

# ME 586: **Biology- inspired robotics**

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Goals:

- teaming
- brainstorming

# (individually)

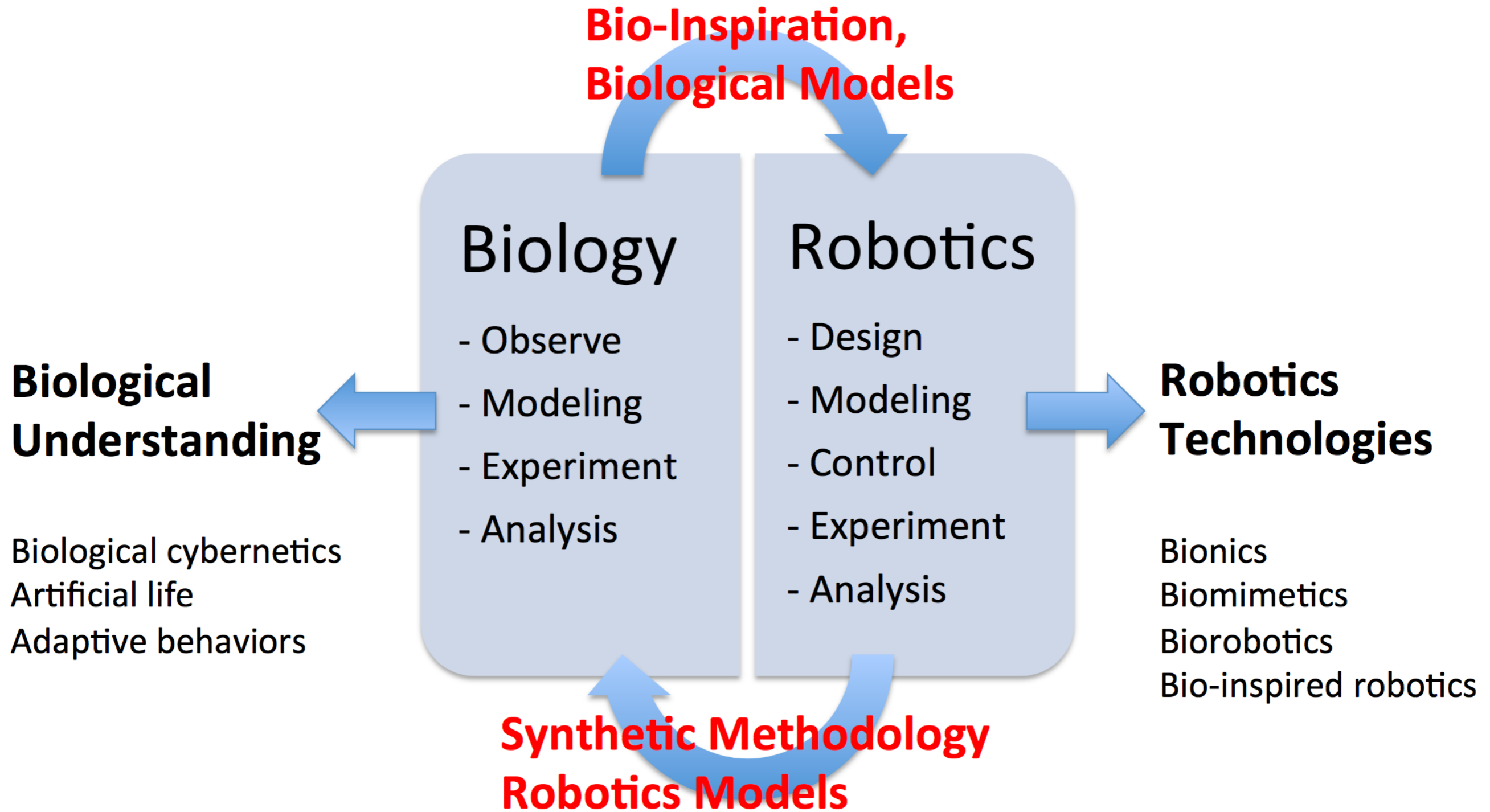
- write down a few characteristics of **exemplary** team members

# (individually)

- write down a few characteristics of **terrible** team members

# (in your team)

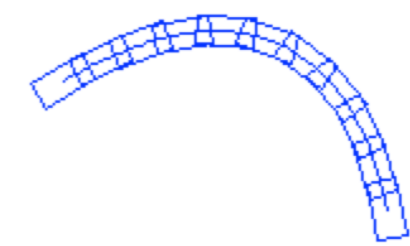
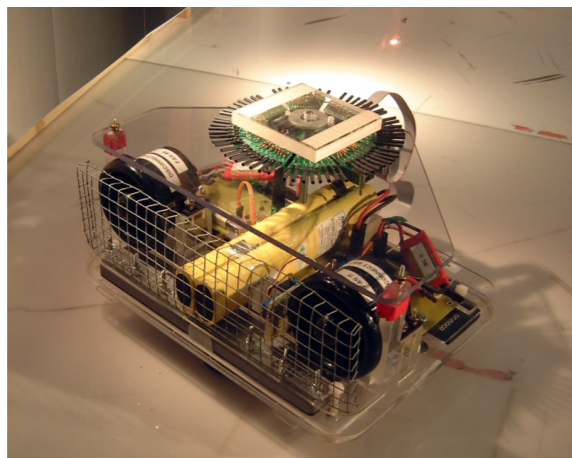
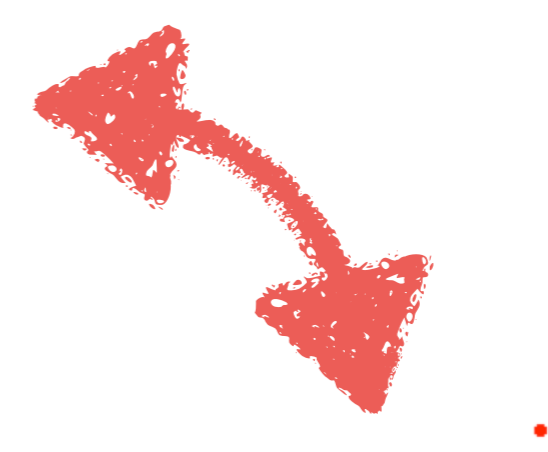
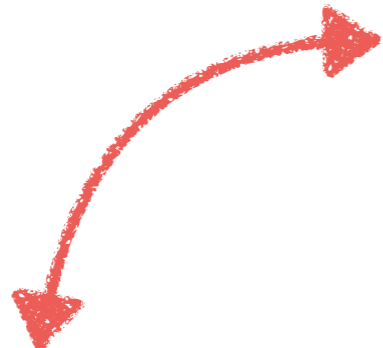
- write down a group consensus of
  - 3 characteristics of an exemplary team member
  - 1-2 characteristics of a terrible team member
- ~~designate one person in your group to email your consensus to me at [minster@uw.edu](mailto:minster@uw.edu)~~ give instructor your yellow card at the end of the session



# hierarchy of work quantity

$$f = ma$$
$$\dot{x} = f(x, u)$$

analysis



robotic implementation  
(100x more work)

simulation  
(10x more work)

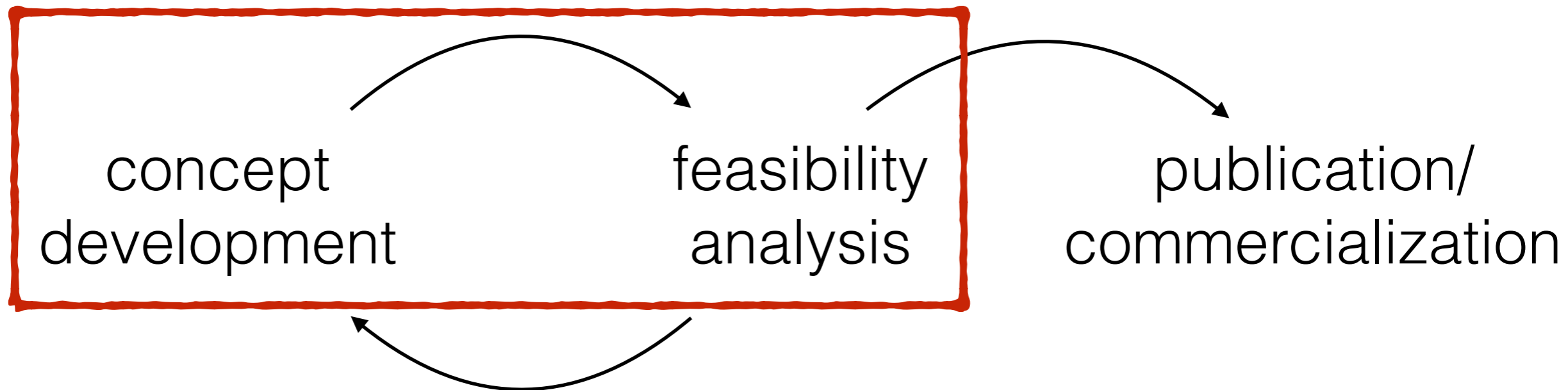
(physical hardware accepted as well, but get my permission)

# engineering vs research oversimplified

- Engineering process:



- Research process:



# step 1: idea generation

- main point: generate as many ideas as possible, but *do not evaluate them*.
- Some starting points (5 minutes each):
  - Think of a biological capability related to your topic that you wish you understood better
  - Think of how a robot could be improved
    - e.g. a robot you wish you had, a robot you've used or seen
  - Think of things that are totally unrelated



# idea evaluation

- Now, spend a few minutes reducing these ideas down to about three of your favorite.
- group them into rough categories
- propose one or two “research objectives” you could ask of the most promising ones
- Discuss each with your team (5 minutes each)
  - get feedback, form more ideas, practice explaining

# evaluation of ideas

	idea 1	idea 2	idea 3
feasible in a quarter's time	+	0	0
plays to your strengths/expertise	0	+	-
interesting	+	-	-
interesting for funding agencies	0	0	0