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iGEM at Uppsala University



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iGEM- a challenge-based interdisciplinary course

iGEM=international Genetically Engineered Machine

Started at MIT, Massachusetts Institute of Technology

Uppsala has participated every year since 2009 (except 2023!)

Challenges, goals, criteria for prizes, limitations and rules

Teams from all over the world.

www.igem.org

Biology Education Center hosting department.

2022: 15 participants from different educational programs.

Projects: 2022 PETerminator degradation of plastic.

Projects linked to UN sustainability goals.



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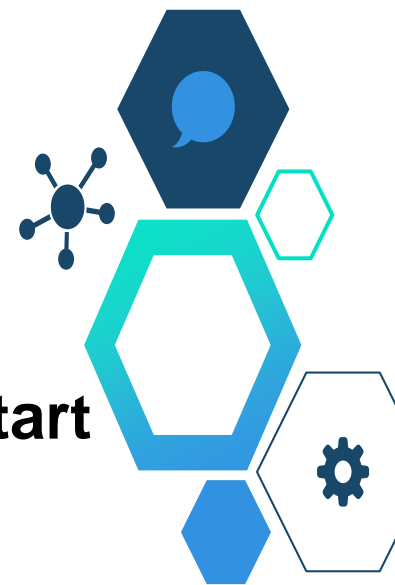
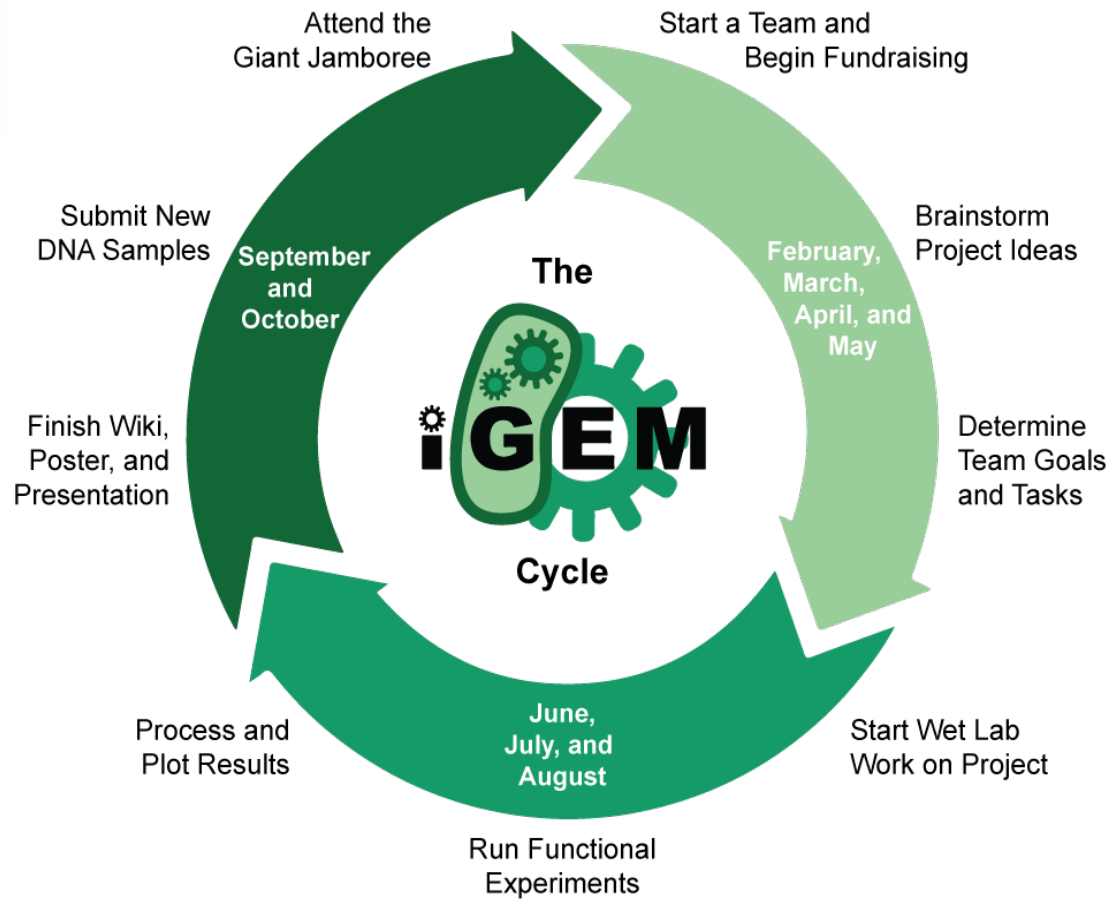
What is iGEM?

- Studentdriven challengebased education
- Strong link to global 2030 Agenda for sustainable development
- Literature search, research preparation and planning
- Skills-building: molecular/synthetic biology, lab and bioinformatics
- Skills building generic skills, e.g. information search, collaboration, leadership and intercultural communication
- Deep knowledge of a chosen field of biology
- Industry collaboration and public outreach

Fall 2023: Evening meetings for planning the project and building a team

Summer 2024: Project work e.g. Lab, WIKI, Bioinformatics, modelling and outreach)

Fall 2024: Summary of project and competition November 2024 (preliminary)



iGEM Timeline. Comment: the planning may start already Fall of 2023.



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Teachers

Faculty supports different perspectives of project

Course leader/team leader iGEM (scientific expertise in microbiology, biosafety, bioprocess): **Margareta Krabbe**

Synthetic biology professor: **Anthony Forster**

Bioinformatic professor: **Hugo Gutierrez de Teran**

Bioprocessing at Testa center: **Jozsef Vasi**

Additional faculty as needed depending on chosen project.

Teacher's assistant(s): **Letian Bao**, PhD student

Other support: iGEM Uppsala Association **Dianna Zeleskov**
(MSc in Chemistry)



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Frequently asked questions

Can I join the project with out being registered?

Unfortunately no. Anyone can join the initial information meetings and discussions and brainstormings before the team is formed.

What if I cannot join the course during the summer? An important and substantial part of the course and the project is done during the summer, so no.

Can I drop out of the course if I cannot join the summer work (e.g. you got a summer job)? Yes, but preferably let us know 3 weeks before course start June 2.

I am a fee-paying student, can I join without paying fees? No



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What is the connection between courses and project?

iGEM is a competition *AND* 15 credits courses :

Main courses:

*1MB205 Project in laboratory synthetic biology I
(bachelor level)*

*1MB405 Project in laboratory synthetic biology
II*

(master level)

Information and Application form here:

<https://www.ibg.uu.se/utbildning/kurser-program/igem/>

<https://www.ibg.uu.se/education/courses-programmes/igem/>



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Prerequisites and registration

1MB205 (Bachelor level)

Alternative 1: 40 credits in the Engineering programme in molecular biotechnology.

Alternative 2: 30 credits biology including Molecular biology and genetics 10 credits together with Microbiology with infection biology 5 credits or Life and Interactions of Microorganisms 5 credits, and 30 credits chemistry.

Alternative 3: 35 credits chemistry including 5 credits biochemistry.

1MB405 (Master level)

Alternative 1: 120 credits including Project in Laboratory Synthetic Biology I 15 credits or Independent Project in Molecular Biotechnology.

Alternative 2: Bachelor's degree of at least 180 credits including 45 credits biology and biochemistry, whereof at least 30 credits in cell and molecular biology/biochemistry. Course in project management is recommended.

The two courses are integrated and start full time/daytime

June 3th- August 16 2024 (possibly one week earlier August 9). Every student has two weeks summer vacation for every student.

Please observe: If you are a fee-paying student, course fees apply.



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Deliverables examined

Individual examination of:

- Oral and written project reports
- Lab notes including as well as documentation of bioinformatic work
- Other presentation materials such as films and PPTs
- Participation in preparing a WIKI page for the project



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I want to know more and meet fellow students interested in iGEM

Meetings planned (subject to change):

Tuesday September 12 at 17.30 a' clock A7:11, BMC

Tuesday September 19 at 17.30 a' clock A7:11, BMC

Course information day September 27

Tuesday October 3 at 17.30 a' clock A7:11, BMC



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How do I join iGEM 2024?

Start by informing yourself about the project and the course.

Contact *Margareta Krabbe* for additional information.

Application deadline to course is **28 March 2024** (preliminary date).

Apply to courses/team through Biology Education
<https://www.ibg.uu.se/education/courses-programmes/igem/>

iGEM Uppsala 2022





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iGEM is a unique learning experience, welcome to join

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