COURSE DESIGN PROMPTS THAT CENTER ON THE USE OF BIOMIMICRY

The following prompts are those that an instructor wishing to have students utilize biomimicry as a central focus of a course design project may wish to use. While biomimicry is well suited for use as an ideation tool for the majority of design project that requires ideation, the projects presented here try to truly play up the role of biomimicry in a more substantial way. You can also utilize any of the prompts presented in painstorming that were envisioned as semester projects that began with painstorming but ideally moved on through the remainder of the design process (where biomimicry could be included nicely during ideation).

1. You are a packaging engineer and have recently been hired by Amazon.com to design new packaging that is strong, durable, protective, and economical. The packaging should be resistant to damage upon being dropped or left in bad weather. Ideally the package will be appropriate for a wide variety of sized objects, without unnecessary waste or environmental impact. Your boss suggests to you that you should look to nature to see how plants, animals, and the environment packages, holds, protects, and/or carries goods. Use the biomimicry technique to ultimately research nature-inspired design solutions that you will then use as inspiration to create human-designed mock-ups or functional prototypes (depending on instructor preferences).

2. You started volunteering at the zoo in your hometown on the weekend. You just love the animals. You have been assigned to help at the giraffe enclosure, but on your breaks you spend every free moment you have with your favorite animal: the manatee. In school that week, your engineering instructor gives you an assignment to practice using biomimicry. You are told to pick an animal, study it, and then think about how that animal's natural processes, skills, and features can be adapted and utilized in a human-centered design. Naturally, you decide to focus on either, or both, giraffes and manatees. The instructor has left the assignment quite open-ended….the natural processes, skills, and feature you focus on can be used for ANY human need or product (though the instructor did mention he will give (not real) extra credit if the design helps with his latest home project, installing attic insulation.)

3. You became involved with the sustainability club at your university and want to take action to help our environment. First, go on a "photo walk" taking photos of sustainability-related concerns that you encounter. Review these photos and decide on one of these issues that you will solve during this course. You should first seek to fully understand the problem. Once you have identified and defined this problem, you remember that you learned that biomimicry often inspires environmentally-friendly solutions. You therefore decide to use biomimicry to generate possible solutions to the issue you have identified. Decide which objects in nature have avoided these issues, or solved them in some natural way in the past and start with these as your inspiration. Utilize the "Ask Nature.com" website for additional ideas, and do your own research. You will ultimately create a human-designed, nature-inspired mock-up or functional prototype (depending on instructor preferences) of your solution.