

Metabolism Project

Every child is an *artist*.
The problem is *how* to
remain an artist once we
grow up.

—
PABLO PICASSO



Creativity

Assignment

Part 1

Part 2

Part 3

Clarification

End

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Metabolism Project

Suggestions for **LEARNING** or at least **ENCOURAGING** Creativity:

[Below, are 8 ways to encourage your creativity:](#)

- 1) Set aside time to **keep notes** about your random thoughts/questions you have throughout the day
- 2) Set aside 5 minute each day to be quiet and think about nothing (**meditation** or mindfulness).
- 3) Be mindful of your **emotional state**. It drives the creative process (mood-boarding).
- 4) **Play games**. Best in groups; fosters “brainstorming”
- 5) **Risk failure!** Try to get beyond the fear of failure. Often in failures, breakthrough thinking arises. Think about Thomas Edison.

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Suggestions for LEARNING or at least ENCOURAGING Creativity:

- 6) **Spend time outdoors.** It stimulates the senses and immerses yourself in new surroundings
- 7) **Discuss your ideas with others.** Just communicating to a group fosters creative thought. Better in a group than via zoom due to added feedback from body language.
- 8) **Ask QUESTIONS.** A child's burning question about why the sky is blue or water is wet, should not go unanswered and forgotten, but should be given pause and a creative answer will flow. It takes practice. Part of creative problem-solving is noticing a problem and asking, "why are things like this?" and "can this be done better?"

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The Assignment:

#1 Work in teams.

Teams of 4-6 students will be set up from your lab sections.

Teams will be set up by end of day on Friday Feb 13

#2 Pick a topic of interest to you.

#3 Discuss topics with your team

Rank the top 3 that the TEAM would consider working on further.

Set up a Google Folder to work on the documents

NAME it as follows: "2026_Group#....."

Share the google docs with Drs. Hushka and Tolan

Topics can be from anything in biochemistry or medicine but try to think of some kind of metabolism at the biochemical level, particularly if it causes disease. A great source of topics are the thousands of inborn errors in metabolism.

You can create what you will submit for the assignment in any fashion you like: a typical essay, a video presentation, a work of art (with explanation), a poster, etc. It's up to you and your own creative ideas. Have fun with it.

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Metabolism Project

The project will have three parts.

- First you need to select a metabolic/medical topic and get it approved.
- Second, you need to create ways in which humans can be diagnosed and tested for the disease or how to monitor a metabolism.
- Third, you need to create an explanation for why the metabolism or disease arises

The Assignment: Part 1

#4 Submit your topic list by March 2

You will get feedback on your choices by March 6-7, before Spring Break.

As a team, agree to work forward on one of the topics

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The Assignment: Part 2

#5 Work with your team on two creative objectives

For your chosen topic, discuss a diagnostic strategy for detecting humans with the disease, or if your topic is metabolism discuss a strategy for detecting a particular metabolism.

This should include the metabolic pathway that is affected and how your diagnostic test will use this or some additional metabolic pathway to distinguish people who might suffer from your chosen disorder.

Your ideas are yours and needn't be something you looked up, although you can of course. You can also try something novel. There are no "right answers" for this assignment, they simply must conform to what you know about the metabolism and chemistry.

This will be no more than one page

Part 2 is due on March 30

You will get feedback on your Part-2 project by April 8

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The Assignment: Part 3

#6 Work with your team on two creative objectives

For your chosen topic, discuss a treatment for the disease, or if your topic is metabolism discuss a use for a particular metabolism, for either the organism or for humans.

It doesn't have to be anything that is already known, and even better if it isn't. **Be creative here.**

This will be a 1–2 page document

Part 3 is due at midnight on May 3

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Metabolism Project

The Assignment: Questions?

- Examples of previous projects will be posted on the web site
- Project is worth 7% (half of one exam) of your final grade
- Grading is based mostly on participation and effort
 - This includes abiding by all the due dates in getting assignments in on time
 - This includes doing your own creativity
- Dr. Tolan will have project-specific office hours on most Fridays, 4:00-5:00 PM starting Feb. 20

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Questions?

