

# **QGEM DIRECTOR'S MANUAL 2.0**

2025-2026

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## Introduction

Congratulations on stepping into the role of QGEM Director! This position carries significant responsibility, but also immense opportunity for growth, impact, and leadership. You will oversee the development of a synthetic biology project from concept to execution, guide a large multidisciplinary team, and represent Queen's at the iGEM Giant Jamboree in Paris. What an amazing, unique opportunity as an undergrad! Your decisions will shape every aspect of the team's success, and this manual is meant to provide you with clarity and confidence as you begin your role. I hope it helps!

## Role Overview

Stepping into the Director role means you're the team's conductor and project architect all at once. From day one, your job is to translate big-picture goals into concrete steps: you'll sit down with your PI to nail down the problem you're solving, sketch out the major milestones, and then turn that sketch into a living timeline. As Director, you'll spend most of your time making sure nothing falls through the cracks. When the Wet Lab team is waiting on a new plasmid design from Dry Lab, you'll notice the gap and nudge them to sync up. When Outreach needs help writing a business plan, you'll help them find the right stakeholders to guide them.

This isn't about micromanaging - your real skill is knowing when to step back and let sub-team leads run their pieces, and when to jump in and remove roadblocks, whether that means filling in someone's lab shift, ordering a last-minute reagent, or learning a hard or soft skill and teaching it back to your team in a way that suits them. When tensions rise (and they will, especially around busy deadlines), you'll defuse drama by refocusing the group on shared wins - celebrating the first successful assay or the first draft of a wiki page - and by reminding everyone of the "why" behind the work.

Behind the scenes, you're also the team's chief communicator. You'll set up a clear meeting cadence - weekly exec meetings, weekly PI meetings, and weekly sub-team meetings - and you'll do round-table updates and enforce an agenda so meetings don't devour your time (because there will be a lot of meetings with stakeholders, potential sponsors, etc. that you'll also need to attend). Finally, you're the face of QGEM to sponsors, advisors, and iGEM HQ. Managing those relationships with gratitude and professionalism will pay dividends next year, when your successor needs that same support.

## Getting Started

In your first two weeks, schedule a meeting with Dr. Lohans (or whoever your PI is) to clarify expectations (of support and communication) and lab access. This conversation should also include a discussion of potential project directions and advice on what went well and what didn't in the previous year from your PI's perspective. Review the previous year's QGEM project in

detail. Study the wiki, lab protocols, team structure, and internal documentation. Make note of which elements were successful and which challenges you may want to avoid repeating. Familiarize yourself with iGEM's calendar of deliverables. Work backwards from the Giant Jamboree date to build an internal QGEM timeline that includes executive hiring, general recruitment, project development, experimental phases, outreach milestones, and deliverable submission deadlines.

Register the team for iGEM early in the season for a cheaper fee. Confirm that your lab space has been secured with the Department of Biomedical and Molecular Sciences. We used the Discovery Lab in Botterell Hall and you'll most likely use it as well!

## About iGEM Competition

The International Genetically Engineered Machine (iGEM) Competition is a global synthetic biology challenge that began in 2003 as a student course at MIT and has grown into a premier international competition. Its goal is to educate and inspire students and community labs to apply engineering principles to biology, using standardized genetic "BioBricks" to build novel biological systems. Each year, multidisciplinary teams tackle real-world problems (from health to the environment) by designing, building, and testing engineered biological devices. Today iGEM is run by the iGEM Foundation (a nonprofit) and brings together 400+ of teams worldwide to share projects at the annual Grand Jamboree, celebrating innovation in synthetic biology.

### Competition Structure and Teams

- **Team Composition:** Teams are led by at least one Principal Investigator (PI) and student leaders (That's you and your leads). The rest of the team roster is your general members. Additionally, you can include grad students, previous QGEMers, faculty, etc. who provided you with guidance as advisors.
- **Team Kinds:** When registering, teams choose a "kind" that defines eligibility: Collegiate [That's us!] (mostly undergraduates, possibly with postgrads or high-school members), High School (all members under 18), Community Lab (members from an independent lab), or Commercial (industry-run).
- **Villages :** Since 2023, iGEM organizes projects into thematic "Villages" at the Jamboree. Each village (e.g. Environment, Diagnostics, Biomanufacturing, etc.) groups related projects and awards village-specific prizes.

### Required Deliverables

All teams must document and present their project through a set of formal deliverables. These include:

- **Team Wiki:** An online project "website" hosted on iGEM servers. This is the main public record of the project (motivation, design, methods, results, human practices, etc.). Teams should

activate and build their wiki early and complete it by the Freeze deadline. This deliverable is of the highest importance and will be the main deliverable considered by the judges.

- **Project Description & Attributions:** Sections on the Wiki summarizing the project's background and contributions. Teams must clearly document each member's role and describe their project goals and results. Attributions are only judged for completion.
- **Project Promotion Video :** A short (typically 60-second) public-facing video promoting the project's purpose and impact. It was optional in 2024 but check your year's guidelines for more details!
- **Presentation Video:** A longer (up to ~15-minute) video presentation of the full project, covering design, data, and conclusions. This is submitted after the wiki and shown to judges. Also, one of the deliverables of the highest importance.
- **Judging Form:** A formal submission (via the team dashboard) that includes the project abstract, achievements, and answers to required questions. It also lets teams nominate special prizes. You have to pick at least 3 special prizes, I would highly recommend picking only 1 engineering prize and 2 specialization (AKA outreach) prizes. Be strategic and pick whichever ones you think you have the highest chances of qualify for. For the specialization prizes, sit down with your outreach leads and decide early on what prizes you'll aim for. For example, we picked Entrepreneurship and Integrated Human Practices. It's better to really crush a couple prizes than do a mediocre job at all of them .
- **Part Submission:** Teams should register any new genetic parts they build in the iGEM Registry of Standard Biological Parts, contributing to the community's resource pool. The registry is terrible to navigate. Not writing our registry parts early enough is what hurt us the most. The registry page of your part should be as detailed as possible with lots of background and explanation of all lab work you did with these parts. Think Wikipedia page. Please don't submit your parts on the day they're due because the registry will crash on due to the high traffic and there's nothing you'll be able to do about it. Just like the wiki, start as early as possible!
- **Safety Forms (ongoing):** Throughout the season teams fill out safety forms and check-ins (for biological or chemical risks) via the dashboard. These are mandatory to comply with iGEM's safety policies (see below). These are only judged for completion.
- **Judging Session:** A 5-minute presentation at the Jamboree given to the judges where you can provide an project updates since wiki freeze. After, they ask you questions. Most judging happens before the judging session (through the above deliverables) but this is your final chance to impress the judges and clarify anything about any aspect of the project.

Teams must complete all mandatory deliverables to qualify for any medal. For example, the Bronze Medal criteria explicitly require that "our team has completed all required deliverables, including the Wiki, Project Promotion Video, Presentation Video, Judging Form, and Judging Session".

## Judging and Medal Criteria

iGEM medals recognize teams that exceed the basic requirements. They are not competitive (as opposed to the grand prize and special prizes) but are rather given to team based on the below criteria.

- **Bronze Medal:** Earned by teams that submit all core deliverables and meet basic documentation standards. In practice, this means having a finished Wiki, submitted videos, a complete Judging Form, a judging session, and proper attribution of work. (All teams who submit on time are typically awarded Bronze as long as their project is functional.)
- **Silver Medal:** Awarded to teams that fulfill all Bronze criteria plus key project pillars. Specifically, teams must demonstrate Engineering Success (evidence of a working design-build-test cycle with data/modeling) and thorough Human Practices (stakeholder engagement, ethics, education or implementation efforts). In other words, judges look for solid experimental/computational results and a project aligned with real-world needs. You must impress them through your work in at least 2/3 special prizes you nominated yourself for.
- **Gold Medal (THE GOAL):** Awarded when Silver criteria are met and the team shows outstanding excellence. Gold criteria focus on excellence in synthetic biology – for example, creating a novel composite part, a detailed mathematical model, or innovative software tool. Gold teams typically contribute multiple high-quality outputs (new parts, models, tools, etc.) beyond their core project. iGEM describes this as demonstrating substantial effort in all 3 special prizes you nominated yourself for. Meeting Gold often means a team has won (or been nominated for) Special Prizes in technical categories.

Beyond medals, Special Prizes recognize top achievements in focused areas (e.g. Best New Basic Part, Best Integrated Human Practices, Best Software, Best Hardware, Education, Entrepreneurship, etc.). Success in special prizes requires explicitly addressing those topics on the Wiki and judging materials (teams often create dedicated "award pages" following iGEM's standard URLs).

## Timeline and Key Deadlines

The iGEM competition follows an annual cycle (usually May–October), with hard deadlines for deliverables. While exact dates shift slightly each year, recent timelines (2022–2024) follow this pattern:

- **May:** Competition officially opens. Teams register, select team kind (collegiate, etc.), and pick Village preferences. Early summer is for project planning.
- **June:** Teams must select their three Village preferences (e.g. by late June) to finalize where they'll exhibit/judge. Preliminary Safety Form is usually due in early June. Distribution Kits (basic reagents from the parts registry) ship out shortly after Opening Day.

- July–August: Teams work on experiments and human practices. Secondary safety check-ins (if needed) happen mid-summer. By mid-August, any specialized forms (like animal or human safety) are due.
- Early September: Final Safety Forms and check-ins (covering all parts of the project) are due. Teams should have most data collected by now.
- Fall (September–October): Teams focus on writing up results, finalizing the wiki, and preparing videos and posters. The Wiki Freeze (no more edits allowed) and Judging Form deadline typically fall on the same day. After these deadlines, no further major changes are permitted.
- October: The Grand Jamboree is held (e.g. late October 2024 in Paris). Teams present their projects, attend judging sessions, and celebrate. Official results and prize winners are announced by the end of the Jamboree.

## Using the iGEM Website and Dashboard

- Competition Website: The official site ([competition.igem.org](https://competition.igem.org)) contains all guidelines, deadlines, rulebooks, and deliverable pages. It also provides the yearly Competition Calendar and news updates. Each deliverable has a dedicated page explaining requirements (e.g. "Team Wiki", "Safety Forms", "Judging Form", etc.). Teams should regularly check the site for announcements.
- Team Dashboard: Once logged in, each team's dashboard ([teams.igem.org](https://teams.igem.org)) shows Deliverables Dashboard with the status of all tasks (e.g. Wiki progress, Safety Form completion, etc.). Teams submit their Safety Forms and Judging Form through the dashboard. The dashboard also provides links to the team's wiki and voting platform. Meeting the deadlines shown in the dashboard is mandatory for medal eligibility.
- Team Wiki: Teams create their wiki (e.g. [teamname.igem.wiki](https://teamname.igem.wiki)). The iGEM template provides pages for Description, Engineering, Human Practices, etc., as well as static pages for awards. Teams should activate and publish the wiki early, and continuously update it. When frozen, the wiki becomes an official archive of the project. The Wiki is also how judges view the project during and after the competition.
- Resources: The site and dashboard link to resources like the Parts Registry, Safety Handbook, Networking platforms (Slack, forums), and mentoring programs. For example, iGEM offers a Mentorship Program where experienced alumni advise newer teams through the season.

## Tips

- Read the official rules and safety policies from day one. Safety violations will get you disqualified.
- Organize Documentation: Keep a detailed lab notebook and update the wiki frequently. Since the Wiki is your main deliverable, use a clear structure: Introduction, Methods/Engineering,

Results, Human Practices, Conclusions, and so on. Use the provided award page templates to document how you meet each medal/special prize criterion. (For example, teams often create pages titled "Engineering" and "Human Practices" to address those Silver criteria explicitly.)

- **Address Medal Criteria:** As you work, think about the judges' perspective. Demonstrate an iterative design-build-test engineering cycle (show models, experiments, troubleshooting) and report data openly. Document your human practices: stakeholder interviews, outreach, or ethical considerations. Judges expect to see both solid results and responsible outreach.
- **Engage with Community:** Take advantage of iGEM forums, Slack channels, and local meetups. Connect with other teams and mentors for advice. Most teams do collaborations and it's kind of an unofficial requirement to impress the judges.
- **Manage Time & Milestones:** Don't wait until the last minute to write the Judging Form or polish the wiki or submit your parts. The deadlines are strict ("freeze")
- **Reflect & Collaborate:** Finally, regularly step back to reflect on progress. Hold internal mini-reviews: have team members critique each other's wiki pages or drafts. Collaboration is key – leverage each member's strengths, and don't hesitate to ask your PI and any relevant stakeholders and experts for feedback.

## **Recruitment and Team Structure**

Hiring your executive team should be your first personnel priority. Focus on identifying committed, self-directed individuals with strong technical or organizational skills. The executive team should consist of a Wet Lab Lead, a Dry Lab Lead, and 2 Outreach Leads. Depending on team size and project scope, you may also appoint Leads for Entrepreneurship, Finance and Fundraising, and Wiki Design.

You can start general member recruitment as soon as your leads are hired since they should do interviews with you. This process involves preparing an application form, publishing the opportunity through EngSoc Breezy and marketing through our social medias, and conducting interviews for selected applicants. Aim to finalize the full team roster by early April. When interviewing applicants, prioritize a mix of experience, passion for synthetic biology, time availability, and team fit. Sometimes enthusiasm and a willingness to learn trumps experience! Assign clear expectations and responsibilities during onboarding. Many internal conflicts can be prevented by defining each sub-team's scope early.

## **Project Design and Feasibility**

Your project direction should be chosen through a collaborative process with your executive team and advisor. Start with a wide literature search to identify problems that are meaningful, solvable within the iGEM timeline, and that align with the technical skills available on your team. Evaluate ideas based on feasibility, potential impact, and alignment with iGEM's judging

categories, particularly Integrated Human Practices, Engineering, Modeling, and Implementation.

Feasibility and novelty should be your primary concerns. Consult external experts early. Send out cold emails to PhD students, professors, and any experts you think could provide you with guidance. A successful project integrates wet lab design with dry lab modeling and is rooted in real-world relevance through outreach and stakeholder engagement. Best tip for inspiration and success in this competition is to study past successful teams (not just Queen's) and understand what you can do like them. All past teams work can be seen through the iGEM website.

## **Timeline and Team Progress**

QGEM operates on a fast-moving annual cycle. From January to April, your focus is hiring and finalizing the project direction. In May and June, you should be writing the experimental plans, begin ordering materials, designing genetic constructs, and drafting modeling strategies. Laboratory work, simulation testing, and stakeholder interviews should begin in earnest by June and continue through August. September is dedicated to final experiments, data collection, wiki writing, and presentation preparation. In October, you must submit the final wiki and presentation materials and complete team registration for the Giant Jamboree.

Host weekly meetings with your executive team and encourage sub-teams to meet weekly as well. Hold full team meetings one in awhile to share progress, align goals, and keep morale up. Communicate frequently with your advisor and provide progress summaries to maintain their support.

## **Tools**

Use Slack as the team's primary communication platform. Set up private channels for each sub-team and public channels for announcements, resources, and general discussion. Organize your Drive into clearly labeled folders by sub-team and project phase. Ensure all experimental protocols, modeling documents, outreach notes, and sponsorship records are stored centrally. Use Excel or some kind of calendar to track deadlines and meeting times.

## **Team Culture and Communication**

Your leadership style will shape the entire QGEM experience. Aim for transparency, consistency, and accountability. Create an environment where team members feel comfortable raising concerns but also understand their responsibilities. Address conflict early and clearly. Celebrate wins! Acknowledge effort and commitment beyond just results. The success of the project depends not only on your technical decisions, but on how well the team functions under pressure.

If someone is underperforming, schedule a one-on-one conversation to understand the root of the issue and offer a chance to correct course. If necessary, reassign or replace team members who do not contribute meaningfully after fair warnings but speak to your PI first for advice.

## Human Practices

iGEM prizes projects that demonstrate societal relevance. Human Practices should be integrated from the beginning, not added at the end. Encourage the HP team to schedule interviews with experts, policymakers, clinicians, and communities affected by the problem your project is addressing. Use these interviews to iterate on your design and wet/dry lab direction. Show evidence that feedback shaped your decisions. Record all outreach events and stakeholder conversations. Use this documentation to strengthen your wiki sections and judging presentation.

## Finances

Here's the lowdown on the budget . We started this year with about \$2,200 leftover from last year, which gave us some cushion. We ended up bringing in around \$63,000 thanks to some big donations and sponsorships. After all expenses, we have about \$23,000 left over. So, good news: you will be starting off with "surplus" from last year which is very important because the first big competition expense, the Team Registration Fee, is due early in the season.

Your biggest fixed costs will be the iGEM registration fees and travel for the exec team — those come first and don't change much year to year. Food, transit, and accommodations add up too, so budget carefully but don't skimp on keeping the team fairly comfortable during the competition. Project materials this year were surprisingly low, thanks to donations, but don't count on that every year. Assess your project's experimental plan, create a lab shopping list then budget accordingly.

A couple of things to keep in mind: always track your spending regularly in a shared spreadsheet so nothing sneaks up on you, and try to diversify your funding sources—grants, donations, sponsorships—all help keep the budget balanced. Also, right after you're hired, compile all grant deadlines so you don't miss any. I am not going to add the deadlines since these dates change year-to-year but all that info can be found through a quick google search.

Departmental donations require that at least a single member in your team is in that department so they have incentive for support! The most consistent donators over the years have been the DBMS and Chemical Engineering. When you hire your full team, do a full breakdown of their programs and reach out to all these departments ASAP to pitch QGEM, this year's project, and why they should support you.

SWEP funding was a game-changer this year. We had 2 QGEM positions approved: one for Director (you!) and one for the Wet Lab Lead. This means you get paid for your summer work - but here's the catch: QGEM has to raise a % of your SWEP salary. That came out to ~\$6,500 (30 %) this year, and it's one of our biggest line items. Don't underestimate it. Plan for it early. If you want SWEP roles again for hires next year (and you should — it makes summer work way more manageable), prioritize paying this expense just as much as the iGEM fees.

Lastly, keep all your receipts and notes organized or else you will not get reimbursed for any out-of-pocket payments.

## Expenses

Expense	Description / Notes
iGEM Team Registration Fee	Flat USD fee for registering the team with iGEM.
Grand Jamboree Registration Fee	Flat USD fee for the team's Jamboree participation.
Grand Jamboree Team Member Tickets	Individual Jamboree tickets for the exec attending team members.
Flights	Flight tickets for the exec to and from Paris. Don't overspend on this and try and find the best deals you can. I started looking around June and but didn't book until late August when I found a really good deal through Expedia (even though there was a 17 hour layover before our flight back but I didn't mind.)
Accommodations	Hotel or AirBnB costs for the exec for 5 days in Paris. Use the same strategy as finding flights. Share rooms if possible. I found our hotel on Booking.com.
Food	Meals for about 5 days in Paris. After paying SWEP, all the competition fees, lab materials, and all the priority expenses, you should see how much money is left and split it evenly among the exec to spend on food, transit, and data in Paris. Let them know if they exceed the given individual budget, they won't get reimbursed for the difference unfortunately. Go for local bakeries, cafes and bistros for cheap but amazingggg food!
Transit	1-week Metro pass for each exec. It cost ~\$40 each.
Cellular Data	3GB-5GB data for each exec is essential! It cost about \$10 each and we used a provider of international data called Saily.
Project Materials	We were provided with all glassware, consumables and equipment with the generous support of the Discovery Lab and the Lohans Lab. Additionally, most cloning, PCR, electrophoresis, transformation, etc. supplies were also provided through the Lohans Lab and through other lab in Botterell. Otherwise, we took advantage of every deal we could find. We got all our gene fragments and primers through a partnership iGEM had with IDT, where registered iGEM teams got a huge credit to spend. This saved us a few thousand dollars!
SWEP	Two SWEP roles (Director & Wet Lab Lead); 2024 team responsible for ~30% wage coverage. % can change year-to-year based on the university's decision.
Promotional Materials	Booth materials like stickers, pens, business cards, and swag; not considered in judging but boosts visibility and impact among other iGEM teams!
Merch	Team sweaters/hoodies/quarter-zips. More expensive than you'd expect. The cost was covered for the exec since they needed to wear their sweaters at the competition but the general members had to buy one if

<b>Expense</b>	<b>Description / Notes</b>
	they wanted it. Don't go with Campus Outfitters; they're way overpriced. I went with a local t-shirt printer in my hometown, Ottawa, and it was very good quality and super reasonably priced. If you're looking for an option in Kingston, go with Primetime Custom. I know previous directors have had good experiences with them in the past!

## Grants

<b>Source</b>	<b>Description / Notes</b>
Principal's Student Initiative Fund	Apply early; partial success in 2024 year.
ASURF Grant	Earliest deadline in the season. Great source; two-part funding deposit; amount received exceeded expectations.
Dean of Graduate Studies	Supportive of grad student mentorship projects. You can apply on behalf of the Lohans Lab grad students, with the permission of Dr. Lohans. Maximum value is \$1000.
Smith Engineering Dean's Donation	Also, one of the earlier deadlines. Longest application package. It's fairly competitive because it's for all design teams at Queen's. We got rejected in Fall 2023 but got \$3000 in Fall 2024. See both applications in the OneDrive.
Bartlett Student Initiatives Fund	The 2025 team got 10,000. 2024 never heard back despite following up multiple times because the committee is very busy (or disorganized). 2023 never heard back but 2022 team received \$10000! Apply and chase them down for an answer if you have to.

## Donations

<b>Source</b>	<b>Description / Notes</b>
Biology Department	Very small donation; amount may vary for your year.
Chemical Engineering Department	Reliable source; usually offers a moderate donation.
DBMS Donation	Substantial internal departmental donation that pays for the iGEM registration fee; key contributor. Best contact for this is Jackie Moore, the department manager.
David GW Gates Research Fund	This was a donation from a fund established by an alumni, specifically to support Parkinson's research. I reached out to the Office of Advancement for this and made a flashy pitch and got lucky that they had this type of fund. High-value internal funding; great to pursue for future cycles. Reach out to Nancy Hoogenraad and Kim Day.

## Sponsorships

Sponsorships are all about showing corporations why QGEM is worth supporting, whether that's through money or lab donations. First, put together a simple sponsorship package—include a project summary, what the team's achieved, your goals, and a chart of sponsorship tiers (Bronze, Silver, Gold, etc.) with what each tier gets in return (logo on shirts, social media shoutouts, feature on monthly newsletter, etc.). Check out the 2024 package in the OneDrive.

Next, make a database of potential sponsors—think biotech companies, lab suppliers, local businesses, and Queen's-affiliated orgs and assign members to reach out to them. When reaching out, keep emails short and personal. Introduce yourself, explain what QGEM is doing, and what kind of support you're looking for. Always follow up after a week or so if they don't respond.

To speed things up, we created email templates for cold outreach and follow-ups (also see OneDrive)—this helped a ton when emailing dozens of potential sponsors. Personalize them a bit when you can, but the templates make the process way less overwhelming.

Expect to get way more "no"s than "yes"—that's totally normal. But keep going. This year, we secured a few thousand dollars from companies alone (not even counting lab donations), just by being persistent. Lastly, stay organized, say thank you often (publicly too!), and send a wrap-up thank-you at the end of the season. Even a small sponsor can become a big one next year.

## **Wet Lab**

If you are planning to be using a lab space, there are some critical institutional roadblocks that should be addressed before experiments even begin.

### **Training**

No members are permitted to work in the lab until all their training is done. I highly recommend as soon as the summer begins to ensure all members have completed their modules, saved their certificates. It will be up to you to organize times with Christie Gilmour (the lab technician) to do the Discovery Lab walkthrough and check list. This must be done in person for any member, including non-wet lab members who wish to participate in experiments at any time.

Training: WHMIS 2015 (or refresher if completed), Biosafety Level 1 and 2, Safety and Awareness Training, and the Discovery Lab Walkthrough and Checklist

As a paid student, you'll also have to do these trainings - but you are also eligible for two more that will help your experiments run smoothly and have you not rely on help from faculty.

Extra training: Transportation of Dangerous Goods, and Autoclave Training (requires a practical)

### **Safety Forms**

There are many types of safety forms you'll be completing throughout the duration of the project, both iGEM affiliated and not. Let's start with the institutional ones that may not be so

obvious. Biohazard Permits are the files associated with the DBMS labs that permit use of biological materials in the discovery lab. Dr. Lohans, if he is still your PI, has extended his permit to your lab. This means, if you want to use a cell line, new bacteria type, etc - check with him what is and isn't on the permit. If it's not on the permit, amend it as soon as possible! It can take a while for the biosafety committee to approve any changes, and you won't be permitted to do any work on it until it goes through. I highly recommend doing this early, the 2025 team got really set back in lab hours due to waiting for approval.

As for iGEM forms, be sure to read the rules carefully and ensure if you plan to use something that is not permitted, that you submit a Check-In form before you use it or order it. If you begin work before approval, you can get disqualified. For some Risk Group 2 materials I wanted to use, I had the appropriate researcher look over it to ensure we've carefully outlined the risks and mitigation strategies well. This is important for not only following the rules, but ensuring your team is safe! I had Dr. Che Colpitts look over my Check-In form for lentiviruses, because she works with them.

## **2024: Final Thoughts**

Being QGEM Director is going to be one of the most chaotic, exhausting, rewarding, and absolutely wild experiences of your university career. You're going to have days where everything clicks—your wet lab gets their first successful transformation, your dry lab model actually predicts something useful, and your outreach team lands a massive sponsorship—and you'll feel like you could conquer the world. You're also going to have days where literally everything goes wrong: the purification fails for the fifth time, someone accidentally deletes half the wiki, and you're still in the lab at midnight wondering why things are not going to your perfectly laid out plan.

Here's the thing though—both of those days are completely normal, and you're going to survive all of them. The beautiful chaos of iGEM is that it throws you into the deep end and somehow, miraculously, you and your team figure out how to swim. You'll learn skills you never thought you'd need (like how to diplomatically tell someone their experimental design makes no sense, or how to write a sponsorship email that makes it sound like that your project will win a Nobel Piece Prize). You'll probably surprise yourself with how much you're capable of handling.

The relationships you build this year will stick with you long after the competition ends. There's something special about the bonds you form when you're all collectively losing your minds over whether your BioBrick registry submission will actually work, or when you're sharing French pastries at midnight because jet lag is real and your judging session is tomorrow. These people will become your academic family, your future collaborators, and probably the friends who still make jokes about that one failed gel that looked like abstract art.

You're going to make mistakes. The secret is that everyone before you has been there too, and everyone after you will go through the same thing. What matters is how you bounce back, how you support your team when they're struggling, and how you celebrate the wins (no matter how small they seem).

By October, when you're standing at the Giant Jamboree watching your team present the project you've all poured your hearts into, you'll realize something pretty amazing: you didn't just build a

synthetic biology project—you built a team, developed your leadership style, and probably discovered strengths you didn't know you had. You took a group of students with different backgrounds and somehow turned them into a cohesive unit that created something genuinely innovative.

So take a deep breath, trust the process, and remember that every previous QGEM Director felt exactly as overwhelmed as you probably do right now. You've got this. Your team believes in you (even when you don't believe in yourself). Every QGEM project brings something unique to the table, and I can't wait to see how you put your own spin on things. And if you ever have any questions or just want to share some exciting breakthrough, don't hesitate to reach out!

Best of luck,

Mariam El-Behiry

QGEM Director 2024

## **2025: Final Thoughts**

Becoming QGEM Director is as rewarding as it is challenging. The role goes far beyond leadership - you are at once a scientist, a safety officer, a communicator, a wet lab researcher, a dry lab thinker, an outreach lead, an HR department, and everything in between. It's a privilege to be given so much creative freedom and autonomy in research at this stage in your life. Opportunities like this are rare for undergraduates; it's a glimpse of what it truly means to make a difference in the real world.

As Mariam wisely put it, every day brings a new flavour. Some days you'll feel on top of the world - your experiments yield significant results, a website page is finally complete, or a major outreach event runs seamlessly. Other days will be harder. You might find yourself spinning in the lab chair at 1 a.m. troubleshooting, or staring at your computer unsure of where to begin. That's normal. Just like in real life, setbacks don't mean failure - they're chances for redirection. You'll face problems, but each one pushes you to think differently and adapt.

Even if your project doesn't unfold exactly as you envisioned, what you learn, share, and build during your time with QGEM is invaluable. You are at the forefront of innovation, tackling challenges that haven't been solved before, all while guiding and supporting your peers. This role isn't meant to be easy - because meaningful research never is. So jump in wholeheartedly. The project will be exactly what you make of it. I wish you the best of luck, and I have no doubt this experience will stay with you as you continue on your path of excellence.

Sincerely,

Sofia Leuchter

QGEM Director 2025