

1st European Jamboree at VU Amsterdam Oct 1 & 2, 2011

iGEM is the highly successful yearly international competition for Genetically Engineered Machines. Interdisciplinary teams of highly motivated and bright undergraduate students design and build biological nanomachines during the summer. These nanomachines are tailored to carry out tasks in, medical diagnostics, removal of pollutants or biofuel production. During the final jamboree at the Massachusetts Institute of Technology (MIT) in Boston, the best projects are awarded.

Since 2003, over 400 projects have been presented. Last year 124 teams competed at the Jamboree in Boston, and iGEM is still growing, worldwide. To accommodate the spectacular growth in the number of participating teams, iGEM Headquarters have initiated regional iGEM competitions for 2011. America, Asia and Europe will select the best teams for the upcoming iGEM world championship in Boston. Universities in the Netherlands were selected to organize the first European Jamboree in Amsterdam in October 2011.

The iGEM Europe organizing committee:

Dr. Douwe Molenaar (VU University Amsterdam)

Dr. Aljoscha Wahl (Technical University Delft)

Prof. Oscar Kuipers (University of Groningen)

130 years VU UNIVERSITY AMSTERDAM

TU Delft Delft University of Technology



university of
 groningen

design
project

fund
raising



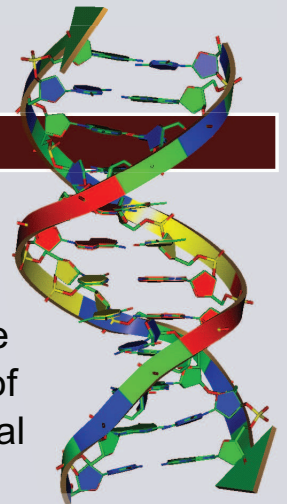
iGEM Competition

Since 2003, the iGEM competition encourages undergraduate teams from all over the world to develop a project that intertwines the principles of Molecular Biology and Engineering. During summer the project is designed and taken into function in the lab. Synthetic Biology is an interdisciplinary approach - methods from molecular biology, systems biology, control theory, engineering and biotechnology are integrated.



Synthetic Biology

Synthetic Biology is an emerging research area that applies engineering principles to biological systems. Especially the automated synthesis of genetic material (DNA) up to the size of bacterial chromosomes enables the design of new biological functions.



The idea of synthetic biology is to (1) **design genetic circuits** i.e. sets of interacting genes performing some desired task and to (2) **insert the designed circuit into living cells**, thus creating cells with **new function**. The iGEM organization standard for plasmid construction, the **BioBrick** specification enables an easy exchange and ligation of coding DNA fragments. iGEM Headquarters harbor a large collection of BioBricks that are available to the teams (distribution plate).

lab
work

modeling

human
practice

web
presentation



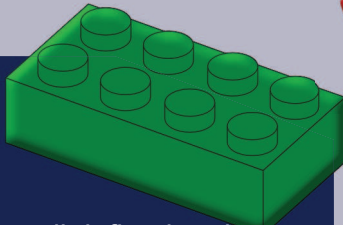
Social Interaction

Based on the expected impact of Synthetic Biology in fields like sustainable bioproducts, new biofuels, medical treatments and environmental technologies the teams also evaluate the social, economic and environmental impact of their project. The teams inform the general public about these technologies in workshops, videos and articles. The societal value of projects is therefore not solely based on scientific merit, but also on their social, economic and environmental impact.


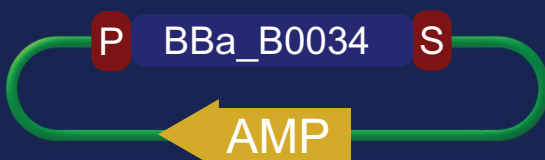


Cooperation

[BioBrick]



Biological parts can be well defined and characterized in the same way as electric or mechanical components (standardization). These basic biological building blocks, the 'bio-brick', can then be used to design devices and systems that are more and more complex (hierarchy). A database of bio-bricks has been initiated a few years ago and is currently maintained by the MIT (*Registry of Standard Biological Parts*).



To strengthen the social and environmental aspect in the European iGEM trajectory, we cooperate with the Rathenau Institute. The Rathenau Institute has been established by the Dutch government to promote political and public opinion making on science and technology. We see the 1st European Jamboree as an excellent opportunity to engage iGEM students and the broader public in the ongoing international debate about the future promises and implications of synthetic biology for society.



Region
Jamboree

World
Champion-
ship



Impact on Education

Students participating in the iGEM competition develop skills in creativity, team spirit, communication and organization. The members of the team commonly have very different backgrounds ranging from molecular biology, (bio-)chemistry, physics, informatics, mathematics, social sciences to medicine and pharmacy. Working in such an interdisciplinary team broadens the knowledge and trains the ability to cooperate, explain and teach each other in a complex organization.

For a team to choose an appealing and feasible project, a phase of brainstorming, preparation, analysis, discussions and prioritizing takes place. The students involve specific scientific advisors and instructors from their university.

In many universities iGEM has been embedded in the curriculum. The students can enroll in a dedicated iGEM master course with about 18 ECTS. The students mention as major learning achievements: designing of their own project, planning and decision making, increasing teaching skills, organization of team work, fund raising, presenting of results, use of computational tools and communication with different bodies like industry, press, and the general public.

The universities see a great benefit in participation in the iGEM competition. Students become highly motivated for Synthetic Biology and science in general. They communicate with different instructors and foster the interdisciplinary research at universities. Also, staff members from different faculties build networks for recruiting and supervising iGEM teams, thus facilitating the communication between faculties.

Additionally, many of the former iGEM students choose a career in science and start PhD projects. iGEM has a lot to offer to students and has a huge impact on academic research in life sciences.



Previous Dutch teams



Students: Oscar Stassen , Rad Haghi, Ruud Jorna, Bastiaan van den Ber, Farzad Ehtema, Steven Flipse

Supervisors: Emrah Nikerel, Marco JL de Groot, Domenico Bellomo, Janine Kiers, Ali Mesbah

[REWARD]
Gold medal and award for the **best wiki**.

[WIKI-PAGE]
<http://2008.igem.org/Team:TUDelft>



Students: Auke van Heel, Floor Hugenholtz, Tiemen Rozeboom, Sander Onur, Annelieke de Wit, Mirjam Boonstra, Martijn Herber, Sjoerd v.d. Meulen, Ruud Weme
Supervisor: Oscar Kuipers

[REWARD]
Gold medal

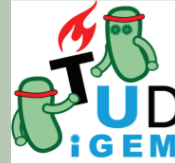
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<http://2008.igem.org/Team:Groningen>



Students: Jolanda Witteveen, Sven Jurgens, Jasper van de Gronde, Michael Verhoeven, Nienke Kuipers, Steven Jelle Meijer, Wilfred Poppinga, Paul Schavemaker, Frans Bianchi, Klaas Bernd Over, Annelies van Keulen
Supervisors: Oscar Kuipers, Jan Kok, Bert Poolman

[REWARD]
Gold medal and **Finalist**

[WIKI-PAGE]
<http://2009.igem.org/Team:Groningen>



Students: Students Tim Weenink, Tim Vos, Saeed Katiraei, Calin Plesa, Sriram Tiruvadi Krishnan, Daniel Solis Escalante
Supervisors: Emrah Nikerel, Domenico Bellomo, Janine Kiers
[REWARD]

Gold medal and award for 'best information processing project'

[WIKI-PAGE]
<http://2009.igem.org/Team:TUDelft>



Students: Luke Bergwerff, Pieter T.M. van Boheemen, Nadine Bongaerts, Eva K. Brinkman, Jelmer Cnossen, Hugo F. Cueto Rojas, Kira Schipper, Ramon van der Valk, Mathias J. Voges
Supervisors: Alessandro Abate, Esengul Yildirim, Aljoscha Wahl

[REWARD]
Gold medal award for '**best presentation**' and **Finalist**

[WIKI-PAGE] http://2010.igem.org/Team:TU_Delft



Students: David Ekkers, Peter Roemers, Joël Kuiper, Laura van der Straat, Arend Slomp, Arend Jan Suk, Djoke Hendriks, Ezgi, Ramon Sieber, Maartenvan den Nieuwenhof, Jorrit Hillebrand, Geeske van Heel
Supervisors: Oscar Kuipers, Dennis Claessen, Roel Bovenberg

[REWARD]
Gold medal award

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<http://2010.igem.org/Team:Groningen>



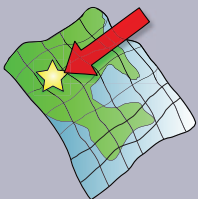
Sponsor Benefit

iGEM is the premier undergraduate event in the field of Synthetic Biology. Last summer for iGEM 2010, 124 student teams from all over the world designed and built biological systems from standard, interchangeable parts. The accomplishments are often very impressive and may lead to important advances in medicine, energy, and the environment.

The iGEM Jamboree attracts a large number of senior and young scientists; For the Europe regional event we expect about 500 students and 100 supervisors and judges. This is a significant opportunity for your organization to create visibility and collaborate with the current and future European leaders in the new field of Synthetic Biology. You will support science and education in a motivating manner - iGEM has been growing every year due to its highly inspiring educational and scientific concepts. iGEM headquarters is a non-profit organization.



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iGEM@KluyverCentre.nl



<http://2011.igem.org/Regions/Europe/Jamboree>



iGEM2011Holland



iGEM 2011 Regional Jamboree Holland