

# Certificate in Biomimicry

## Biomimicry Professional Certification Program

Update: The application period for the 2011 Biomimicry Professional Certification Program cohort has closed. Please check back for information about future classes.

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The Biomimicry Professional Certification Program (formerly known as the Two-Year Certificate Program) academically rigorous and rewarding biomimicry educational experience in the world. Now in its second year, this master's level program will accept just 16 participants in the 2011 cohort. This intimate size allows students to form a tight-knit community with their peers and have personalized interactions with the foremost experts in biomimicry, including Dr. Dayna Baumeister, biomimicry educator, researcher, and co-founder of the Biomimicry Guild and Janine Benyus, biologist, innovation consultant, and author of six books. Visionaries in the fields of sustainability, green business, green chemistry, ecological design, and more round out the list of guest lecturers.

The Biomimicry Professional Certification Program not only provides the most comprehensive biomimicry education currently available, it also affords an intellectually stimulating learning environment that allows for unique leadership and networking opportunities. Past graduates of the Biomimicry Professional Certification Program are teaching biomimicry workshops around the world, speaking at numerous international conferences, and consulting with Fortune 500 clients on some of their most intriguing sustainability and design innovation challenges.

The program is administered by The Biomimicry Institute, in conjunction with the Biomimicry Guild, and takes two years to complete.

### What You'll Achieve:

As a participant of the Biomimicry Professional Certification Program, you will earn a biomimicry specialty in your particular background, gain specific relevant skills in the fields of biology, engineering, design, and business, and hone your skills in the biomimicry methodology, life's principles, sustainability, communication, systems thinking, and multidisciplinary teamwork. Following completion of the program, you will be able to market and utilize these skills to:

- Obtain meaningful employment in the rapidly emerging global market for biomimics and Biologists at the Design Table; or
- Initiate or transform your own consulting practice into the field of biomimicry; or
- Engage and lead others within your current company/organization to begin practicing and demonstrating world-class case studies in biomimicry; or
- Incorporate biomimicry into existing or new education endeavors to help bring forth the next generation of biomimics.

Attendee Profile:  
 Read about our course instructors and students who participated in the 2008-2010 Certificate in Biomimicry [flickr slideshow](#).

The program employs an interdisciplinary approach to learning. As such, we accept four biologists, four engineers, four designers, and four businesspeople into this 2011 cohort. Additionally, during the second year of the program, participants will interact with first-year students in the 2012 cohort, which allows for greater learning and networking opportunities. Approximately 50% of the program in the second year overlaps with the following cohort. Your fellow students will likely come from around the world and represent a wide-variety of experiences and backgrounds.

Below are demographic statistics from the 2008 cohort of Certified Biomimicry Professionals:

- 60% US residents, 40% non-US residents
- 67% female, 33% male
- Age span 28-61, median age 39, average age 36
- 60% from the for-profit sector, 40% from NGO, education, or government
- 47% employed by an organization, 40% self-employed, 13% not employed/FT student

What to Expect:  
The Biomimicry Professional Certification Program seeks to embed a deep understanding of biomimicry in each individual, empower graduates to establish or grow their careers in biomimicry, and build a network of collaborators from various disciplines.

We employ diverse teaching modalities to meet the needs of various learning styles. The program consists of a combination of on-line intersession courses, in-person intensive learning sessions, personal development through coaching, an individual practicum, and a group thesis project.

All students take the same courses and move through the program as a cohort. Online intersession courses are each 15 weeks long and will have lectures, which can be attended live or via recording using online web-conferencing software. Assignments are often group work accomplished using online meeting programs. Participants should plan on spending a minimum of 5-10 hours each week for the online courses in addition to time spent on yearlong projects.

There are seven in-person intensive sessions (each session is one week) that cover a variety of topics. Site selection for each of the intensive sessions is based on diversifying the exposure and learning opportunities from multiple ecological habitats, while choosing ideal learning facilities. Tentative session sites include the northern Rockies, the southwest desert, the tropical rainforest of Central America, the southeast Pine Barrens, the temperate New England forest, the redwoods, and the southeastern seaboard. Dates are not yet finalized, but see the course calendar for the two-week window within which each one-week intensive will be scheduled.

The individual practicum may occur anytime during the second year and is designed to meet an individual's learning goals and can be conducted local to their place of residence or employment.

Students will also be expected to participate in the creation of a new biomimetic product/process/system through a group thesis project. The group thesis project consists of an interdisciplinary team, begins mid-way through the first year, and concludes at the final intensive.

#### Coursework Information:

##### Intersession Course Descriptions (15 week online courses)

- **Biology Taught Functionally** - This initial course looks at biology through the lens of function, and provides a core understanding in biology for all students. The course explores how biologists gather and research information and how that knowledge can inform other disciplines. The art of translating biological concepts into strategies for application is introduced in this course and carries throughout all the courses. Students will learn how to work with biologists on a biomimicry team and how to weave biology and biomimicry together. The biologists in the cohort will not only learn to look at nature through the function lens, they will also act as biology mentors for their interdisciplinary team as well as teaching assistants.
- **Biomimicry & Design** - This course focuses on what it means to be a designer: considerations that go into design, basic design processes, brainstorming techniques, elements of the design system and more. Woven into learning about design is how to integrate biomimicry into design and how to communicate biomimicry with designers. Designers of the cohort will act as mentors for their interdisciplinary team and teaching assistants during this online course.
- **Biomimicry & Engineering** - This course focuses on the basic engineering design process, methods for brainstorming, how engineers problem solve, the role of engineering in design, and more. Woven into learning about engineering is how to integrate biomimicry into an engineer's process and how to communicate biomimicry with engineers. Engineers of the cohort will act as mentors for their interdisciplinary team and teaching assistants during this online course.
- **Biomimicry & Business** - This course focuses on basic business terminology, what considerations go into a successful business plan, the fundamentals of business design and decision-making, intellectual property issues and more. Woven into learning about business is how to integrate biomimicry into business and how to communicate biomimicry with businesspeople. Business students of the cohort will act as mentors for their interdisciplinary team and teaching assistants during this online course.
- **Biomimicry Methodology & Life's Principles** - There are also two 10-week long courses focusing on gaining a deep understanding of biomimicry. These two courses will focus on integrating biomimicry into your own area of expertise, practical applications of biomimicry methods across all disciplines, including the built environment, industrial design, sustainable business and more, as well as deep understanding of Life's Principles and experience with the tools necessary to bring these tested design guidelines into practice. Primary Intensive Topics (each topic will span several of the seven one-week, in-person sessions)

- Biomimicry Methodology
- Reconnecting with Nature

- Communication      Presentation Skills
- Facilitation Skills
- Group Communication Skills
  
- Personal Development and Coaching
- Life's Principles
- Systems Thinking
- Enabling & Practicing Technologies
- Biomimicry Current Applications

#### Long-Term (Thesis) Projects

The long-term projects consist of an interdisciplinary team (a biologist, an engineer, a designer, and a business person). Topics for the projects are presented and students are placed on a team based on their topic preferences, team distributions, and team dynamics. Assignments are iterative and span multiple intensives, each time refining and evolving the project until the final intensive where the project results are presented to a panel of experts. Outside mentorship is coordinated, and final results may result in real world solutions. Examples of long-term projects from our 2008 cohort:

#### How Does Nature Store Energy?

From left to right: Jorge Kanahuati (business), Claire Janisch (engineering), Jamie Dwyer (design), Atria

Our project subject was energy storage in the natural world. Our resulting multimedia is a compilation of various strategies to store energy, found in the natural world, organized in a way that is useful for different potential audiences. The intention is for the multimedia to be used by people (designers, engineers, biomimics, etc.) interested in developing technology in the field of energy and specifically energy storage. This tool can also be used by students of biomimicry &ndash; as a learning tool for understanding the process of abstraction of design principles from biology. Executive Summary (PDF)

#### How Can Life's Principles Inform Policy?

From left to right: Juan Rovalo (biology), Marie Zanowick (engineering), Lisa Schmidtke (design), Mary

Our premise is that the process for developing policy will deliver more sustainable results by incorporating biomimicry principles. Current policies are failing to deliver sustainable outcomes largely because a systems approach is not employed when developing policy. Misguided policy goals and performance measures also contribute to the failure. By cultivating a systems perspective and using an ecological standard to drive goals, the practice of biomimicry can help shape policy measures that are truly sustainable. Executive Summary (PDF)

#### How Can Life's Principles Inform Business Strategy? (business), Karen Allen (biology), Rob Litchy (engineering)

From left to right: Theresa Millard (de

In this report, the Life's Principles Business Team (LPBT), a cross-disciplinary team consisting of a designer, engineer, biologist and business person, shares their process and outcomes of "innovating the innovation process" of Philips Research Open Labs (Open Labs). The foundation for the work lies in Life's Principles (as developed by the Biomimicry Institute/Guild) with the express purpose of showing how these tested principles of life can inform the business world at both the practical and aspiration level. The LPBT systematically applied Life's Principles to select business functions articulated by the Open Labs team in order to create guidelines by which to operate a sustainable business. Executive Summary (PDF)

#### How Does Nature Promote and Maintain Soil Fertility? Chris Allen (business)

From left to right: Tim Albertson (bic

Our team strove to develop a system-based strategy to address the loss of soil fertility due to past and current trends of mining soils for a bio-based economy. By conducting extensive qualitative research approaches, our team arrived at a solution that will catalyze the power of self-organization through the development of the Soil Stewardship Council. Executive Summary (PDF)

## Course Calendar:

### Requirements for Consideration:

The Biomimicry Professional Certification Program is open to those with an undergraduate or graduate degree, and/or significant professional experience in any of the following broadly defined fields: biology, chemistry, engineering, design, and business. At least five years of working experience is highly recommended. We will select candidates with demonstrated capacity for thought leadership in their specialty coupled with a proven track record of achievement. Other desirable skills include communication, interdisciplinary experience, collaboration, and creative thinking. Additionally, our goal is to increase the potential teaching capacity for biomimicry; applicants with a strong background or passion for teaching (formal and informal) will receive extra attention.

### Program Costs:

Educational program costs include instruction, on-line technology fees, materials, and coaching, but do not include books (estimated to be less than \$150 total).

Intensive costs cover room, meals, local travel, and entrance fees. They do not include travel expenses to and from the meet-up location (usually the airport) and any optional single room charges.

Year 1 educational program costs ....\$12,500  
 Year 2 educational program costs ....\$12,500  
 Year 1 intensive room, board, and local travel .....\$3,000  
 Year 2 intensive room, board, and local travel .....\$4,000

Total Costs .....\$32,000

### Scholarships:

We recognize that the Biomimicry Professional Certification Program may be prohibitively expensive for some students, including those from the developing world. Our program thrives because of the diversity of our participants and as such we strive to find funding partners who will support partial scholarships for highly qualified candidates with demonstrated need. If you would like to apply for a scholarship please note this on your application. Additional materials documenting need will be solicited should your application advance. Please note, we cannot offer full scholarships. Should you have this need, we will be happy to assist in providing documentation of our program for your own efforts in seeking additional financial support.

### Accreditation:

Our program is not currently an accredited program. However, the program is taught and managed as if it were accredited, including maintenance of records, student assessment, and educational offerings.

### Primary Instructors:

The course is led by biologist Dr. Dayna Baumeister and supported by three other primary instructors (a designer, an engineer, and a business person) for the overall program and the intensives. These instructors also act as coaches for the personal development aspects of the program. On-line intersessions are taught by experts in each specific field and biographies will be available on the website at a later date. Both intensives and intersessions are supported by guest lectures, as well as on-site visits (intensives), which introduce participants to a wide variety of knowledge and expertise.

### Questions:

If you have any questions on the Biomimicry Professional Certification Program or the application process that cannot be answered by the FAQs below, please email [bpcc@biomimicryinstitute.org](mailto:bpcc@biomimicryinstitute.org). Application Information

The application period for 2010 is now closed. The remainder of our application process involves the following steps:

- Review of applications and notification of an invitation for an interview will occur by September 1.
- If you are eligible for an interview, a PDF letter of support from your current employer, unless self-employed, will need to be submitted. We ask for this letter for several important reasons. First, the program design seeks to leverage the interdependence of your learning with direct applications whenever possible. Many of our students have found opportunities to engage in a formal or informal practicum with their employer. Second, the program includes seven individual weeks of intensives, and employer support for your absence is critical. Lastly, the intersession learning (between the intensives) averages 5-10 hours/week. We hope this coursework can be completed in healthy balance with your "regular" work. A few students have even been able to complete their intersession learning as part of their current employment responsibilities. Your letter of support from your employer serves to clarify this for both you and for us.
- Phone interviews will occur during September and October.
- Final acceptance notices into the program will be sent at the beginning of November.
- The program begins in January 2011. A first installment payment of \$6,400 (20% of total program cost) is due by January 1.

FAQs (Note we will add to this list as common questions emerge):

Is this program right for me?

The Biomimicry Professional Certification Program is geared for people who want to devote their professional career to biomimicry. The breadth and depth of the program is equivalent to a master's degree, and tailored for people with a high level of interest and dedication. For those who desire to complement their current careers with biomimicry, other course offerings may be more appropriate, including our shorter intensive program (to be launched in early 2011), or even one of our weeklong training workshops.

What do the fees cover?

The program fees cover food, lodging, local travel, and entrance fees during the intensives, but do not include airfare, travel expenses to and from the meet-up location (usually the airport), or any optional additions such as a private room (dormitory style or double occupancy, depending on the venue, is covered in the fees). For the online intersession courses, the fees cover instruction, on-line technology fees, materials, and coaching, but do not include books.

Are there regular exams?

No, the courses do not have exams. Instead, the courses have assignments, final projects, and final presentations.

What kind of recognition/credibility does the course have in the academic circles/employment opportunities in USA and elsewhere?

As noted in the accreditation section, the program is not currently a degree-granting program. However, The Biomimicry Institute has partnered with a number of affiliate universities to help develop their curricula in biomimicry, and is widely recognized in the academic and professional communities, and in the media, as a world leader in the field of biomimicry.

When are the online classes? Should I plan to take time off work or will they be during nights and weekends?

Online intersession courses have lectures and assignments. The lectures can be attended live using online web-conferencing software. The lectures are also recorded for those who cannot attend the live presentation. Generally, lectures are scheduled during times when the most number of participants are available, but given the wide diversity of time zones, this can be challenging. Group work is often done using online meeting programs at times scheduled by the team members.