Projects

Group projects

Most important goal of Projects: **Learn and apply** how-to-model concepts.
The exact project topic is secondary!

Projects are *student-directed*, with some guidance from
TAs and mentors. Learning by doing!

Projects Team

Xaq Pitkow
Athena Akrami
Eric DeWitt
Marius Pachitariu
Paul Schrater
Gunnar Blohm

>20 Mentor-suggested projects

>250 Project mentors

The dedicated NMA team

Group projects

Over the next hour you'll watch videos about what NMA provides:

- Concrete **project schedule** to facilitate progress
- Curated **data sets** and videos about them
- Video of **big picture of content** that you will see in course
- Video example of how to **refine an idea to find scientific questions**

Projects – guidance

TAs provide support (30min / day)

- Provide high-level guidance
- Coding support
- Use Neurostars for feedback and help

Projects – guidance

Mentors provide guidance (30min, 5x per project):

- Help form answerable scientific questions
- Suggest techniques, literature, troubleshooting, controls
- Neuromatched based on schedule and topic

Additional opportunity for 1-on-1 meetings with faculty mentors

Projects – overview

Week 1

- Brainstorm lots of ideas
- Form project teams of about 4 students
- Refine project ideas

Weeks 2–3

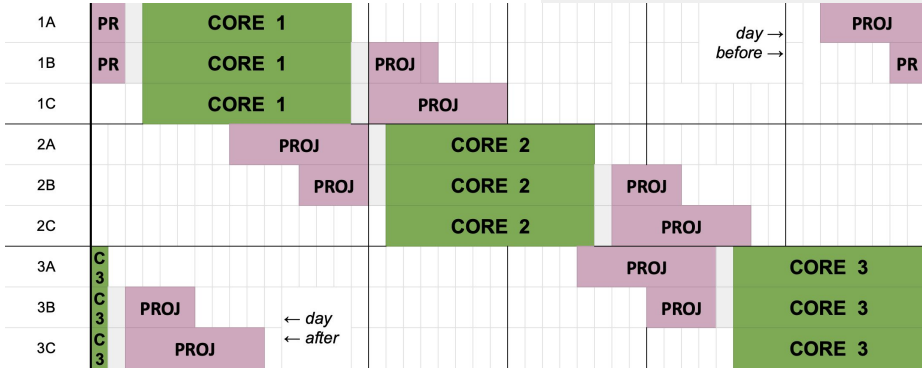
- Execute the projects in groups
- Prepare and present short slideshow of work

Projects – overview

Daily project time can be

- A zones — Early — 4h before content
- B zones — Split — 2h before and after
- C zones — Late — 4h after content

15 content days; only 14 project days
(no Early on D1, no Late on D15)



Projects – Week 1 schedule

Day 1
- talk about interests, research areas

Day 2 — Brainstorming
- Videos: from topic to scientific questions
- Videos: intros to data sets
- Videos: overview of course content
- Pod brainstorm: dreaming big ideas

Mentor guidance on D3 or 4

Day 3 — Refinement
- Form project groups of 4–5
- Develop projects from idea to plan

Day 4 — Refinement
- Refine, specify techniques
- Write short proposal

Day 5 — GO!
- Start work in earnest

Projects – Week 2–3 schedule

Implement!

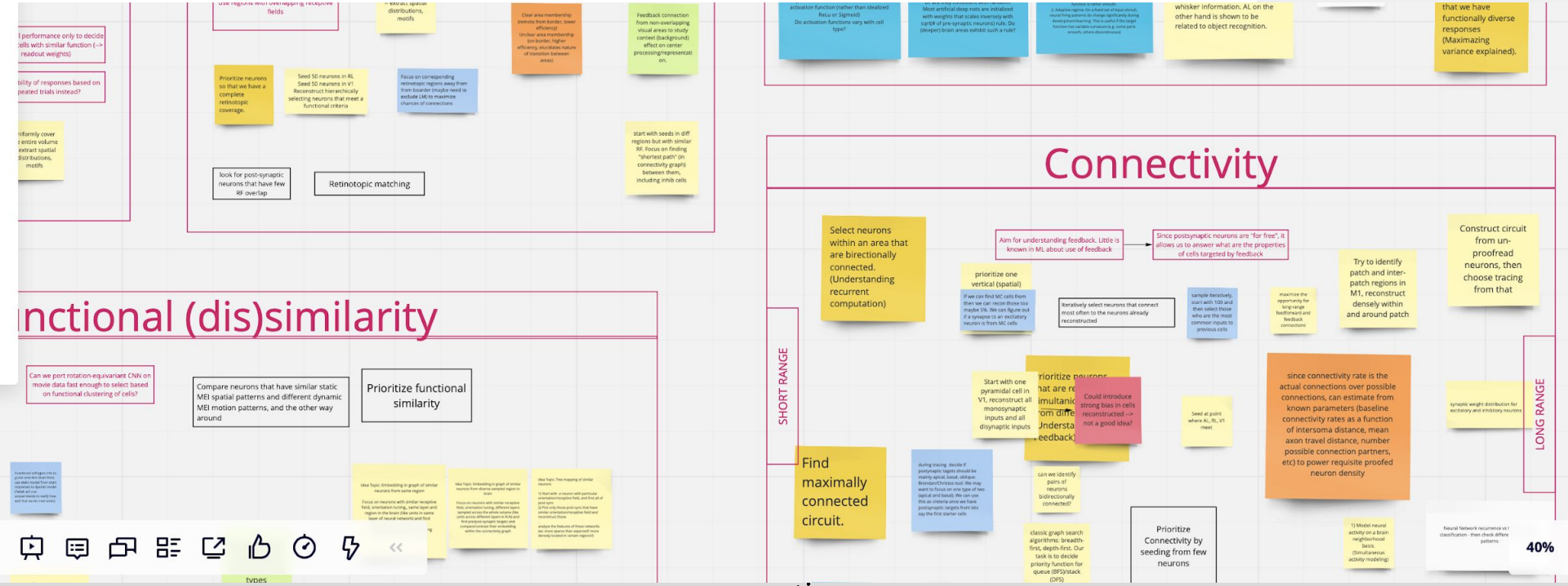
Projects – Week 3 schedule

All groups *must* finish their projects by the end of W3D4

Complete is more important than *spectacular*!

- Make a 10min project presentation + recording
- Upload on poster session server
  - Details TBA
- Live presentations on W3D5 (second half of the day)
  - Including Q&A
  - Posters will also stay available for later!

Projects Day 2 – Brainstorming with Miro boards



Projects Day 2 – Brainstorming phases

- Expansion
  - Free flow of ideas.
  - **No judgement!**
  - Start with quiet time (15 min) for independent idea generation.
  - Each person briefly describes favorite 1 or 2 ideas to pod (1 min)
  - Responses with positivity: “Yes, and…”
  - Collect ideas by similarity / affinity
  - Divide randomly into breakout rooms (10 min, 2x) to discuss and organize
- Contraction
  - Critique, modify, synthesize, prioritize
  - Stay positive, stay **realistic**. You only have 20–40 hours for projects.

Projects Days 3-4 – groupings

Time to form project groups from within your pod!

Find consensus projects

- List ideas on Miro board
- Use your own ideas, or start from examples we provided
- Type your name under projects you'd like

Solve brain		Make brain	
Xaq	Gunnar	Athena	Konrad
Tara		Eric	Titipat
Paul		Marius	

Projects Day 3-4 – groupings

Teams of around 4 are ideal.

Teammates should have **compatible time expectations** for project.

Embrace diversity: mix of quantitative and biology experience can be synergistic

Respect differences: teams are matched from across the globe, and cultural standards and personal styles differ

Support your teammates; give everyone a voice

Project resources

We provide many project examples to get ideas flowing.

Slide deck is here.

We recommend using curated datasets.

Videos about these data are here.

Day 5: Go through 10 steps of How-to-Model [eNeuro paper]

Projects – final thoughts

Projects are a key part of summer schools.
Relationships you forge in working with other students, TAs, and mentors can last a long time!

Over Zoom, things will be different. Keep us updated so we can improve.

This is science! **Most of what we try doesn't work**. That's okay.

Enjoy the process of asking and answering scientific questions!