BMATH122 (Bridge Course)

**Videos to for non-cognitive aspects**

**Possible homework prompt:**

*Watch the following videos over the weekend. Each one is less than 5 minutes long. After watching the set of videos, write “down the main messages you learned in the . Don't worry about perfecting wording or using the right spelling, but list at least* ***three*** *important things you learned. Bring your notes to class on Monday. You will share your ideas with your group and hand in your notes to our instructor. Note that the videos come from an online course from Stanford about how to learn math. So, you may occasionally hear a reference to that course. If you are interested in signing up for the free class, let me know and I can send you the link.*

**In Class Activity:**

*Have groups share ideas and report out one or two per group. Ask each student to create a "motto" from the ideas they like best and put the motto on a large sticker. The sticker is then attached to their binder as a daily reminder.*

**Boaler Video Overview and Key Ideas**

**From Week 1 & 2 of MOOC**

**Brain Growth and Lessons from Brain science** *(about 2 minutes)*

<https://www.youtube.com/watch?t=123&v=7zRv0QePNUY>

* example of taxi drivers
* brain is flexible
* practice changes your brain
* example of 7 year old girl who had half brain removed 🡪 brain grows
* working on a task for 6 minutes

**Smashing Stereotypes** (*about 2 minutes*)

<https://www.youtube.com/watch?t=116&v=GI6qB0a0d74>

* definition of stereotype thinking
* don’t let yourself get boxed into any area

**Rethinking math: You can Do It and Growth Mindset** *(about 5 min)*

<https://www.youtube.com/watch?t=75&v=J3wiBVDpSNg>

* Everyone can do math
* Brain is plastic and can grow
* Learning happens by synapsis firing and pathways being formed by revisiting
* Growth mindset means …
  + Keep going until you succeed
  + Try harder and longer
  + Mistakes are opportunities
  + Persist when things get hard
  + Try wild ideas
  + Feel comfortable being wrong
  + Open to new experiences
  + Play with new ideas
  + Go against pattern

**From Week 3 of MOOC**

**Mistakes: New Evidence (about 2 min)**

<https://www.youtube.com/watch?t=40&v=ogPoMwLnc78>

* when you make a mistake your brain grows
* Growth doesn’t happen when you get things correct
* Struggle is most useful things students do in math
* Thomas Edison example (1000 mistakes before lightbulb)

**Mistakes in life (about 1 min)**

<https://www.youtube.com/watch?t=55&v=akw5kQbt1Ro>

* More successful people make the most mistakes
* Michael Jordan example
* Successful people: Try wild ideas, are comfortable with being wrong, play with ideas, keep going, go against the grain

**Speed is not important** (*about 3 minutes*)

<https://www.youtube.com/watch?t=120&v=luiTzWs862o>

* open ended problems help you struggle and grow the brain
* mess up and learn from it and continue on
* being good does not mean being fast at math
* quote from Lawrence Shwartz, who struggled in school math
* important to deeply understand things

**Other Videos (not Boaler)**

**Math is hard and you need to work at it** *(about 4 minutes)*

<https://www.youtube.com/watch?v=Xs9aGVUZ3YA>

* Beautiful girl is a math major!
* takes time to think and work at it (example Russian poem)
* people come in at different places
* give yourself slack – you don’t need the right answers all the time
* don’t compare yourself to others
* you may have less experience, but you are not stupid
* math is a skill not an inbred talent
* math is not magic

**How to Make Stress your Friend** *(about 15 minutes)*

<https://www.ted.com/talks/kelly_mcgonigal_how_to_make_stress_your_friend?language=en>