 Describe an innovative action implemented in your lab that advances engagement in sustainability initiatives at the University of Virginia.

Describe your approach or explain actions taken: