

# **Evaluation Summary Report**

Tutorial: Game Theoretical Modeling of Evolution in Structured Populations

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Figure 1. Agreement with the following statements about this tutorial:

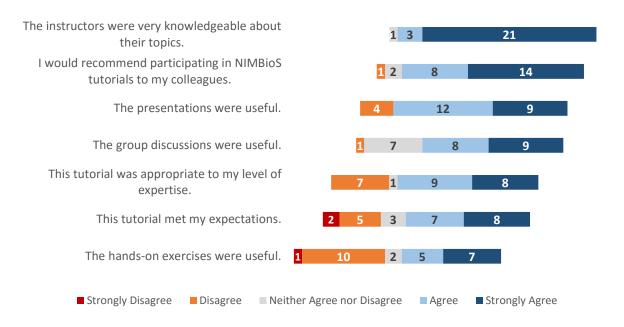


Figure 2. Agreement with "As a result of participating in this tutorial, I have a better understanding of..."

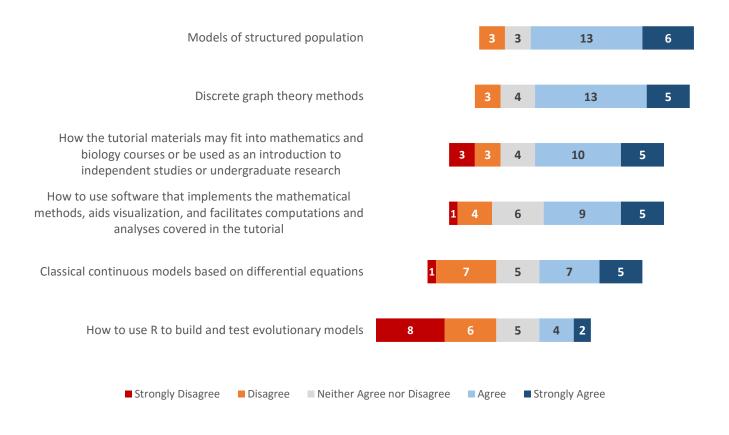
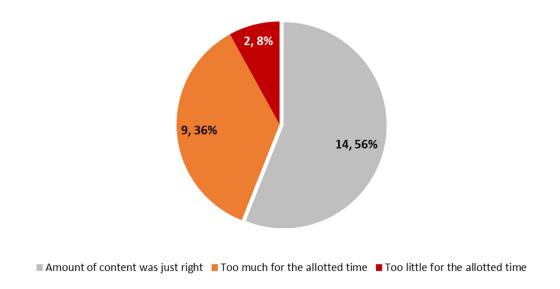


Figure 3. Feelings towards the amount of content offered during the tutorial



Open-ended feedback: "What topics would you have liked to have covered in this tutorial if given more time?"

More explanation of game theoretic modeling; strategies, payoffs. Exercises not in Matlab (would prefer open source). More time dedicated to exercises with clear documentation and potential extensions.

Agent-based modeling.

Implementation of machine learning in game theoretical modelling

More on building a game theoretical model from scratch and coding it.

I am happy with what was offered

I would have like more hands on and introductory materials.

Broader introduction to game theory More practical approaches to modeling structured populations other than the specific methods some of the organizers use

Discussion about how to incorporate evolutionary game theory studies into classrooms. That was not mentioned

I felt like the tutorial was a mixed bag of research presentations and hands on work. I would have liked more hands on work, and perhaps something that brought everyone to the same level initially before going through more complicated models.

The "tutorial" did not feel like a tutorial at all. Rather, it seemed like an introduction to the organizers personal research with a couple of random seminars thrown in.

Figure 4. Feelings about the format of the tutorial



#### Open-ended feedback: "The tutorial format would have been more effective if..."

more focused lectures; 2. More unified exercises in theme and skill level; 3. Greater emphasis on group project/working We had more time for group/lab work.

It had made room from someone like me who is new to the field and would like hands on that will help get me going on my first project on it.

See previous comments, i.e., less fast talks and more practical advice

Focus on the basics

Less time had been dedicated to giving detailed examples of the instructors' research, and more time had been dedicated to (1) broader overviews of the biological relevance of these techniques, (2) group activities to develop and "play" with game theory models, and (3) practical instruction on how to implement these methods

Figure 5. Satisfaction with the opportunities provided during tutorial presentations and discussions to ask questions and/or make comments



# Open-ended feedback: "What do you feel was the most useful aspect of the tutorial?"

What do you feel was the most useful aspect of the tutorial?

Meeting the instructors and students; getting a wider worldview of statistical and mechanistic modeling broadly under graph theory

Group discussions

The overviews and summaries of certain areas of research.

Tutors' presentations about their work

General introduction to game theory and the coding.

*Information on the modelling of structured populations* 

Exposure to various studies modeling social evolution

Review of the graph theory and game theory

Hands on work

The introduction talks where they discussed the differences between basic game theory and evolutionary game theory and how to model evolution on a graph. I also enjoyed most of the research talks.

Interaction with colleagues interesting in spatial game theoretic models was great!

Meeting some people I would not have otherwise met.

# Open-ended feedback: "What would you change about the tutorial?"

I would allot more time to introductory models of game theory for those who are very unfamiliar with the techniques...

Instead of high level seminars dedicated to cutting edge research in quite disparate sub fields, have a more unified approach and a greater emphasis on explaining the mathematics and simulation/mechanistic modeling of interacting players (with subsequent transition to structured populations if time allows). It was frustrating when the instructors would skip over the proofs as these are the least intuitive parts of papers, and would build intuition to walk through (at least at a hand wavey level).

Greater effort to cater to the wide range of existing knowledge (beginners to experienced) in tutorial (computer) exercises.

I would have a more ground-up working session. I would introduce a very simple model and show participants how to code that model in a relevant language (e.g., R or MatLab). Then I would encourage participants to extend the model and suggest ways of doing so, giving them a few tool coding tools for doing so.

Talks that followed a more cohesive them. Also, different talks assumed very different levels of background knowledge.

More time to coding new problems and group work

I would change the entire structure of the "tutorial" -- there was very little time spent on actual tutorial material, and speakers in some cases put zero effort into tailoring talks for the audience. In many cases, talks seemed to be preexisting research talks, and not geared towards a tutorial audience. In one case, the speaker even presented a talk by prefacing it with "I'm not actually going to talk about game theory" which was totally inappropriate for a game theory tutorial.

More hands on tutorials

The matlab tutorials could have been a little more structured such that the tasks required of us could have been broken down into specific objectives with certain goals.

In my opinion this tutorial was more like a workshop, with speakers presenting their own work. I did not find the Matlab exercises very useful because they used one approach that seems quite specific. I would have preferred demonstrations of more practical approaches.

More basic theory and examples

More constructive problems

Matlab sessions were not very useful as given to us. They generally included looking at other people's code and maybe playing around with parameters. It would be useful to have structured activities where we can model sample games and actually learn how/why the code works, so we can modify it later for our own uses.

I would make it more of a tutorial, more code exercises, more time for projects.

Focus on the basics.

The instructors are clearly highly enthusiastic about their work, and skilled users of game theory. However, I think their approach to teaching the tutorial could be improved. While most of the talks began with an overview of the utility of game theory, they typically quickly turned into dense research talks. The results presented were interesting, but I don't personally feel that this was appropriate for a "tutorial" if the goal is for participants to then have the ability to use these skills themselves. Other NIMBioS tutorials that I have attended have used "lecture" time for "teaching" rather than "research" talks, and I found this to be more effective at transmitting content that tutorial participants could then use.

### Open-ended feedback: "Please indicate any suggestions you have for facilitating communication among participants during the tutorial:"

Not enough time left at the end of talks for questions.

No fancy technology please; it just gets in the way.

# Open-ended feedback: "Please use this space for any additional comments:"

We were very impressed by the quality of the delegates who came, and by the way our tutorial was supported. Thanks a lot! The event was well organized. Thank you.

People look at their phones/computers enough already. Please don't encourage it further---particularly as a means of "communication"---in tutorials.