iGEM 2020 Recruitment
Attendance

Fill out this survey so you can be added to our email list:
https://tinyurl.com/u2sqaom
Agenda

- What is iGEM?
  - What is synthetic biology?
  - How does iGEM fit in?
- iGEM Basics
  - Past projects
  - What does the process look like?
- Competition
- Subteams
- Recruitment
- Q & A

attendance:
https://tinyurl.com/sqlhrym
What is iGEM?

iGEM is an *international competition* for synthetic biology. Teams from around the world create, develop, and present projects to a panel of synthetic biology experts.
Synthetic biology

Synthetic Biology is a novel field of biology that uses genetic engineering to redesign organisms for useful purposes.

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Washington iGEM

This season, our team is prioritizing competitiveness, previous experience, and dedication to our work in our team selection process.

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iGEM is interdisciplinary!

A variety of majors have participated with us, both intended and declared!

Biochemistry

Bioengineering

Informatics

Computer Science

Electrical Engineering

Physics

Business Administration

Disability Studies

Education

...and more!

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Immunosense: Washington 2019

- An antibody-based biosensor for small molecules
- See 2019 wiki for more details

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Make it or Break it: Washington 2011

- **Break it: Gluten Breakdown**
- Won 2011 iGEM Grand Prize
- Spun-off into company for celiac therapeutic
  - In Phase 1 Clinical Trials with $35M funding!

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Season progression

**Spring:** project development, team building, training

**Summer:** bulk of research and work

**Fall:** finalizing project, presentation development, and flying to Boston
Jamboree

- International synthetic biology competition held each year in October
- Usually falls in the **middle of fall quarter** (around midterm season)
  - Professors have been very accommodating in the past
- Present our project to judges as well as other teams
- Opportunity for networking with entrepreneurs in synthetic biology

[attendance](https://tinyurl.com/sqlhrym)
Costs

Jamboree Registration:  ~$700
Airfare:               ~$300
Hotel / Airbnb Stay:   +  ~$100

Total Cost:            ~$1100

Attending jamboree is not mandatory for team members.

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Financial aid for jamboree

URP Conference Grant:
Every member is eligible to apply!
Also gives you the chance to present at the Undergraduate Research Symposium

HUB Travel Grant:
$1500 that iGEM applies for
Together: ~$250-300 of travel grant per person

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Student responsibilities

time availability

spring: 5-10 hrs/week
summer: 15-20 hrs/week (wetlab and simulations must be in Seattle)
fall: 15-20 hrs/week
(may differ for web dev subteam)

ability to work in a fast-paced team environment

contribute your ideas

willingness to learn and participate

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Parts of the team

There are many different subteams that work together in the bigger iGEM team, each focused on a different aspect of the project.

There are opportunities for **anyone** who wants to be a part of the team.

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What do we do?

cchange DNA on a molecular level to express the proteins we want

research outside of lab

Find relevant papers or new procedures

molecular biology techniques

design and construct BioBricks
Who are we looking for?

- experience preferred, but not required
- previous lab experience (research labs, classes, etc)
- time commitment
- persistence and initiative
  things fail, but there are no successes without failures

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What can we give you?

- graduate-level lab experience
- research techniques outside lab
  - interpreting data, reading papers, etc
- communication and teamwork skills

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Simulations
What do we do?

Importance of binding constants

Recommend different concentrations

Parameters

Recommend point mutations

Amino acid sequence

Wetlab

Optimizing Biosensor

Protein Modeling

Kinetic Modeling

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Entrepreneurial activities differ substantially depending on the type of organization and creativity involved. Entrepreneurship ranges in scale from solo.
What are we looking for?

- experienced preferred, but not required
- programming
- unix/git
- time commitment and motivation to learn
- participation in other parts of the project
- outreach
- other sub-teams

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What can we give you?

modeling and programming experience
Rosetta
Tellurium
Hardware

leadership in UW’s only undergrad-directed research
smaller team requires more individual responsibility for members

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Web Development

Welcome to Immunosense

Project Description >

Abstract
What do we do?

develop project wiki

clean, consistent code

code reviews

design and iterate

create uwigem.com

learn and implement industry best practices

well-maintained GitHub repository
Who are we looking for?

developers

previous web development experience (HTML, CSS, JavaScript)

ideally completed INFO 340/ CSE 154 or previous experience in React

ux designers

experience designing in Figma

some experience with HTML and CSS

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What can we give you?

experience in a real team development environment (AGILE)

network of diverse design/developer alumni

knowledge of the most up to date web development technologies

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Business
What do we do?

We are focused on creating a marketable product.

- Contacting stakeholders
- Working with companies to find real world applications
  - Researching industry and market
- Helping to find funding for iGEM
- Advertising our project

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What are we looking for?

Synthetic biology as an industry is rapidly growing as the biotech revolution takes off.

- Help to understand our potential market and customer base
- Help fulfilling iGEM’s entrepreneurship award requirements

Funding for synthetic biology companies, 2009-2018

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What can we give you?

- Experience working in a real-world business setting
- Opportunity to be in contact with large biology, chemistry, and synthetic biology companies
- Direct experience learning to relate with the biotech industry

Companies now focus on high-value products

And are getting traction with larger companies

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Outreach
What do we do?

create accessibility within the synthetic biology field
expand education to include typically marginalized groups

work at a variety of events
includes young students at school visits to university hosted fairs

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Accessible curriculum

SYNTHETIC BIOLOGY for everyone

an accessible synthetic biology curriculum with hands-on activities made for students by students

CHAMELEON GENETICS ACTIVITY

- Develop an understanding about how genes are passed down.
- Comprehend the difference between key phrases, like heterozygous and homozygous, recessive and dominant alleles, and genotype and phenotype.
- Use Punnett Squares to predict how genes are passed down in different generations.

LOGISTICS
- Give each student a worksheet and coin.
- Have each student complete the "Timo to Make a Chameleon" activity.
- Younger/less advanced students can stop here, as the next section is about Punnett Squares.
- Then, have students read and learn about Punnett Squares (worksheet provided) and have them pair up with another student.
- One student’s parent chameleon from the first part of the activity will be the female parent and the other will be the male parent.
- Using this information, the students can now complete the Punnett square portion of the activity and create a baby chameleon.
- Finally, as a class, share all the baby chameleon drawings.
- As a class, discuss how the activity is applicable in the real world.

ADDITIONAL INFORMATION
- This is an adapted version of the Dragon Genetics activity from Science Kit & Boreal Laboratories (4779A).
- Washington IGem's version of the activity has a greater basis on genetics concepts, and all images provided are created by Washington IGeM.

SUPPLIES/COST
- Worksheet for each student
- Colored pencils or markers
- Coin for each person
- Paper clips for each pair of students
Public events

SIT DOWN with SYNBIOL Learn about synthetic biology, the new biotech frontier, through a panel event featuring industry experts

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Best Education & Public Engagement Award

2019: Washington iGEM

- 200-page accessible curriculum
  - Adapted for the visually impaired
  - Translated into 16 different languages
  - Enacted in 3 continents
- Sit Down with Synbio
What are we looking for

time commitment

flexibility for school visits

creativity to expand and improve our program

ability or willingness to teach students

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Structure of Outreach This Year

● Two different sides to Outreach
  ○ Completing last year’s project
    ■ Overall Vision: Publish the curriculum, distribute free copies to underserved schools with a grant we have received, finish adapting the curriculum for the blind, compile translations of the entire curriculum, & eventually distribute around the world using a nonprofit model where proceeds from selling the curriculum go towards giving free copies to underserved schools.
    ■ This will operate as a project not directly affiliated with WA iGEM’s 2020 Project.
  ○ New Idea
Accessible Curriculum Roles

- All of these roles require a minimum time commitment of 5-6 hours/week.
  - **Translations/International Partnerships Head**
    - Will work closely with 2020 iGEM’s Collaborations Lead to compile translations & have the curriculum enacted around the world
  - **Visual Impairment Adoption Head**
    - Will work closely with Ishira to adapt the curriculum for the blind & reach out to blind schools around the country. This involves writing curriculum.
    - Ideally has biology background & strong writing skills.
  - **External Distribution/Partnerships Head**
    - Advertise to schools across the country to distribute the curriculum
    - Work with Ishira on logistics of publishing the curriculum
  - **Graphic Design Head**
    - SUPER IMPORTANT Role; you will be acknowledged on the published curriculum
    - Will create illustrations for the curriculum, help create promotional materials for advertising the curriculum & Outreach events like Sit Down with Synbio
    - Can work with the Design team, but is ultimately responsible for ensuring design work is completed in a timely manner.
    - Qualification: Excellent proficiency in Adobe Illustrator

- Note: We are always looking for volunteers to come to events, so this is another way to be involved!
2020 Outreach Roles

- Lead a team of 4-5 people to complete this project by October 2020
  - For the 2020 project, we are looking for someone with the next **NEW amazing idea**.
    - You will be **WA iGEM’s 2020 Outreach Lead**.
    - Time Commitment: Variable, but 10+ hours/week during the summer
    - Ideally have at least some biology background as the lead
  - Random Ideas
    - CS Student: Creating an accessibility platform for iGEM teams around the world to collaborate and/or a game to teach the fundamentals of synthetic biology
    - Passing legislature to make interactive science activities mandatory
- These are just quick random ideas that we came up with, but we are looking for a novel idea that has a **huge impact**.
- The 2019 project idea came from a freshman’s dream, and it actually became a reality!
  - **ANYONE** can do this with perseverance
    - We will support you & give you guidance!
Things to Keep in Mind When Thinking of Ideas

● What is iGEM looking for?
  1. Best Education & Public Engagement
     How have you developed new opportunities to include more people in shaping synthetic biology? Innovative educational tools and public engagement activities have the ability to establish a two-way dialogue with new communities by discussing public values and the science behind synthetic biology. Document your approach and what was learned by everyone involved to compete for this award.

● How is your idea novel/unique?
  ○ Look at teams’ Wikis nominated in 2019 & past teams that won the award to make sure that your idea is unique.

● Does your idea have the ability to make a huge impact?
What we can give you

- experience working in a learning environment
- work alongside a variety of professors, scientists, and organizations
- opportunity to see your ideas become a reality

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Meaningful connections
Increasing accessibility
Local meetups
Design
What do we do

develop the project storyline and represent the team visually

website, presentation slides, posters, flyers, logos, animations

work collaboratively with other subteams
What we are looking for
interest and investment
experience helpful, but not necessary

What can we give you
experience with software like Adobe Illustrator
leadership skills and an opportunity to express your ideas and foster your creativity
Recruitment

What do we want from you:

- Fill out the following survey with some basic information and a copy of your resume
- We will be reading over and filtering your responses, however there ARE NO requirements to join iGEM so apply!

Next Steps:

- We will be looking over your applications and hosting interviews
Questions?

Attendance Link: https://tinyurl.com/sqlhrym

Interest Survey Link: https://forms.gle/LPNckRjBRgxAQM5TA