

*"This book is the clearest map  
to create your team iGEM"*

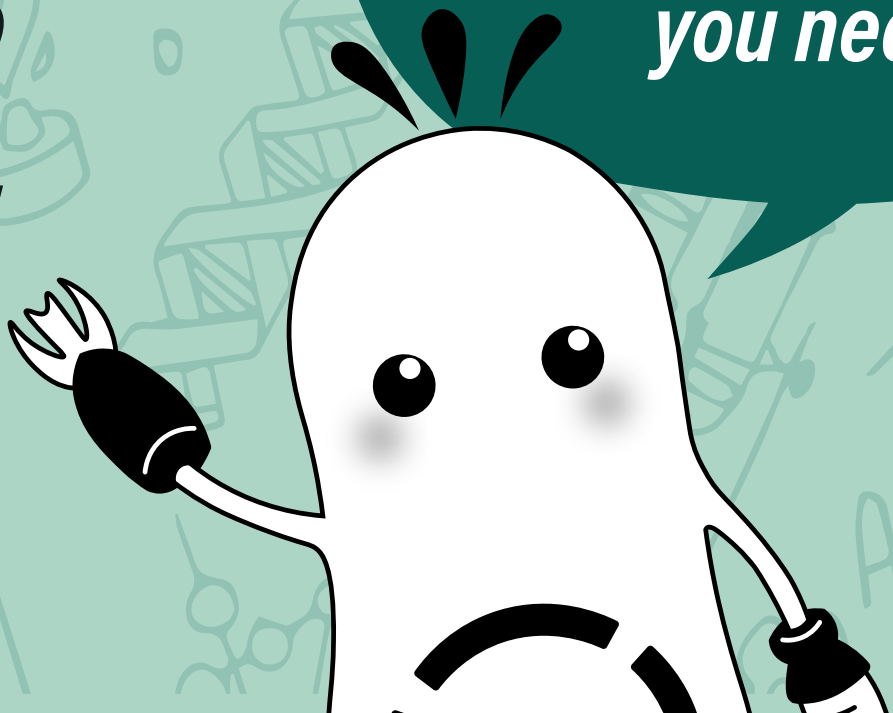
# *Participate in iGEM*

FOR

# BEGINNERS

*A guide  
for  
noobs!*

*We have the tips  
you need!*



iGEM BOLIVIA TEAM  
COLLABORATIONS AREA



*Participate In*  
**iGEM**

FOR  
**BEGINNERS**

*Pandemic edition*



This material is inspired by the For Dummies series written by Dan Gookin, Michael "Mac" McCarthy and published by IDG Books. To whom we thank for the inspiration to bring this guide to newbies to all parts of the world.

## ACKNOWLEDGMENTS FROM THE iGEM BOLIVIA TEAM

Some of the teams that could collaborate with this work are:

Country	Team
France	UParis_BME
Russia	iGEM Moscow City
Costa Rica	TEC_COSTA_RICA
China	NJU-CHINA
International	Open Science Global
Waterloo	Waterloo
Spain	MADRID_UCM
India	IISER-Tirupati_India
Rio	Osiris Rio UFRJ
Puerto Rico	iGEM RUM

We are infinitely grateful to the teams that agreed to an interview in order to obtain the information presented in this guide. Thanks for your time.

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*We appreciate the information provided by the iGEM teams and the sources of inspiration for this guide. Above all, we thank the iGEM Bolivia team who designed and wrote the information presented below.*

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# COLLABORATION iGEM 2021

iGEM WATERLOO, iGEM INDIA IISER TIRUPATI, iGEM RUM...



You created group "COLLABORATIO iGEM 2021"

You edited group info to "LABORATORY"

What is the equipment like in the laboratory?

**iGEM WATERLOO**

In 2020-2021 there was no lab access due to the pandemic.

Do you have any anecdotes or advice that have occurred in the lab?

**iGEM WATERLOO**

Once in the team when we were rotating areas, after doing the work of the experiment, one person slept on a couch because he was running late.

The lab is structured in such a way that each person is contributing to the experiment, seeing the schedules of each one.

Have you had any problems acquiring any reagents or plasmids?

**iGEM WATERLOO**

The team has been established since 2005, and there are professors at the university who support the initiative.

If we see that the acquisition of these reagents or plasmids is going to take a long time, we borrow the reagent from the professors and then, when it arrives, we return it to them. A piece of advice for future new teams is to establish this type of relationship with the professors at your university.





What has your lab experience been like in previous participations in the competition?

**iGEM WATERLOO**  
In 2019 our project had to do with pesticides and we were trying to determine using existing pesticides we were studying.

Our lab did not give the safety we required for this type of experiment and did not supply. Therefore, we could not carry out the experiment with the pesticide we wanted to do the experiment with, but it would be very valuable to be able to carry out this experiment in the future.

How do you see the issue of acquiring reagents?

**iGEM WATERLOO**  
As far as possible to acquire the reagents from local suppliers, since importing the reagents makes the costs and time more expensive, since they have to go through borders and customs.  
If it is not possible to acquire these reagents this has to be denoted in the wiki.

How do you see the issue of acquiring reagents in Latin America despite the limitations?

On the subject of reagents in Latin America, there was a Peruvian team that won gold despite their limitations. They described their whole process in the wiki, the limitations they had and their project was a total success.





How is the team dynamic?

## iGEM WATERLOO

The team is divided into: Lab, Human Practices and Mathematics.

In the team we divide the activities into small topics. For example, the Microfluidic Chip, half of the team was dedicated to design the chip, enzyme channels and the other team to physically design the chip, they were in charge of the modeling.

And what did the other half of the team do?

## iGEM WATERLOO

The Math team designed the app, which shows how the values will be measured.

When divided into smaller teams, it ensures that all members in the team work together.

Each section specializes in each area of the project.

What has your lab experience? @iGEM INDIA IISER TIRUPATI

## iGEM INDIA IISER TIRUPATI

The lab work didn't start for us until August 2021 due to the pandemic situation in India. The wetlab team united on campus in the month of July from different parts of the country. This was a thrilling and learning experience for our team.





Any advicetips for other teams?

## iGEM INDIA IISER TIRUPATI

We planned the experiments for our project for quite some time and made prior arrangements of all consumables. We have some PhDs as mentors, with their help we started with the basic protocols of all experiments, like even pouring agar in a petri dish, and familiarizing ourselves with all equipment in the lab. The important thing is to ask questions, always with confidence.

Is it difficult to work in the laboratory?

## iGEM RUM - PUERTO RICO

We set goals for ourselves, like getting the parts of our prototype, being able to make a successful cloning, etc. These are small goals that we manage to achieve and that give us a boost to our spirits, because we achieve many things, despite the setbacks, and it helps us not to get discouraged. We are achieving it, not running, but little by little.

How is the work in the laboratory?

## iGEM RUM - PUERTO RICO

In the lab you always do the dumbest things at the beginning, then with experience you say: Oh what a fool I was to make that mistake! But we learn from mistakes.



How many hours have you dedicated to the team?





## MOSCOW RUSSIA

During the week 40 or 50 hours. So, it's like a usual internship in a company. In Russia it is 40 or 50 hours during the week. I think it depends on each member you can dedicate 4 hours to 40 hours. If you are the team leader you spend a lot of time. Also, It depends on the part of the project.

How do you divide the responsibilities in the lab, since you are from Canada, Brazil, India, etc. Do you work separately or all together in one specific place?

## OPEN SCIENCE CAMP

Each group has their own responsibility, for example a group is taking control of hardware stuff. In Vancouver, we are managing the protocol. In Chicago, they'll review the protocol, if there's something wrong. Each laboratory around the world has their own goals.

What are the most important activities within the laboratory?

## iGEM NJU- CHINA

It is important to have a clear idea of the project to be executed.

How have you been able to obtain all the materials to design your project?

## TEC COSTA RICA

The assays for our project are relatively simple, so it has not been so complicated to obtain the reagents and so on. Also, at our university they give courses on most of the procedures we'll be needing to execute, so we feel ready for it.







How have you been able to access the Lab?

## TEC COSTA RICA

The laboratory for bio entrepreneurship was established a few years ago, which is accessible to students and we, as this year's iGEM team, have access to it and know well the indications for its use. Because of COVID, it has been a little complicated to access it though.

Do you have any other advantages in the Lab?

## TEC COSTA RICA

There are also more and more entrepreneurships, which is great, but means that not everyone can be there all the time. This lab has the advantage of also opening the doors for the research facilities in our university, meaning equipment, professors and even their reagents sometimes depending on the Professor's willingness and the reagents availability. These are of course later replaced or repaid, but it's a great way to get around the long shipping times we face in Costa Rica.

Do you have experience in reagents acquisition?

## TEC COSTA RICA

For reagents acquisition our PI has a lot of experience and access to people from the bio-enterprises with tons of experience in buying lab supplies. It's easier for us to get organized at TEC, since iGEM teams are well established and there is more infrastructure to work on, the other public universities in Costa Rica are a bit more complicated.

How is your work in the laboratory?





## iGEM BRAZIL

Our project requires the part of producing the project and another of detection that we do in collaboration with another laboratory. Then part of the team performs the biological laboratory part, and another part of the biochemical part.

Were there any complications to get all the laboratory materials?

## iGEM BRAZIL

We had difficulties at the time of shipments, due to the delay. Having to import bring a greater difficulty, in order to avoid that we thought about preparing everything we needed as soon as possible. Of course it depends, it also depends on the materials that are needed.

You edited group info to "HUMAN PRACTICES"

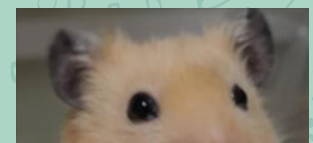
What is the difference between Human Practices and Integrated Human Practices team dynamics?

## iGEM WATERLOO

Human practices explains to the world the human side of the project and seeks to give it a place.

Integrated human practices is the difficult part, while human practices have to impact the project management.

Integrated human practices happen while in the process of making the project in decision making.







Can you give us an example?

## iGEM WATERLOO

For example:

When the WATERLOO team started to implement the project in mining sites, the project was done in that environment.

You have to find a place where you can do it and where you end up. This project, the actual implementation, is going to be difficult.

At the last minute there was a change in human practices and the focus was on electronic metal waste.

Why does iGem emphasize Human Practices?

## TEC COSTA RICA

The reason iGEM emphasizes human practices is because it's not just the science that is important, but the science that helps.

In 2019 WATERLOO won money because part of what didn't get done was integrated human practices.

There was a lack of communication in the team, it was not difficult to reach human practices.

This year they planned to implement the ADHD biosensor in the diagnostic process.





They hired psychologists, psychiatrists, and asked for their opinion, what do you think of the options?

**iGEM WATERLOO**

Both, in the physiological process of diagnosis, and to use it in a laboratory.

Is it necessary to talk to the community, is that enough?

**iGEM WATERLOO**

It is necessary to travel, to talk to people in the community. It depends a lot on the type of project

The 2019 project was about pesticide tolerances, we had to see how to transform it into a product, what this product would be like. For this they went to see farmers on weekends.

And how are you developing this talk with the community in your project?

**iGEM WATERLOO**

The issue of ADHD is more delicate, we are talking to a person and personal difficulties and the diagnosis is personal, we considered whether we could talk to people with ADHD and see what they thought.

We talked to the teachers who were helping us and they told us that there were more problems with the issue of privacy, so we proceeded to talk to psychiatrists and psychologists.

You edited group info to "Integrated human practices"





How were you able to do your project in the

**iGEM INDIA IISER TIRUPATI**

We started participating in 2019.

Any advice for teams just starting out?

**iGEM INDIA IISER TIRUPATI**

Don't worry about the type of project when you are starting out, the composition of the team is what is important, not everyone can do everything at once.

What was the biggest challenge in the last month?

**iGEM INDIA IISER TIRUPATI**

Going to the lab and starting to work in the lab, meeting the team after 2 years, although we met online, what we can say is that not all teams are ideal. You have to deal with the problems one at a time.

What would you have liked to implement in your team that you saw in other iGEM teams?

**iGEM INDIA IISER TIRUPATI**

General meetings of team, organization, critical conclusions. Each team must discover the best dynamics for working as a group and how to present their project appropriately,

Asking the right questions is the important thing.

What would have helped the India team to be more productive?





## iGEM INDIA IISER TIRUPATI

More organization, more communication, there were no fraternization nights, in the team there are people who don't like to talk and others who talk a lot.

It is important to create this kind of space to connect, so you get to know people better. Creating that team bond makes the team more productive.

Also, it's a long competition and it's important to have a professional boundary.

Have you had any problems with your project and what were they?

## iGEM INDIA IISER TIRUPATI

The biosafety of the project, and initially the bibliography available for our project.

We had to stop and review the project ideas.

What is the work you do?

## iGEM RUM - PUERTO

We carry out an education initiative, we look for high school students and in one week we give them all the tools for them to create their own synthetic biology project. This year being virtual we included workshops on professional growth. We taught them how to make a summary and how to speak in public.

What else did you do?

## iGEM RUM - PUERTO

We also did a science fair, we gave mentoring to high school students to develop their own theoretical project, we gave them a month to develop it and present it.





The winners of the science fair were 4; and all summer they participated with us as volunteers, what they did was to rotate every week in the areas of the team to gain experience.

What do these activities generate in the students?

## iGEM INDIA IISER TIRUPATI

They are very intense days, but we all leave very happily. They tell us I want to be in iGEM, I want to continue learning, I want to join your University. There are many students with whom we are still in communication, for example last year we started to form a school team for iGEM, of course they are still in the process, looking for mentors, laboratory, etc.

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## RECOMENDATIONS

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How can you make a difference between human practices and integrated human practices?







## OPEN SCIENCE CAMP

Human practices have to be shown on your website. Explaining how the project contribute o beneficiates the communities

Integrated human practices, talk about who the people influenced your project. It can be like an inspiration or a guide. Also, it can be a community, in which level influenced the community in the project

How can Human Practices be improved?

## iGEM NJU- CHINA

The most important thing is to be able to receive comments from professors, researchers, students and the general public. But also working in education and knowing how to reach different types of people.

What advice do you have to improve integrated human practices and get the gold medal?

## iGEM NJU- CHINA

It is important to get feedback and work with other teams and make the project known to as many people as possible, who should not be related to science, such as friends, parents, uncles, etc.

How to reach all kinds of people through human practices?

## iGEM NJU- CHINA

You must work in education and open your minds to the world of synthetic biology, achieve what you can understand.

What can you tell us about your project?





## TEC COSTA RICA

A Foundational Advance project has its own challenges. With a therapeutic application project it's very easy to visualize what you have to do, because you have a specific purpose. You can get to know your disease, you can go talk to doctors or other experts, even reach out to patients or support groups (when possible) and policies and regulations tend to be quite explicit and easy to access.

In what part did you focus more?

## TEC COSTA RICA

When we are talking about Foundational Advance it's complicated, since you're developing a tool and a tool is used for a billion things. Then the Human Practices becomes a delicate balance between representing the tool's use without biasing its application. This is why we ended up focusing our Human Practices on seeing if the tools we're developing really behave as such, which translated into talking to experts to see what they thought as users of our project.

What more have you done?

## TEC COSTA RICA

So we have done almost a marathon with Professors in Costa Rica, to get their opinions, to see if they think it is accessible, how they would like the tool to be developed and so on and so forth. We also started a synthetic biology club, which is a little bit like opening spaces that virtuality has not allowed and making our knowledge accessible to everyone who wants to participate. As part of Human Practices.

What have you done related to education and communication?





## TEC COSTA RICA

Related to education and communication we started to develop virtual laboratories which explain synthetic biology related topics.

How do you raise funds?

## iGEM WATERLOO

We use mostly Endowment funds, from the engineering society of the faculty of science, and groups of people who graduated.

How do you work for the fundraising area?

## iGEM BRAZIL

Well, we have been trying to be part of iGEM since 2018, this will be the first time that we participate since we were able to get the money to enter the competition. What helped us the most was participating in entrepreneurial events, when we went we saw people who could finance us or meet people who have contacts to help us in that area. We were able to get a person who is a parliament member and he gave us funding from public money that should go to these types of activities after an evaluation of our project. We looked in many places for financing and in the end we were able to get this.

How did you raise funds?

## iGEM INDIA IISER TIRUPATI

Most of the funds are covered by the government of India, so we contacted a research institute. Also through fundraising platforms, sponsors from iGEM's official sponsors.







It's okay to ask them for a sponsorship. You know what I mean, where iGEM is known.

Do you have any advice?

## MOSCOW RUSSIA

If in your country there aren't institutions that can contribute, it's okay to ask for sponsors in another country. Of course, countries that are geographically closer to your team. For instance, if the team is initiated for only students. It is obvious they don't have a couple of thousand dollars to pay for themselves. Don't be afraid and just ask for money if you are going to participate in this competition.

How did you get the money to get the material of the project? pandemic?

We're trying to collaborate with many organizations to sponsor us.

## OPEN SCIENCE CAMP

I think that having a good network it's a good point because it is the face of the project so people that want to invest

How to present the projects for fundraising?

## iGEM UPARIS\_BME

There are two options:

1) Present the idea at the University or Government. For this it is important to present the project in advance to convince professors, university staff and even the governments and in this way get financial support. 2) This involves preparing Contact companies in Europe, and especially in France in our case. Don't target directly big companies, but start locally





1) Present the idea at the University or Government. For this it is important to present the project in advance to convince professors, university staff and even the governments and in this way get financial support. 2) This involves preparing Contact companies in Europe, and especially in France in our case. Don't target directly big companies, but start locally when it is possible, they are easier to convince documents, presentations, etc.

How to plan your budget?

## iGEM UPARIS\_BME

We contacted university staff, other universities and saw how we could help each other between teams, either with some materials, equipment, etc. Try to detail your planned budget as much as you can, and don't forget to include some extra space for money, because science doesn't always work :D

How did you raise funds in the previous year?

## iGEM RUM - PUERTO

We used the money from the camp to pay for the second registration, since the camp is in the summer, and the first registration is always covered by donations from big companies that always give money to research projects.

How did you raise funds?

## MOSCOW RUSSIA

Luckily, in Russia there are a lot of companies that know what iGEM is. So, they want to help. They're helping iGEM's teams. Help us with some laboratory material chemicals for practice





One advice we can give to new teams is not to get discouraged when there is no response from big companies. Many companies and firms should be contacted. Explain the project and what it does specifically. The idea must be attractive and the problem and impact of the project must be shown.

How did you raise funds for the reagents?

**iGEM INDIA IISER TIRUPATI**

We thought about selling things and collecting the money, but we didn't have the time, but it is an option to consider, doing manual activities, selling candy, etc.

How did you explain your project at the university, in schools?

**iGEM INDIA IISER TIRUPATI**

It was possible for us to translate it in different languages, we used magazines to share scenes, we made videos in sign language with the the area of science communication. We also had seminars and let the participants interact. And e had sessions with schools, promoting iGEM in India with synthetic biology.

How did people react to your project?

**iGEM INDIA IISER TIRUPATI**

They did not find it very inclusive and many people were impressed by the use of synthetic biology in contraceptives.

How did you raise funds?





## iGEM RUM - PUERTO RICO

Everything starts in January, that's when we design our proposal and the budget with all the money we are going to need, specifying the money for travel, for the lab, for our projects, and we send it to all the big companies in Puerto Rico.

On the other hand, we write a letter specifically for the registry and send it to smaller companies like a bank, a cooperative, so that they will donate money to us.

Which of your activities help you raise funds?

## iGEM RUM - PUERTO

Our summer camps have a registration fee, when it was face-to-face the students stayed with us, it included transportation, lodging, food and materials; now being online, the registration fee is minimal, but we still send them the materials so they can do the experiments at home. Realistically we earned more when the camp was face-to-face.

What money do you use for registration?

## TEC COSTA RICA

In previous years it has been a little variable. I think that in 2016 people achieved everything with sponsorships from private companies and well this is one of the alternatives, as well as asking for support via national television, but for this type of exposure you must have a project that is attractive to the general public.

How did you raise funds this year?

## TEC COSTA RICA

Our project is not attractive to the general public, since as a tool is mainly targeted towards other scientists, so fundraising becomes a little more complicated.





We turned to private companies because here in Costa Rica there are many commercial companies and biomedical companies, which are not doing bad financially so they are willing to donate something and in many cases the donations that are made are in kind, for example enzymes, reagents, etc...

Is there any other option to raise funds?

## TEC COSTA RICA

The university can also be asked for funds, there is no specific procedure for this, but depending on how the initiative is presented and the budget for the year and how the other

If there were many teams it would be easier to raise funds?

## TEC COSTA RICA

Financially, having more than one team here in Costa Rica would be even more complicated, because it would imply segmenting all the people who are willing to collaborate.

You edited group info to "COLLABORATIONS"

How do you hear about collaborations?

## iGEM RUM - PUERTO

We always keep an eye on the iGEM page for collaborations, and we try to participate in as many as we can, no matter how

What collaborations have you done?







## iGEM RUM - PUERTO RICO

We have collaborated with "Synbio for Everyone", it is a mix between iGEM Washington and regular people. They have a synthetic biology manual in English and they want to translate it into other languages. We are collaborating with translating it into Spanish, well a part of it because it is very extensive.

Do you have any ideas for collaboration that you have not yet done?

## iGEM RUM - PUERTO RICO

We have one that would involve a lot of logistics and money. It is like a "Regional Capsule" that would consist of us putting our own objects from our country and sending it to Bolivia, you would keep our things, and put your traditional things to send to another country. But on second thought it would be very expensive so that is why we have not done it.

What kinds of activities do judges evaluate to win a gold medal?

## iGEM UPARIS\_BME

It is quite important to work in education and not just science, and make this known to the population. iGEM is not only a biology or engineering competition, never underestimate human practices and education if you want to get a gold medal.

How to get a silver medal in Colla-

## iGEM NJU- CHINA

Work with other teams on activities that can be learning for everyone.

You edited group info to "SCIENCE COMMUNICATION"





What activities do you consider the most for science communication?

### OPEN SCIENCE CAMP

Maybe having social media you need a platform to share what you're doing and why or what you pretend to do or achieve.

Writing a journal will be so helpful. Like the main idea, you may not help the whole world, but where you can help, like the Bolivia community. it will make a change.

How did you sell your idea of your iGem project?

### MADRID\_UCM SPAIN

Well, it was clear to us that if we want to sell the idea of a sustainability iGEM project, it is not only bacteria that make gasoline, but that sustainability integrates everything, it

What characteristics does it need to have?

### MADRID\_UCM SPAIN

So, it has to be economic, it has to be industrial-technological and it has to be social. Technological sustainability is what we do in iGEM research, economic sustainability is achieved when, after the research, your technology is good enough to be viable, that is, if you can measure arsenic with a commercial kit that costs you one euro for a test strip, nobody is going to make a biosensor, maybe it does provide you with other alternatives, with advantages superior to traditional detection kits, now it makes sense.

Does a project need to be only technologically viable?





## MADRID\_UCM SPAIN

If it is viable, not only technologically but also economically, the industry and the people will be interested in it; but beyond all this, there is society. If society does not know why arsenic is dangerous and society does not see the need to measure this type of metals, if society does not understand the environmental problems that exist, then it will not make any sense because there will be no demand, there will be no desire to do research on it, there will be no technological or economic viability, society is the fundamental pillar that supports everything.

What are you looking for in this philosophy?

## MADRID\_UCM SPAIN

What we are looking for in this philosophy is to make scientific communication targeting different sectors of society, where we focus primarily on a young audience because in the end we saw that it is the closest to our project and people become more receptive and ultimately will have a greater impact in a few years in the world, which is where we seek to act.

So then we started the social media campaign, where we basically have profiles on Twitter, LinkedIn, Instagram where the central platform is and there what we did was to generate different content through interviews with people related to science of all kinds and people who were not related to science to see the different opinions within society, which there are several in fact; And then we are also looking to make informative publications commenting on different cases, it is a bit this work of bringing science closer to society through curious facts, articles that are not heavy to read, to do something interactive, we believe that this is very important and then materialized in a web page that we have.







Firstly, make a test to see how the computer science person responded within our group, and secondly to gather all the contents of informative publications, articles, and things that we have been doing. We have a little bit of explanation of the project and then in the education part we have different comments, that we sectioned it; and make different types of content, one of them will be these informative publications that I have already said, others were the interviews and then, from time to time, some podcast we did or something a little special like some activities we did in some schools.

A couple of months ago we were in a school and what we did was to do an activity to explain what synthetic biology is, starting with children from 10 to 16 years old. It was a little game with some threads and magnets in pieces that can be assembled and disassembled to introduce simple notions that are the core of synthetic biology, like the fact that you can change a gene from one organism to another and that gives it other different characteristics, which in the game we call super powers and then not only can you change superpowers but you have to control how these super powers are expressed.

Then we have concepts such as promoter, terminator, coding tips, alleles, all those kinds of things and at the end of the activity we did a survey at the beginning and at the end of the activity, where on the one hand we mixed questions that were not relevant, simply so that it was not like a typical psychological bias when a survey that you know they are looking for, but to get questions of a normal type, especially environmental awareness, social opinion, and so on. And with more technical questions about the contents of the game and at the end of all this, we have results published on this website, you can see some graphs that at the beginning there was a 60 % correct answers to a 4 out of 5 in environmental awareness after the talk appeared around 95% of correct answers and more than a 4.5 out of 5 in environmental awareness. So these are different alternatives that we have been exploring to bring





science closer to society, but of course there is a lot more to do, we are aware that we are an iGEM project, that for now this is a desktop thing and that can remain for a long time, I think just as a sample button of what could be done, of how things could be done and one more alternative, because we are not the only ones doing this, nor the most prepared for it, but the important thing is to have the motivation to keep going forward.



You edited group info to "iGEM IN GENERAL"

How many people make up your team?

### iGEM RUM - PUERTO RICO

We are about 20 students more or less.

What is the most outstanding characteristic of your team?

### iGEM RUM - PUERTO RICO

Having a management team, which is like the executive part of the team, they make the important decisions and are in charge of writing the letters of agreement, budgets, looking for sponsors, coordinating the necessary meetings and establishing communication between tutors, instructors and the team.





How do you organize your work?

## iGEM RUM - PUERTO RICO

We are divided into 3 teams, biology, which is in charge of the biological study of the prototype and the laboratory part, then the social impact team, they are in charge of everything that involves interactions and also everything that is inclusive, and the engineering team: they are in charge of modeling, creating the Wiki (we all write for the wiki) and they are in charge of the design as such.

We are all on an equal footing as a team, but an external executive part is always needed for a better organization.

Anecdote?

## iGEM RUM - PUERTO RICO

In 2019 the competition was in Boston, and other teams found it very strange how well organized we were. And we told them it's because we have a directive, it's good to have a head that makes the important decisions. UwU

What is the most iconic characteristic thing in your team?

## MOSCOW RUSSIA

The most remarkable characteristic is that we're eight members and we are first-year students. It will be the youngest team in Russia.

Most of the teams have been created by professors or teachers, but ours is created by students. We found a team and then found the professor.





What would you like to know before starting the team

??

## MOSCOW RUSSIA

The thing I would like to know before starting the team is to know how to find a P.I. If you create your team for yourselves, it's really important.

It's kind of difficult to find the professor and convince him to be our PI. Because of these you need to explain what is iGEM and use scientists to help you. They may be refused or get involved in it.

What was the weakest part of your team? Maybe you have to work on it?

## MOSCOW RUSSIA

To me, delegating our duties more efficiently. Every person would have his or her responsibilities. Then, the team members should be more proactive. They should not fear to do things.

What was the biggest challenge during these last month?

## MOSCOW RUSSIA

We had some problems in our Science, because we spent a lot of time trying to create ideal plasmids so we have problems with molecular cloning. Also, we had problems with export and import.

What would have helped the Russian iGEM team to be more productive?





## MOSCOW RUSSIA

I think the things that make a team work productively is to have really good planning. So, the planning should not be that "we should do something in the future". It's better to have deadlines and keep points that you have to achieve in a certain time. When you have deadlines, it helps you to do things that you need to do.

The second thing that is really important for the team is the communication inside the field teams. So, you should develop the relationship between the members and you should cheer everyone up. If you have a good atmosphere, it helps to work more productively.

Everyone says that productivity is something like "OH! we need to achieve more or more and more!" and it is not always like that. It is really important how your team members feel about each other. So, if you have a team with good relationships the lab work will be better. People should consider that working in a team is not just work and work.

What kind of things did you have more problems with as a team?

## MOSCOW RUSSIA

Sometimes not all of the members have initiative. So, many of them can do what team leaders ask them to do. They don't tell you if I have to do something. It was the hardest part working as a team.

What would you have liked to implement into your team that you have seen in other iGEM teams?

## MOSCOW RUSSIA

I saw that other iGEM teams are participating for the third time.







So, they have a lot of subscribers on social media. Also, the science in another team seems to be more creative and more interesting than our idea.

How do you deal with the different cultures, languages and way of thinking? How do you work together considering those things?

## OPEN SCIENCE CAMP

I think when people want to do some work for a bigger cause. You'll be able to manage take the different time zone and set up meetings and also languages.

We don't expect them to have results immediately but we delegate activities and responsibilities. What we did is recording the sessions so they can see the meetings and they can know what we were doing.

Working together what was the biggest problem that you have to deal with?

## OPEN SCIENCE CAMP

I think the biggest problem is to get to know your team, connect with your team. It's very difficult. So not everyone in the group knows each other. It is still kind of a challenge to us because we don't know everyone in our group.

How many hours do you dedicate to iGEM?

## OPEN SCIENCE CAMP

It totally depends on how each member dedicates to iGEM. But If you force people to work, you would lose enthusiasm or passion.





Something that I've noticed is that when the competition gets closer and closer you need to spend more time working.

Do you think that your project will be understood by High ?

## OPEN SCIENCE CAMP

No, we made this project open to everyone to enjoy. We want to make this as easy as possible. Cause' we want to break this kind of wall. You know having a difficult project that nobody understands so we try to make it easier to everyone understand

Also, our project has these prospects for the future. It is not only for the competition but there is a problem like people from Canada and the United States. It's kind of easy to have a laboratory in their Garages but people from LatinAmerica don't have it easy. Because It is difficult to have the material to have the space. Because we have to create space. For example in Brazil we don't have this kind of industry of production and seems as those other members have had a lot of opportunities to get those materials, bacterias, and enzymes.

How can you improve efficiency in your team?

## iGEM UPARIS\_BME

The most important thing is to organize your team, work in an orderly manner, delegate functions and respect deadlines.

How do members manage their time inside and outside iGEM?





## iGEM UPARIS\_BME

It is important to distribute the times to work in each stage of the project. Our team members had internships at the same time as iGEM, so we made sure that we always had at least 2 members working on iGEM everyday.

What advice would you give the teams about the competition?

## iGEM UPARIS\_BME

Know everything about iGEM and its requirements, for example: wiki, poster, deadlines, etc. Don't hesitate to contact former teams, and go have a look at iGEM's website.

Anything you would have liked to know before entering the competition?

## iGEM UPARIS\_BME

Being part of iGEM involves a lot of work, it takes a lot of time in the laboratory. It's fun, but you also need to work hard and be very organized.

Something you will never forget about the competition?

## iGEM UPARIS\_BME

Being part of iGEM is not only working in the laboratory, but also interacting with other teams both from your country and others around the world, which is necessary for the area of Collaboration, human practices, etc. Interact with other teams, speak English.







What did you see on other teams that you would like to implement on yours?

## iGEM NJU- CHINA

It is important to rescue the way in which the Human Practices area works and how they get to publicize their projects, which is related to the Presentation Video, which should become quite impressive in just 20 min.

What is one of the biggest challenges that you have overcome throughout this time at iGEM?

## iGEM NJU- CHINA

Get them to answer our surveys, as we sent one, and we only received two responses. For this reason, we believe that it is important to work on communication and interaction within the global iGEM team.

## MADRID\_UCM SPAIN

### iGEM IN GENERAL

I met iGEM in 2019, in Spain it was like a competition where Valencia had participated for many years but was not known at all in the country and in 2018, a team in Madrid who saw it online and formed a team. I entered the year after those people went to iGEM and that's when I had a little idea, the concept, etc.,.

### TEAM

So I have realized that it is very noticeable when a country has experience in iGEM, for example Germany and even Denmark.





## MADRID\_UCM SPAIN

In the end you always realize that it is very noticeable when there is a team that has 10 or 12 years of experience, especially for these small details of how to form a team, the internal organizational structure because there are like four or five key points that I think are essential when you are going to form an iGEM team, the first of them is undoubtedly the people or the team is the most important thing without a doubt and I think that every person who wants to start an iGEM team in the end will be a team but the initiative will come from one or two people who really had an idea that they want to take it forward.

To get started in this, maybe you would have to find some tools even among the community itself to know how to communicate what an iGEM project implies and how to know how to find the right people for a project because I really think that at this point we are all aware that there are people who maybe say this sounds super nice and great, but then when they are in the situation that you have to be working in a lab all summer and it has to be 14 hours a day, many days, then they retract.

So a little bit to make people really aware of what is going to happen when you go into an iGEM project, especially to find people who have the skills for what they are doing.

The first tip would be to find a kind of soft skills psychology manual to identify these profiles that can be part of an iGEM team and if you find people who do not have all the qualities, put them in charge of a certain area that is needed.

Within our experience in 2019, when I was just a member and now I am as a coordinator in 2021, and I realized that also the biggest problem is to find a person who can coordinate the research well, a project coordinator, a person who should be in charge exclusively of coordinating.





## MADRID\_UCM SPAIN

Moreover, the figure of the instructor, the advisor of the group is this one person who is a student who is simply in charge of for example if there are 12 people in the team and day after day, go after each of the 12 to see how you are doing: you need something?; is everything okay?, if you have doubts about this ask such and such person. ,That coordinator should not also have to take care of all the technical part, but that person should be someone else for example, a doctoral student, someone external to the team who can give orders, who can be the figure of the instructor, and I think that in many occasions in our newly formed teams there is a little lack of that postdoctoral student who likes all this and wants to help some kids but whose life is not going to be in it, who has a little more authority to work with people; I believe that these are also basic pillars.

In the coordination team, I think that coordinators have to be people who first know how to delegate and secondly that person must also be able to see when one of the team members can't do it anymore, or needs some time of effort or on the contrary there are too many resources in an area or too much time and resources are being invested in something that is not going to achieve positive results for the team.

From the beginning I thought it was very complicated. These are like the pending challenges for the teams and they are the first questions that someone should ask himself, of course long before asking himself what are we going to do with our project, what are we going to solve here, who are we going to invite.

This year, I would say that these have been our main challenges. The main challenge has been first of all to find enough people, as ironic as it may seem, we are 9 people in the team, of which in science we are five people and then there is only one person for a part of materials and chemistry and the only person we have for a part of engineering,





processes, etc...

I think that on a personal level the first challenge is to find people who can work in each of the areas and secondly the challenge has been the ambition. All iGEM projects are very ambitious but we must be aware that, we will get to where we want, but we have to try to give our best effort. It may be a bit disappointing when not everything works the way you want, but you have to commit to keep working to deliver your best work.

## Planning and execution of the project

I always believed that it is not only a very organized planning, but also having the possibility to decide what we are going to need as a minimum, what the competition is going to ask for in order to have a solid project. For example, these two things, and then first get these two things and in the dead time that you have left you work on shaping it, on supporting the project. But if you don't reach those two minimum objectives, let's say at the end it's a bit complicated to have a solid project proposal.

Because in the end in iGEM there are two types of teams: there are the teams that are going to win this contest It is a competition and we are going for the gold medal. And there are people who see this as a competition. It's very cool, we are going to create our idea, give it life, take care of our baby and get it out into the world. There are a bit of both visions in this competition.

I think that taking into consideration all this, we have to say: what we want to do, how we are going to do it with very good planning and from there see what resources you need and then of course there is the challenge that no one controls, which is luck.

How do you work on the project? And what has been your biggest





How do you work on the project? And what has been your biggest difficulty working with it?

## iGEM BRAZIL

Our first step was to choose the theme on which we would work, and from that we began to work. We had trouble finding someone who knows computer science. The biggest difficulty was organizing ourselves and finding time to be able to do everything we had planned.

How is your organization as a team?

## iGEM BRAZIL

We first think about which would be our work fronts and divide them in the best way. We are looking for a platform to work and weekly meetings. We have people who work in areas such as wiki, human practices etc

Are they all from the same city or from different places?

## iGEM BRAZIL

We are from the same University, but each one is from different cities.

What was your biggest difficulty working together in the last few months?

## iGEM BRAZIL

Our great difficulty was planning, because we are a small team to distribute the work and carry it out, there are many things that we must do for the competition and we must work with the little time we have. We try to have weekly meetings so that we can follow up on our planning.







What would you like to have on your team that you have seen on other iGEM teams?

## iGEM BRAZIL

I think that by giving more attention to the mathematical modeling work in the team, we always see that in other collaborations they have that, but as a small team we have a bit of difficulty with that, but we would like to work more on that part.

How important is it to keep in touch with other teams from Brazil? months?

## iGEM BRAZIL

In Brazil, we have an event similar to the Jamboree but only for Brazilian teams, where we knew each other better and in that way we can also help each other among various teams, so we see what doubts may arise in the teams or in which we can collaborate. That is a way to help each other and it is very important, especially if you are in a country that has limited resources with many problems to get reagents and other things to work in science.

Why did you decide to be in the competition?

## iGEM BRAZIL

In Costa Rica we are the fourth iGEM team. The first one was in 2012 (I think), 2016, 2019 and jumping to us that were going to be generation 2020 because of the pandemic and everything, we are now 2021. Well, I can't speak for all of us because the team has been formed gradually, but I found out about the competition because in 2016 I entered the SynBio Thon 2016, organized by the university and the iGEM group





## iGEM BRAZIL

In Costa Rica we are the fourth iGEM team. The first one was in 2012 (I think), 2016, 2019 and jumping to us that were going to be generation 2020 because of the pandemic and everything, we are now 2021. Well, I can't speak for all of us because the team has been formed gradually, but I found out about the competition because in 2016 I entered the SynBio Thon 2016, organized by the university and the iGEM group from that year. This is a competition similar to a hackathon but focused on synthetic biology.

Before the competition all attendees were provided a workshop, with the explanation of the most basic aspects of synthetic biology: promoters, what is a plasmid, how it is assembled, types of assembly, etc. Obviously the senior students had better knowledge, I didn't, but that's how I personally found out about the competition and about our P.I. (Principal Investigator) (and the last three teams'). He is a professor in the school of biology, which is where the biotechnology career is attached to and where most of the team is studying. He is the one who campaigns for iGEM and he is also the one who keeps us updated; as a bioinformatics professor he also invites his students to participate.

Our team this year is particularly interdisciplinary, we have three industrial engineers, two computer engineers and an electronic engineer. They don't find out about it through social media or professors, there is very little coordination in that sense, but rather we have been talking to our friends in these careers or asking around. One of our colleagues had already been involved with us for a previous project, so we told him and we recruited him like other young people and so on. However, we are trying to change that through a synthetic biology club, where we hope more people will find out more easily.





Since the pandemic started, last year, we focused a lot on the genetic circuit with the hope that this year they would open the laboratories, etc., But at the beginning of the year, the situation did not improve, so we believed putting gold medal criteria in the laboratory may not be a good idea, so that's when we decided to go a little more with the computational aspect.

At this time our project has a large computational part, which to me has seemed to be just as interesting as working in the laboratory, so it can be an alternative that perhaps we do not exploit enough. Normally, if someone from mathematics arrives, they only do the modeling and are not usually involved with the core of the project. It has been quite a different experience to have people from computation in the core of the project but a great opportunity to be able to diversify what is going to be done.

## Planning and execution of the project

Well at that moment I think we are looking to have all the important results at the laboratory which involves fluorescence tests of the circuit. We are already assembling everything, but due to customs issues everything has arrived a little late so I think we are still on time and we are doing everything possible to get it out, but we will see. Then we are planning a software from which we have the first versions; I think we are on the right track towards achieving gold.

You edited group info to "PROTOCOLS"

How did you work on the protocols part?





## iGEM UPARIS\_BME

The basis of our protocols is carried out with the help of advisors and bibliographic review of articles. When possible, try to have all your protocols ready and validated by your PI or advisors before starting lab work.

## Anecdotes

## MADRID\_UCM SPAIN

In our case, for example, we are looking to work with a cyanobacterium that was discovered in India, which is one of the fastest duplication times, with a duplication time of two hours to one hour and 45 minutes, so it was quite agile, especially for working in a laboratory. Well, this bacterium was found in India and to apply for it you need to be in contact with the competent authority there and you enter into an international bureaucracy, a lot of paperwork and we saw this on March the filling of the documents and we have been granted permission a week ago (August 18th). After we got the permission, you have to find your way to go to an institute that has the bacterium, ask for it and pay for it as well; So in the end, at the level of iGEM I do not recommend you to get involved with organisms that are protected under the Nagoya Protocol. There may be other countries with similar microorganisms where you have to give credit to the person who discovered it, but it is in their interest that this organism travels freely around the world because in the end if you do not have to wait a year to work with it, you can awaken more scientific interest, the community to see more genetic tools, then it will be easier.

This is our experience, if we had known about it before, we would surely have changed; but since we had got involved with this organism, we have designed practically everything for it, so all we have to do is cross our fingers, hope that they send it to us soon and we can start testing it.







## MULTITASKING

### MADRID\_UCM SPAIN

I think the most important part of the project of iGEM is the interdisciplinary team we have. From minute zero we knew, so we were looking profiles of persons who could design or someone with computer skills, in our case we were lucky to find a person who could also work with programming in CSS and HTML.

## WIKI

### TEC COSTA RICA

Having so many parts, because we have done it in two years, we have all the laboratory parts, all the software parts, etc. I am the one who has been in charge of integrating them. I think that might not necessarily be the team leader's obligation but it seems to me an important position and I think that maybe we do not take it into account at the beginning. Showing the importance of the project takes more work than one thinks.

Also that the issue of human resources and administration are complex issues. You have to know more about project management and human resources as a team leader.

Wiki and poster design and programming

### TEC COSTA RICA

We work in two STAGES:







## iGEM UPARIS\_BME

1. the design stage and how we want our project to be seen. Industrial designers are working on it without much background knowledge and it is something important to take into account. 2. where the industrial designers work matters, because for example a design tool that is used a lot is FIGMA, but it does not throw code, so if you want to pass it to HTML is by hand, vector by vector, figure by figure, all by hand, then for the programmer it becomes a task of six months just to translate a web page so in this sense choosing where the page is mounted graphically is very important. I think we are working on IN VISION that does not throw the page already programmed for you to upload it but it has more guides or at least the objects. I think that if you are going to have a designer and a programmer, communication is very important for them to agree and to upload the wiki as such iGEM is very particular to upload their things.

### In the design stage:

Where we basically talk as a team about for example how is it better to present this if it is better to put a graphic, or is it better to put only text and important pages that we should present. Because pages like the medals you are not going to think twice, but the project page you have to decide what you are going to present, how you are going to present it, in what order it is best understood, if we need drawings. All these kinds of things we first pass them to the designers, with them we set up the aspect of how we want the page to look like and from that page, as I told you, it has some code that the programmer can start tying up; but in general, to upload things to iGEM it is the programmer who did the research in general.

What does the jury take into account when awarding the gold medal?





## iGEM UPARIS\_BME

We have learned from looking at other wikis that how you communicate is of the most important. For example, the Foundational Advance team that won last year seemed to us to have very little content. What we realized is that the contribution part was very detailed, they talked about very big things that could be achieved, then they talked about databases, things that sound very good, allowing the judges to see the project in its full splendor and then in fine print saying whatever things were not fully achieved.

So it is very important to know how to communicate what you are doing, how to write, what words to choose, etc.

How is your work and organization of the wiki?

## iGEM BRAZIL

At the beginning we did not have anyone who knew how to program. We are eight people on the team and we decided to look for someone who really knows, and they are the ones who are in charge of the wiki.

You edited group info to "ADVICES AND RECOMMENDATIONS"

## iGEM BRAZIL

### ADVICES AND RECOMMENDATIONS

Don't focus only on pharmaceutical industries, but also on all kinds of big industries, for example the food industry donates money to us every year. So don't limit yourself when looking for sponsors, obviously not all of them answer but there is always one, and of course every contribution is very well received.





What would you say to the teams that are just starting out?

## iGEM BRAZIL

### RECOMMENDATION

The biggest difficulty we have as Latino teams is not receiving much support from the university compared to other non-Latino teams, including financial support.

The advice I would give is not to be discouraged by not having that support from your universities, look for external resources, and external help. The truth is that we have had many setbacks in all areas in all aspects, but we have remained motivated and that is what should not be lost.

## MOSCOW RUSSIA

### ADVICES

Something really important. If you need to do something in iGEM, you write it down in your daily plan. The second point is that you should define what is more important. Make these questions.

Is iGEM important to me?

Is iGEM important to my life or future?

So, I have the time to dedicate in iGEM.

For all iGEMers is important to know that iGEM's main goal, it's not only winning many medals as you can. It is about the opportunity to try lab work and management.

The thing all iGEMers should know is that it's really necessary to divide your team to criterias to be efficient to accomplish the iGEM goals. If you have a big team, it is really important to divide into science, collaboration, communication, etc. The reason why is because if all of the team members do all the things, it will not be efficient. Not all people are professional in communication and collaboration or science.





The key is communication. If someone is not available to do things you should help or give a hand. For example: if you don't have time to post on social media, you should just have another member who can help and just say "hey I can cover you for today."

What is the best advice to the new teams?

## OPEN SCIENCE CAMP

It is better to try instead of saying "if I had tried". Most young people are afraid their project isn't good enough or even the way that they sell this idea to other people. So the advice is not waste energy and being afraid. I think you should put that energy i'm doing it. I think the worst thing is to stop, just keep going and you will see the results. The key point here is trying a lot of things so many times if you fail it goes to your experience don't be afraid of failing because it's something normal and you will get a lot of knowledge about it. Of course that can ask for advice, don't wait for the perfect moment. Just do it

As a team we struggle sometimes with the language because each member is from other country so we don't have the same amount of words than people from Chicago. we perceive that when we are trying to explain something, it sounds more like we are using our mother language but this shouldn't stop you.

Any advice you would like to give in general?

## OPEN SCIENCE CAMP

Figure out the responsibilities and the rules for each member when starting to work.

To me, it will be helpful to know how people work. Based on it you can create your work group. Because when you know them, you know how they work so you can work together







Like or not iGEM is a competition, so there is a certain criteria that you have to reach. In the moment of delegating responsibilities and activities, just think of the criteria. It will help a lot. Because there are no resources that have to be well used. For example, the money and member's time.

Or participants from Latin America are more than just a summer project. You have to play hard. Because getting access to the laboratory is difficult and also getting material. It is difficult but not impossible. The Best advice will be "give everything until the day of the presentation and after that just enjoy it because you did it. Just enjoy the iGEM process".

## MADRID\_UCM SPAIN

### ADVICES

In the end, to have a professional level in HTML is complicated. It takes many years to reach an advanced level. But a basic level, where you understand how to change four things is a matter of putting yourself a couple of weeks at most. Many of these things, like basic programming, iGEM gives you a chance to self-learn. In fact in our example, we're building the whole bioreactor following schematics from a computer from Hamburg 2019. It seems to me we didn't have much idea of electronics other than the basics because you can learn in high school. But that gives you enough basis to know that it's not that complicated for what you want to do and it ends up coming out in the end. As long as you have initiative you can solve it.

Access to information is there, but the challenge is how to get it to the target audience, because even in iGEM itself there are a lot of resources and it's not so simple to make people know what it is about, all the figures of the past ambassadors, etc. The thing is how to reach the key people, how you can make it accessible to people, how you can awaken that interest. I think that if there is interest in bringing the concepts and ideas of your project in a bigger way, to society, you could use







the iGEM platform itself. They can give you the possibility to have a space inside the official website, for example we are going to upload a handbook for all the iGEM teams interested in working with phototrophs, so the idea is that if somehow we could talk to iGEM itself so that all these initiatives would be collected and with links it would be very very valuable, but of course for that the most important thing is to talk to the ambassadors and see if it is possible to do these things. And well, as a member of the iGEM team, knowing that this is very hard, that it takes a lot of time, that it seems that there is no way out, but in the end many things depend on luck and we will get as far as we will get, but the important thing is what we have learned along the way and a bit of the ideas and notions that we have left captured at this time and in this time.

## TEC COSTA RICA

### ADVICES

I would have liked to know that it's doing a lot more work than I thought.

Teamwork in times of covid

## TEC COSTA RICA

That change of expectation from one year to another and extending the project has been a lot of time spent, working and making an effort, so at this point the most difficult thing I would consider is to maintain motivation but I think it is a particularity that perhaps, we the pandemic teams, have and maybe in the coming years when there is no longer this situation, it will be better.

In general, communication is very important as a team leader. I try to communicate with everyone as much as possible and that if someone is not going to work he/she has to communicate with us.





Very few areas work alone, so if functions are distributed or meetings are held to review what has been done and what is missing, this increases the sense of commitment because you are not falling behind on your own, but you are putting your partner behind.

We have weekly meetings, there are 11 of us and the schedules clash a lot, so when people are missing, we make sure they let me know, and usually when they can. We meet to see what was discussed and if there is something important to say, they tell me beforehand.

Trying to set dates allows us to have a perspective of how bad or good we are doing and how much we have to put in which weeks and even if we can slow down a little bit and when

Time invested

## TEC COSTA RICA

The competition is almost a full time job but I think this is only my case.

I think that in the others it varies a lot depending on what are the objectives of the week and even if we have meetings with teachers, who are a big part of our human practices, then also depending on how heavy the task is. For example it is not the same to spend an hour reading or programming, than an hour of meeting with someone, making them understand and explaining. So normally yes maybe it is an hour of meeting, but then it is another hour to recover from the meeting or document what happened in the meeting and arrange it. So it is a balance. Also something that we try to do, in general, is that if someone is going to have an exam or something like that we try to help as much as possible and transfer the load to the other people. We also try to be as clear as possible regarding which are essential tasks that should not be left to do any week and which can be procrastinated a little bit.





## Anecdotes

### TEC COSTA RICA

At the beginning we were on the way to do another project in which we needed libraries of antibodies, for which we wrote to several scientists around the world. Some of the mails we sent were quite generic and a doctor from Denmark wrote to us saying that this is no way to refer to a person, no one will ever take us seriously, he basically scolded us a lot. At that point we all cried and then he wrote us back saying that what we were asking for is ridiculous, that no one is going to give us those libraries, that they are worth 20 thousand dollars in patents, etc. I don't think anyone has ever crushed our dreams as much as this professor. But at the end of the day we wrote to him, apologized and explained a little more. In Costa Rica in spite of anyone being professors or doctors they are treated as people, you don't use the title to refer to them. So it was a cultural shock because in Europe they are treated with more respect and preamble.

At the end of the day he ended up helping us a lot, orienting us and giving us feedback. It turned out that what we were doing in the project was not feasible and he was the one who helped us realize it. On one hand it is sad that he threw the project away, but on the other hand, it is good that we were thrown away before starting it and not 6 months after trying to do something that was never going to come out right. So I think that was a painful experience at the time, but it makes me laugh now. We have grown up a lot from that experience. There are ALWAYS problems with the time difference, you always fail, no matter how much you check the schedules. In fact, it happened to us last year, that Mexico changed their time zone and I got in the meeting an hour early. How was I supposed to know that they had changed the schedule here, it's always the same.

Even worse if you try to meet with teams from Europe or Taiwan, that is 14 hours difference. Once I got up at 6 in the morning, for a meeting scheduled for 6:30 am, and I had





several messages from one of the attendees at five in the morning, asking me if I was planning on starting the meeting, once again we counted the hours wrong.

It is always an issue to be considered, it always goes wrong and I think we should normalize the fact that it goes wrong. There are even countries that have more than one time zone, such as Russia and India.

So useful tools like Doodle, where you can change the time zone to the one you are in, are awesome.

The language barrier

### TEC COSTA RICA

I think that more than English, the problem with accents has been an issue, at least the first few minutes of the meeting. Sometimes you might leave a meeting feeling like you understood nothing.

What advice would you give to a team that is just starting out at iGEM?

### iGEM BRAZIL

There are many things that I would have liked to hear, I think one of those would be to build a good team that is united and eager to work, so that they can help each other. And also knowing how to have fun and let your imagination fly, because when you are working on the project you have to know how to take advantage of everything and take the good side of everything, even if you give a crazy idea, don't be afraid to say it because it could be a great idea. Another tip would be planning, which is very important in any team.









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