

# Green Lab Certification

## Cold Storage

Action Item		Yes	No	N/A
<u>C-1</u>	International lab freezer challenge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>C-2</u>	-70 degree storage temps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>C-3</u>	Cold storage inventories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>C-4</u>	Scheduled de-icing and defrosting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>C-5</u>	Scheduled preventative maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>C-6</u>	Share cold storage space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>C-7</u>	Remove samples from backup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Chemicals & Reagents

Action Item		Yes	No	N/A
<u>R-1</u>	Fume hood and cabinet cleanout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>R-2</u>	Improved chemical inventory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>R-3</u>	Shut the Sash stickers + questionnaire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>R-4</u>	High-quality water pledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>R-5</u>	ACS 12 Principles of Green Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>R-6</u>	MIT's Green Alternatives Wizard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Green Lab Certification

## Materials & ReUse

Action Item		Yes	No	N/A
<u>M-1</u>	Lab recycling station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>M-2</u>	Regulated waste disposal with EHS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>M-3</u>	ACT Label interest form	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>M-4</u>	Sustainable vendor programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>M-5</u>	Material sharing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>M-6</u>	Sustainable printing and cartridge recycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appliances

Action Item		Yes	No	N/A
<u>A-1</u>	Equipment timer installation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A-2</u>	Lights Off best practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A-3</u>	Computers to energy-saving mode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A-4</u>	Equipment temperature settings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A-5</u>	Equipment shut down review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A-6</u>	Ice maker pledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A-7</u>	Autoclave pledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A-8</u>	Survey of thermostat blockage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Green Lab Certification

## Engagement, Equity, and Inclusion

Action Item		Yes	No	N/A
I-1	Sustainable lab training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I-2	Office of Sustainability newsletter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To be eligible for certification, a lab must prequalify by having no deficiencies on their annual lab safety inspection and/or resolving any minor deficiencies found within one month. To earn a certification, a lab must earn the necessary number of credits across five focus areas. Certifications will be awarded on a scale of Bronze to Platinum.



7 actions completed



14 actions completed



21 actions completed



28 actions completed

Once you have completed this form, please submit to [green@miami.edu](mailto:green@miami.edu).

# Cold Storage

C-1

Our lab has registered for and participated in the [International Lab Freezer Challenge](#) and has implemented the [Freezer Best Practices](#) recommendations.

Describe your approach or explain actions taken:

C-2

We have moved samples and/or reagents to warmer storage temperatures. For example: changing set points on a ULT from  $-80^{\circ}\text{C}$  to  $-70^{\circ}\text{C}$ , moving DNA samples to standard  $-20^{\circ}\text{C}$ , or adopting Room Temperature Sample Storage (RTSS). For a list of samples compiled by researchers at CU Boulder and UC Berkeley that can be stored safely at  $-70^{\circ}\text{C}$ , [please click here](#).

Describe your approach or explain actions taken:

C-3

We have sufficiently improved our cold storage inventory systems. Examples: 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:

# Cold Storage

C-4

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, that de-icing is simply the removal of ice and does not require a full shutdown like defrosting.*

Describe your approach or explain actions taken:

C-5

We have scheduled bi-annual/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.

Describe your approach or explain actions taken:

C-6

We have consolidated cold storage space with other neighboring labs to prevent the unnecessary acquisition of excess cold storage units.

Describe your approach or explain actions taken:

# Cold Storage

C-7

Any samples or reagents once stored in backup or emergency freezers or refrigerators have been removed from backup space and assigned to their appropriate permanent storage space.

Describe your approach or explain actions taken:

# Chemicals & Reagents

R-1

We have scheduled times to perform bi-annual cleanouts of all chemical fume hoods and flammables cabinets, making sure to contact UM Environmental Health & Safety (305-243-3400) with any questions regarding these processes.

Describe your approach or explain actions taken:

R-2

We have sufficiently updated or improved our chemical inventory and shared it with UM EHS via VelocityEHS.

Describe your approach or explain actions taken:

R-3

Each chemical fume hood in our lab has a Shut the Sash sticker (**order from [green@umiami.edu](mailto:green@umiami.edu)**) 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). The sash is closed when not in use, the sash level is appropriate when work is ongoing (i.e. not raised all the way up), and 50% of lab personnel have completed the [online STS questionnaire](#).

Describe your approach or explain actions taken:

# Chemicals & Reagents

R-4

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](#).

Describe your approach or explain actions taken:

R-5

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 to verify with Green Labs.

Describe your approach or explain actions taken:

R-6

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:



# Materials & ReUse

M-1

Our lab has a designated recycling station with an obstructive opening lid and proper signage ([order from greenu@miami.edu](mailto:orderfromgreenu@miami.edu)) for the collection of accepted recyclables. We participate in UM's recycling programs for batteries, E-waste, etc.

Describe your approach or explain actions taken:

M-2

We have contacted UM Environmental Health & Safety (305-243-3400) to request appropriate disposal services for regulated, biological, radioactive, or chemical waste generated in our lab. We understand that disposing of non-contaminated waste in red biohazard bags generates unnecessary pollution from incineration, and we utilize the red bags for the disposal of biomedical or biohazardous waste **only**. Disposing of 1 lb. of red bag waste costs **seven times more** than for 1 lb. of regular trash.

Describe your approach or explain actions taken:

M-3

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 transparency from science supply vendors.

Describe your approach or explain actions taken:

# Materials & ReUse

M-4

Our lab participates in at least one specialized vendor sustainability program. Visit the Green U website for more information on vendor recycling programs.

Describe your approach or explain actions taken:

M-5

To prevent material waste from over-purchasing or expiration, our lab utilizes available forums (such as the [Research Listserv](#)) to announce back-stock available for sharing or posting requests when only a small amount of a chemical or reagent is needed.

Describe your approach or explain actions taken:

M-6

Our lab prints sustainably. We use FSC-certified printer paper with at least 30% recycled content and participate in [UM's toner cartridge recycling program](#).

Describe your approach or explain actions taken:

# Appliances

A-1

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-2

Our lab practices a culture of actively turning off lights in unoccupied spaces, and/or using natural light when appropriate.

Describe your approach or explain actions taken:

A-3

Our lab has set all computers to energy saving mode and has set computer to sleep after 10 minutes or less of inactivity. Find these options in the Control Panel under 'Hardware and Sound'.

Describe your approach or explain actions taken:

# Appliances

A - 4

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.).

Describe your approach or explain actions taken:

A - 5

Our lab has agreed to turn off designated pieces of equipment at the end of each day. We have dedicated time at a lab meeting for an in-depth discussion about which equipment can be turned off after use, at the end of the day, and which should never be turned off.

Describe your approach or explain actions taken:

A - 6

50% of lab personnel have signed the [Green Labs pledge for judicious use of ice makers](#).

Describe your approach or explain actions taken:

# Appliances

A - 7

Autoclaves are run at full capacity, only used for sterilization purposes, and our Green Liaison reports leaks at autoclave drains. Our Green Liaison has made an inquiry with their Facilities Coordinator about the possibility of putting communal autoclaves on “standby mode” when not in use, and at least 50% of lab personnel have signed the Green Labs pledge for judicious use of autoclaves.

Describe your approach or explain actions taken:

A - 8

Our lab has checked and ensured that thermostats are not blocked by equipment, lab coats, or other materials. If blocked, we have worked with EHS or FM to move the equipment or materials properly. When thermostats are blocked, they cannot sense the room temperature accurately and the air handling system may not be performing optimally. Even if they are not covered, if they are right next to equipment that exhausts heat, they cannot accurately detect room temperature.

Describe your approach or explain actions taken:

# Engagement

E-1

The Green Liaison, the primary contact between the lab and GreenU, has taken the Green Lab 101 training webinar offered by GreenU.

Describe your approach or explain actions taken:

E-2

The lab's Green Liaison has subscribed to the Office of Sustainability's monthly newsletter and shares events and opportunities with lab members when appropriate. The Green Liaison also shares best practices from this checklist regularly with lab members.

Describe your approach or explain actions taken: