welcome!

BAWØ1 Biomimicry Alberta Workshop
Living things have done everything humans want to do, without guzzling fossil fuels, polluting the planet, or mortgaging their future

~ Janine Benyus
what better models could there be?
Bio-inspired design : biomimetics : biomechanics : bionics : biomimicry
BIOMIMICRY
Innovation Inspired by Nature
Inside the revolutionary new science that is rediscovering life’s best ideas—and changing the world

JANINE M. BENYUS
Now a two-hour public television special on The Nature of Things with David Suzuki
Biomimicry
(from *bios*, meaning life, and *mimesis*, meaning to imitate)

Organisms and environments integrate and optimize strategies to create conditions conducive to life. *How can design create conditions conducive to life?*
Biomimicry sees nature

as a model
photosynthesis,  
self-assembly, 
natural selection, 
self-sustaining ecosystems

as a measure
uses an ecological standard to judge the rightness of our innovations, 
what works, what is appropriate and what lasts

as a mentor
introduces an era based not on what we can extract from the natural world but on what we can learn from it
Cannon of nature’s laws, strategies, and principles:

- Nature runs on sunlight
- Nature uses only the energy it needs
- Nature fits form to function
- Nature recycles everything
- Nature rewards cooperation
- Nature banks on diversity
- Nature demands local expertise
- Nature curbs excesses from within
- Nature taps the power of limits
LIFE’S PRINCIPLES
Biomimicry DesignLens
Resilience
Changing by design or by disaster

The question is not *if* but when and *how* and *for how long* changes will happen, and what we need to do in response to prevent major problems.
Resilience: “leaping back”
The ability of a system to return to its initial state after a disturbance.
Three defining characteristics of resilient systems:

• A system is resilient when it can undergo certain amount of change and still retain the same controls on function and structure

• At a certain degree, a resilient system is capable of self-organization

• A system is resilient when it posses the ability to build and increase the capacity for learning and adaptation
Resilience

Ball in a basin metaphor
Resilience and biomimicry

How would nature design buildings and cities that fulfill the ecosystem services of the original habitats they replaced?

**Generous Cities:** places where our buildings actually regenerate and improve our environment, like coral reefs or rain forests, ecosystems we find in nature that have been around for millions of years.
Resilience and biomimicry

“If you want to know how to rebuild, go to the shoreline. Ask what survived there, and why. Look for the survivors and replicate their strategies. See how humble grasses rebuild dunes, and oyster beds act as reefs, sheltering the land from impact.”

~Janine Benyus
Content references:

Cruzen, P. J. (2006). The “anthropocene”. In Earth System Science in the Anthropocene (pp. 13-18), Springer Berlin Heidelberg.
Stibbe, Arran (2009), The Handbook of Sustainable Literacy, Cambridge, UK: Green Books UIT
Let’s go outside!