



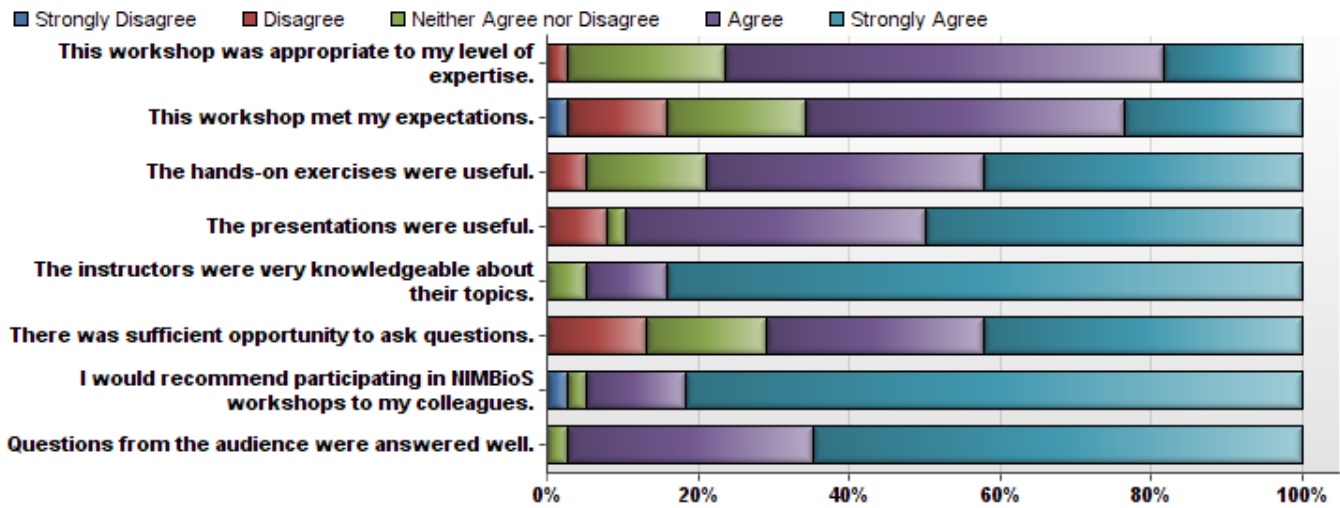
# Evaluation Summary Report

Workshop: *Current Issues in Statistical Ecology*

April 15-17, 2015

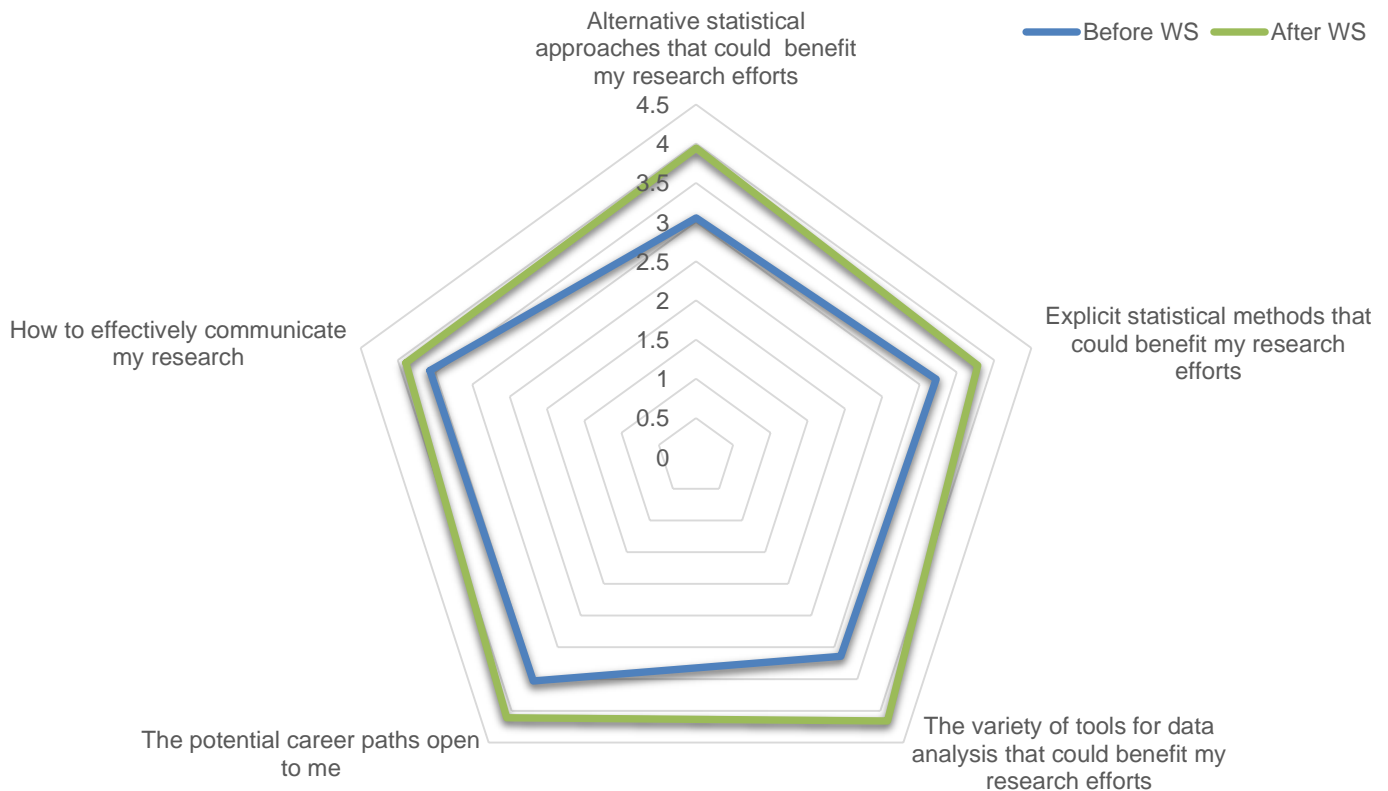
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**Please indicate your level of agreement with the following statements about this workshop:**

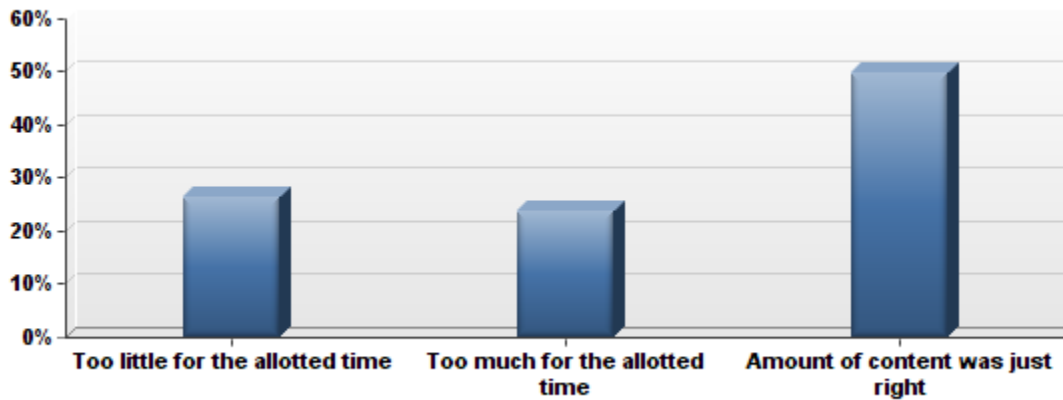


**Please rate your understanding/knowledge of the following topics before and after participation in the workshop:**

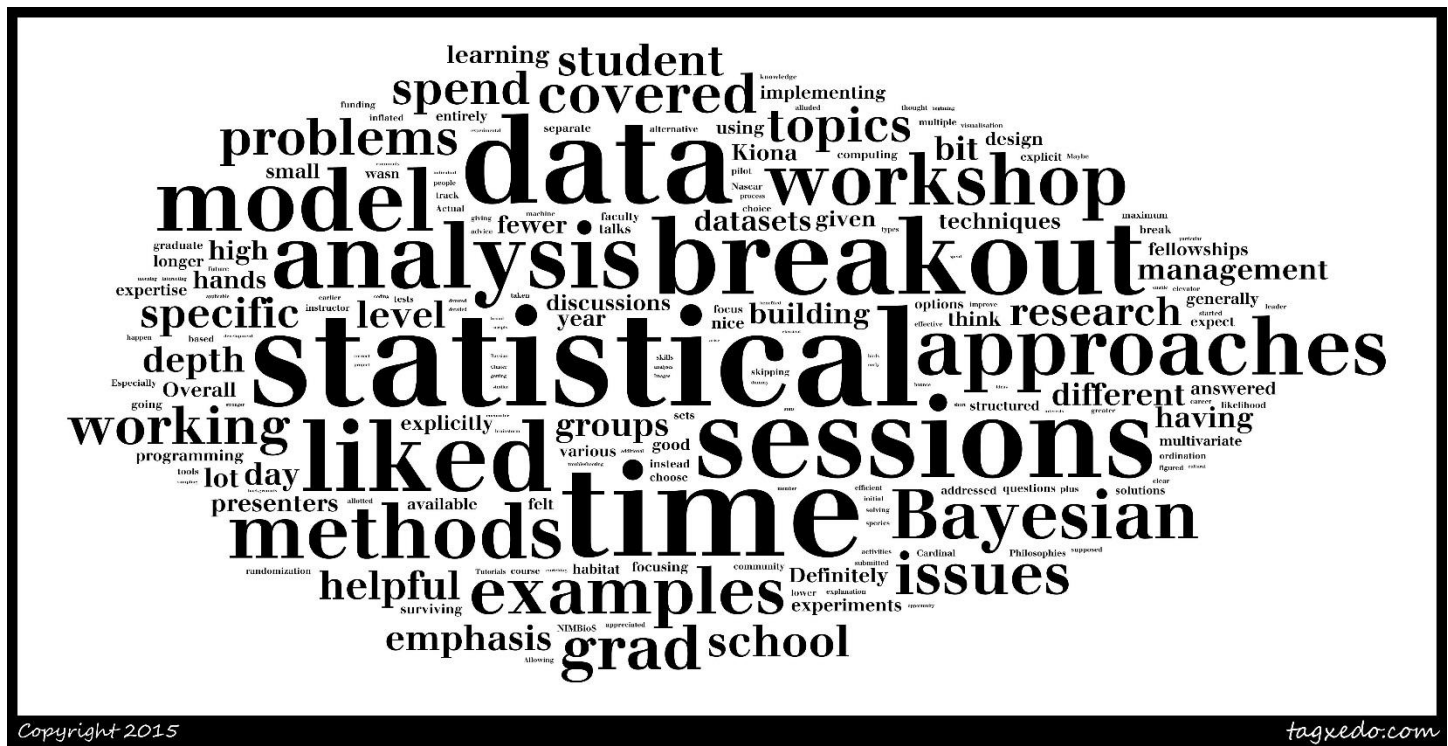
Average response on a scale of 1 = "Extremely Poor" to 5 = "Excellent"



## How do you feel about the amount of content offered during the workshop?



## What topics would you have liked to have covered in this workshop if given more time?



*More computing would have been useful, and a more explicit data management course would also have been helpful.*

*Designing experiments based on pilot data*

*I would have liked to see the same toy dataset with one instructor implementing a Bayesian approach, and another implementing maximum likelihood.*

*Analysis or statistical tools covering zero inflated datasets*

*Multiple ways to get to the same answer. For example working the same problem in R, SASS, JMP, etc. So that we could make the best choice for ourselves.*

*NIMBioS fellowship or statistics fellowships and funding available to us.*

*Philosophies of research/ data analysis. Cardinal do's and do not's of data analysis.*

*I felt that a lot of the topics covered were covered at a very very high level, and there could have been more emphasis on high (but lower than presented) level of expertise. I sometimes felt like I was skipping along on a Nascar race track.*

*Especially for the breakout sessions, it would have been nice to have longer but fewer breakout sessions so that there was enough time to go into depth.*

*Randomization tests*

*Actual programming on Bayesian methods in R and Jags*

*SEM/path models*

*Alternative community analysis methods (ordination plus)*

*Machine learning*

*More hands-on activities. Kiona's breakouts were very good, given the time allotted, but could have been more effective if there were more time and/or fewer people per leader for the breakouts.*

*Tutorials in various R topics are always helpful.*

*I would have liked to see more about statistical methods in general. Since this was supposed to be a workshop focusing on statistical techniques, I did not expect that so much time would be spend on discussions about grad school. For example, there were only three students out of 50 who had just started grad school but we spend an hour giving them advice how to survive the first years. That is not efficient and did not improve my knowledge about statistic methods.*

*Overall a lot of time was spend on non-statistical topics, like surviving grad school, elevator talks and career options. I would have rather spend this time learning techniques and problem solving skills. Overall I thought those grad school discussions were not helpful at all.*

*More specific hands-on R workshops*

*I was not sure what to expect from the workshop, however I figured we would be covering statistical approaches to research methods a lot more. In the future an emphasis on this approach would be appreciated. If only we had more time to do so.*

*Would have liked to have some data visualization topics.*

*I would have liked to have a bit more structured time with specific data types - like multivariate species-habitat data, for example. I wasn't entirely clear what was going to happen with the datasets that we submitted; it would have been nice to more explicitly go through them in the initial breakout sessions. Also, more Bayesian modeling!*

*I would have liked to have seen a greater emphasis, earlier on, on hands-on data analysis. Maybe explicitly working through examples with the faculty in small groups. Allowing those faculty to choose examples of interest to them and examples they are have high expertise in.*

*Perhaps a bit more of the research process and "talking through" different approaches that could be taken.*

*I would have liked specific statistical issues to be covered in the workshop, and more in depth explanation of how these issues were addressed. Many of the presenters alluded to statistical issues and solutions, but there wasn't enough time to go into more depth. Perhaps presenters could focus more on statistical issues that arise commonly in their research, and break-out sessions could focus on solutions for these issues, using dummy data.*

*If given more time, I would have spent another two days in a separate breakout session. That said, I think that my questions were well answered and my interest was well met in the particular breakout session that I sat through.*

*Images analysis*

*Cluster analysis*

*Bayesian, more explicitly.*

*Bayesian statistics*

*A more detailed session or discussion on the available options for data management.*

*Model building with our data sets and problems. (Like Kiona's working group)*

*I would have liked a stronger emphasis on Bayesian methods and specifics about model building, statistical techniques, etc.*

*Something very enriching of the program was definitely to have graduate students from different levels and backgrounds interacting. That structure enable us to bounce of ideas and brainstorm even further about our statistical approaches to our questions of interest. But I also think it would be good to have individual breakout sessions to address each different level of the graduate student experience. Definitely the problems that a 5 year grad student is going to encounter are very different from the issues a 1 year student will face. Definitely having separate sessions for the early birds in grad school about experimental design, data management, and how to choose the correct statistical approach for your project would be very helpful.*

*If given more time, I would have liked to spend more time on fewer overall topics. I feel that I could have learned more by getting into specific coding or model development for generally applicable data sets, such as those worked on with Dr. Kiona Ogle. Instead of having short breakout sessions on veg, habitat, cultural etc., we could have breakout sessions that are a bit longer and instead are focused on various statistical analysis methods, such as Bayesian approaches, classical stats, glms, etc.*

*Multivariate Statistics*

*Deal with sampling over time*

*Building statistical models and troubleshooting r scripts*

*I would have liked to have more opportunity to go in depth. I think this went well towards the end of the workshop, but the beginning was a bit broader.*

*Model building*

*Perhaps having an additional workshop day devoted to one breakout session of small groups with similar interests with each member having their small group work through some of their analyses problems. We did this on the last day of the workshop, but I could have benefited more if we had an entire day of this rather than a morning.*

*Modeling*



*What might have been additionally cool would have been to have each faculty member give a bit of a follow-up session, whether hands-on or not, that would either demonstrate the programming for their methods, or simply go through in greater detail how they arrived at their results. These follow-up sessions could be simultaneous, perhaps, since most students wouldn't be interested in hearing all the follow-ups, and that way the groups could be smaller too.*

*The break out session were the best part about the workshop. However, they could have been structured better.*

*In one of the sessions the instructor literally said that he doesn't know anything about the topic and didn't know why he was there.*

*The breakout sessions with the workshop leaders*

*Building a model with Bayesian statistics with Kiona*

*The break out work groups where we actually talked about stats and methods.*

*The R and big data workshop and learning about new methods I didn't even know existed.*

*It was really great to have such fantastic workshop leaders be so fully engaged with us for nearly 3 days! Furthermore, the level of expertise in the students themselves was really high -- we could learn a lot from each other. I really liked the format of the workshop: lectures and breakout sessions interspersed together. I liked how flexible the workshop leaders were with respect to changing the formats of the breakout sessions based on what we wanted to do. Also, it was very interesting to see the diversity in the projects (and backgrounds) of the students and the types of problems that people were having with analyzing their data.*

*I felt that the final day of small group sessions working on the data with different faculty was the most helpful session. Whether it was working through a single data set and outlining the models, or just chatting project design and analyses with peers.*

*I think the breakout sessions were most useful*

*The most useful part for me was attending breakout sessions where we addressed how to build linear, hierarchical and Bayesian models for a given student's data, and eventually programmed a model in openbugs. I also enjoyed having so many peers to interact with, and the words of support from the presenters.*

*Exposure to new statistical techniques and coverage of their application. I was exposed to Integral Projection Models (and their application), Bayesian approaches for meta-analysis and antecedent effects on systems, as well as Power Spectrum analyses, all of which were new to me. These techniques will probably inform my future work in some way, which will end up being the most useful aspect from the workshop.*

*Meeting people that have your same problems and getting help with people from other disciplines that can be address to my research.*

*Break out session on Friday morning that was long enough to work through problems, networking with other grad students and the workshop leaders.*

*Breakout sessions, oral presentations (when the speakers were talking about their experiences), alternative career panel.*

*I thought that the career panel was very useful. I also thought that the discussions on publishing research and how to make your work appealing and citable were valuable.*

*Hearing research from our facilitators, their problems, and how they set out to resolve it with different statistical approaches.*

*The last breakout session was very useful*

*I really enjoyed how proactive and energetic students and faculty were about their interest and about science in general. For me, the most useful aspect of the workshop was the professional development side of it: how to develop your 30 second elevator speech, the career panels, and how to be successful in grad school. As I will be starting a PhD program in the Fall, these definitely came at a perfect time for me.*

*I have had my mind opened to the possibilities of Bayesian approaches. Anytime a presenter or adviser talked about why and how they chose a specific analysis, I appreciated that very much. Also, the career panel was extremely helpful to me.*

*I thought the career panel was excellent!*

*All of the workshop topics were really useful, I particularly enjoyed the breakout sessions where we built statistical models or talked about a particular stats technique (i.e., power analysis). I also really liked both career panels!*

*I loved how some of the instructors went very in depth and answered questions about how to apply analyses to different types of data. It really opened a whole new perspective for me and I have done a lot more research on some approaches after the workshop ended.*

*The presentations and some breakout sessions*

*The breakout sessions because they allowed me to discuss my problems with colleagues and hear what approaches they use.*

*Informal environment ... Humble faculty and accessibility*

## What would you change about the workshop?



*I was a bit disappointed that Jim Clark didn't attend. The question about the model I came with could not be answered by the people in attendance but might have been answerable by him. His profile was advertised on the workshop page which was a bit misleading.*

*Longer breakout sessions*

*I would be more explicit about the expectations. Rather than have students bring their own datasets (which resulted in the more senior students dominating the breakout sessions), it would be good to have a range of toy datasets to learn from. Everyone could still ask questions related to their own statistical problems, but I think more students could get something out of the breakout sessions.*



*Changing the date to summer so that it will have less impact on the classes.*

*Need to increase the days for the workshop.*

*Have more time, and follow a more linear development, for example, general statistical methods for everyone, then new techniques, then specific techniques for different disciplines (birds, environment, plants etc.)*

*Sometime should be dedicated to the initial collection of data as well.*

*Finally, I would like there to be explicit discussion on trends in statistical treatment of broad areas of data such as marine data, birds, genetics etc.*

*A short aerobic stretching routine to start the day.*

*More time for Q and A at the end of presentations. More preparation before the workshop in coordinating who has what problems. For instance, there were 2 people that had completely different data sets but essentially had the same problem, difference in observational quality due to training in observers/interest etc. I think it would have been great if they had been able to identify this and therefore been able to collaborate on ways of solving this bias. Perhaps this could be done via a pre workshop questionnaire with key words.*

*More could have been accomplished if expectations for the workshop were made clear ahead of time. In particular, a tagging system for word press posts about research interests could have facilitated people with similar problems finding each other once at the workshop. Or a brief webinar or video so that attendees knew how to prepare for the workshop.*

*More continuity in break-out sessions so that attendees can see the whole process in tackling a data set or research question.*

*More work on data analysis and examples, and R codes*

*Less content on being a 'good' graduate student/or surviving graduate school and more emphasis on statistical methods*

*I think it was too open-ended. Maybe the goals need to be a little more concrete? I liked the break out groups, but sometimes we got stuck with one person talking the whole time about their data and it would have been nice to have smaller groups where each person could have a chance to speak. I like peer-peer brainstorming as well, and though some peer groups self-organized by the end of the workshop, it could have been facilitated earlier*

*I was a little unclear about whether this was supposed to be a broad overview for people who were completely unfamiliar with statistical methods beyond, say, anova and regression, or if it was supposed to be in more detail (for people with datasets requiring more advanced methods, but who might already be somewhat familiar with the more complex methods, etc.) I think the workshop could benefit from swinging more in one direction or the other, rather than trying to straddle the line?*

*Bring the focus on statistics. I like the idea of talks and breakout sessions, but here the talks were focused on the research the person did instead of techniques. One presenter said something like "we had a lot of trouble with the statistical methods, so I'm just showing what we ended up doing". That's the point, that's why I'm there, that's what I wanted to hear, how did you solve the problem, what didn't work and why. It's nice to hear about other people's research but for me it was not the point to hear about a particular project.*

*In my opinion it would have been better to give little lectures on methods and show how they are applied in different researches and projects and where they find their limitations. Then in the breakout session we could have looked at our data and see where we apply them or why not.*

*More hands on working with data or model implementation*

*I would have liked the breakout sessions to have been a little more structured. By the second and third days, they seemed to be working better, but on the first day, none of the facilitators seemed to have a clear purpose.*

*More hands-on, and better organized break-outs the first day.*

*Less time allotted to professional development or personal stories. Although I really appreciated the story it would be nice to spend more time on stats.*

*Probably gear all the talks to an introductory level as the purpose is to just introduce participants to the ideas. For example for the Bayesian analysis presentations we went into a lot of depth which was tough to follow without a background. I thought a survey of Bayesian methods would have been more effective.*

*Perhaps organize the breakout sessions a bit more prior to the start of the workshop. One suggestion that came out of the discussion at the close of the workshop is to ask everyone to participate in a group conference / Skype call prior to coming so we could present the types of data that we work with and our general struggles/issues with analyzing our data. But overall, organized very well and fantastic workshop!*

*I would have allowed the faculty more freedom to choose what they would like to teach. And I think that the earlier break-out sessions were not clear prior to arriving at UT-Knoxville. And were furthermore generally too broad of topics to make it easy to address the interest/data-set-relevance of all students in attendance.*

*I think that I would change the ambitiousness of the program, or at least make it more focused. For example, the facilitator talks tried to cover a wide range of topics which inevitably led to them going over time. Focusing talks or separating into multiple talks could have provided better coverage of their statistical approaches and academic lessons without glossing over parts of either.*

*I would change the focus of the presentations and the breakout sessions, to make more time for deeper exploration of statistical issues. While I think career advice is important, perhaps the non-academic/academic career presentations could be optional, so that younger students could attend, and older students could meet to continue working on statistical issues.*

*It would be great to have short presentations from some NIMBIOS post docs. I think grad students of all ages would be interested in hearing more about their research, meeting post docs would open up more possibilities of collaboration."*

*I would suggest that all of the breakout sessions be at least 2 hours, continuous time. One hour left wanting for more in-depth discussions.*

*I would make the breakout sessions longer with more moderators that can help all students.*

*More time in breakout sessions -- I prefer a few topics really to be taught rather than many only introduced. Also, I would prefer to spend time on issues in statistical ecology only -- no career panel, surviving grad school, etc. While useful, the other content comes from other sources; I would have liked to have talked about statistics more.*

*Send the agenda in advance. Make the introductions a little bit more technical maybe do a small sentence on your research project and then other questions to be answer with keywords or yes/no. This way people can anticipate and prepare better for the week. Instead of submitting data sets just work with a complex data set that could potentially cover the main problems that people are having with their data analysis.*

*As was discussed at the end of the meeting, I think that some pre-meeting activities would be good. Either to get students together who are working on the same problems, or to give a better idea of what the breakout session objectives are.*

Less time allotted to the career panel, more time towards questions from the audience after presentations, more hands-on activities.

I would focus on statistics. Far too much of the time was spent talking about how the speakers got to where they were today, career advice, and diversity. Too much reflection and feelings. I really wanted more about what the workshop was ostensibly about: statistics.

On the first day, the breakout leaders seemed a bit lost, especially Lucas Joppa. I went to one session with him in which nothing at all happened. I could have gone to another session concurrently.

I think I would devote more time to the breakout sessions. Make them longer than shorter. Also have the call for the workshop tell the people exactly what type of stats the project leaders know in depth. That way participants have a feel of what they will be working on and what type of help they can give.

Really nothing-- it was great and was so helpful! It would be great to have a smaller group of students, but it's also important to include as many people as possible.

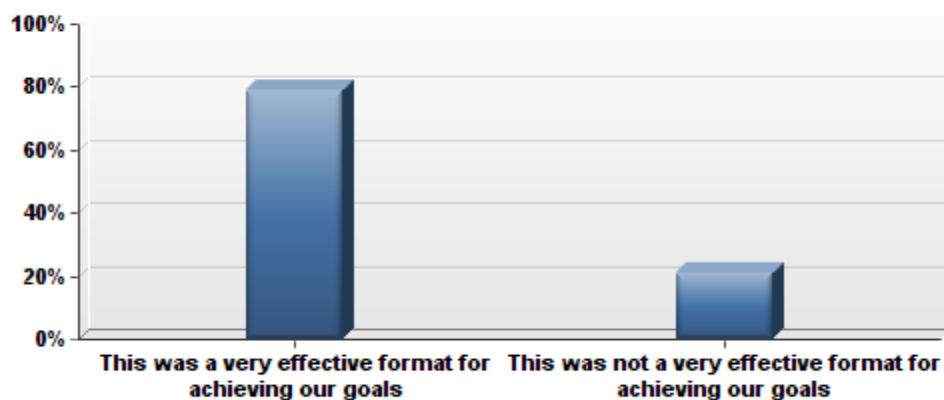
In the future a change in structure might be nice. Instead of spreading out the talks, maybe have them all on the first day. That way students can have a better idea of the instructors' areas of expertise. The breakout sessions would likely be much more productive and also give the students a chance to reflect on some of the approaches before trying to understand them more.

A bit more structure during breakout sessions

Less time on the career panels. Although I thoroughly enjoyed them, both the academic and non-academic career panels were the two scheduled events in the workshop that went way over the scheduled allotted time. For example, the academic career panel ran for 1 hr. 45 min rather than the scheduled one hour.

Nothing important

## **How do you feel about the format of the workshop?**





*I think there was a bit too much time spent on career panel things and not enough time spent on statistical topics that could be useful. Rather than grouping by data, maybe group by topics. Ex// I would have liked to learn more about downscaling: in the nitty gritty of it, but we never really went there.*

*The workshop was wonderful! It was well-organized, and the workshop leaders put a lot into it and clearly cared a lot about their work and helping us learn. They were very knowledgeable and very approachable, as were the other students at the workshop. I'm thrilled that I had the opportunity to participate.*

*I would just like the organizers to remind the further-along students that this workshop isn't just about them, that we have a diversity of experience and that to focus solely on analyzing their thesis data would necessarily make it less useful to the rest of us. I found Drew's HPC talk useful, but he used a lot of acronyms which made the material seem hard and scary, particularly for beginners. I would also have liked a graduate student to help plan the workshop and reinforce the message of "we are all in this together," a very SEEDS approach.*

*It was an excellent opportunity. Thanks for the organizer for an effective workshop.*

*The Leadership was what made this workshop so successful, especially Lou keeping us on time (mostly)*

*Top notch!!! ... Really, one of the best workshop-type activities that I have participated in, in a long time.*

*Thank you all so much for your thoughtful planning and sincere advice and help. I really appreciate the opportunity and hope to see you again"*

*I will definitely be telling others to be watching out for this type of workshop! PLEASE have more like this!!*

*Well-organized and a lot of fun!*

*Thank you very much for your effort and time*

*The format was good, with independent breakout sessions and choices; we were beginning the process of approaching data with different statistical methods but ended prematurely due to time restraints and other sessions. I also felt I didn't bond strongly with other participants as there wasn't any activities outside of the workshop e.g. A group dinner, or a short field trip*

*I had a wonderful time - such a rewarding experience! I don't have the opportunity to do things like this at my home institution and it was so valuable for me. Today I'm going to sit down and work on implementing a Bayesian model thanks to Brian and Kiona's help. Things that seemed too intimidating to do before now seem reasonable! I also hope to keep working with some of the people I met at this workshop, so it was great for making connections.*

*I was especially impressed with the diversity of students in the room. I've been at a few different institutions, but it's been a long while since I've been in a room with so many students of color. Kudos to the outreach/application process that created this result. I also thought the faculty were all outstanding. The fact that all our expenses were completely covered was also impressive.*

*The pre-workshop organization was excellent! Jennifer did an excellent job organizing all the travel arrangements. The hotel and food was awesome.*

*Maybe a schedule could have been released before the meeting.*

*Some people said that it would have been better if everybody had submitted a data set and brought two or three specific questions that they had. I did exactly that and did not get the chance to work on my data set and may questions could not be answered.*

*I believe this is a very unique opportunity for students to get expose/update on ecological statistics, regardless the previous knowledge on the topic. There was something for everybody to learn. It is also a great opportunity to network with graduate students and professors. The NIMBioS team was amazing, I look forward to come back*

*As in the wrap-up I suggest more group work to foster collaborations that can continue outside the workshop.*

*A point that cannot be understated is that so many of us ecology graduate students lack sufficient resources at our home institutions to learn about ways to manipulate and analyze our datasets to address our scientific questions. Particularly with the rise of large data sets (Big Data), many of our advisors do not know how to deal with those kinds of data, and we are left on our own to figure things out. Furthermore, with more and more sophisticated statistical*

tools (e.g. Machine learning type tools, Bayesian modeling, etc.), our universities often cannot keep up with the training necessary for ecology/biology graduate students. A workshop like this is invaluable for us in both learning from expert faculty members as well as learning from each other. The career development aspect of the workshop was also greatly appreciated. It was nice to be able to ask questions of the academic and non-academic career forums. Lastly, the diversity factor cannot be ignored -- fantastic to have people from many different backgrounds, universities, and regions of the US participate in this graduate workshop!

Everyone was supremely nice and the workshop was very well advertised. I enjoyed getting to meet students from all over the country with such diverse scientific, mathematic, and personal interests and backgrounds. I think this is in particular a true strength of the program. Getting to the diversity of methodologies employed by different senior scientists was also very beneficial for exposing me to new ideas and techniques.

Overall this was a really good workshop. It varied from what I was picturing pre-workshop. I appreciated the "adaptive" nature of the workshop and the coordinators did a good job of fostering this.

As stated previously, I really enjoyed this workshop. I liked meeting other peers in similar areas of research, honing research presentation skills, and learning about ecology/statistic professors' research. I felt that overall, the workshop provided a wave of inspiration to learn more about statistical methods on my own, and to pursue as many further opportunities for statistics workshops and collaborations as possible. However, I think that we could have learned more about statistical solutions if the presenters had focused more on this topic rather than their career success, and if breakout sessions (at least the first set or two) were organized to focus on specific case studies of statistical issues/solutions that each presenter has encountered.

I am very grateful for the opportunity and support provided by NIMBioS, and thank everyone involved in organizing the workshop. A very impactful experience for me.

I really enjoy the workshop and the presenters. It was a great environment to learn statistics and compare your project with other student's project. I did not only received help from the presenters also from other scientists in NIMBioS.

Thanks again, this was a great career building experience for me and I learned a lot.

Overall, great experience. We only spent a few days together, but they were very productive. I can say that I expanded my statistical tool box, or at least I am more aware of the ways we can see the issues with our data and use the most effective way to address them.

I am immensely thankful for having the opportunity to participate in this workshop. As an early graduate student, these three days gave me knowledge and confidence that I will carry with me into the future. I have no doubt that I will be at the leading edge of my field because of what I learned at NIMBioS, both with the leaders and fellow students. Please support this event for years to come. The hospitality was phenomenal as well!

This was an amazing workshop, it was extremely helpful to me! I made a lot of progress in my understanding of stats techniques and how to deal with complex data. Mostly, it made me feel really excited and enthusiastic about data analysis and statistical ecology! This was definitely one of the best and most helpful experiences I've had in graduate school.

If I were to do this again, I would have more 'lecture' materials prepared ahead of time as the students seemed to be eager for this sort of instruction, even though this was not an aim of the workshop.

After attending this workshop, I truly feel "enlightened". I have a new set of tools to fix my current problems. I also am able to see improvements I can make for previous projects and provide suggestions for some of my colleagues' work. This has been such an amazing experience and I know my future career path has been impacted. Thank you so much for this opportunity. You all are so amazing. I hope this workshop continues to be offered so more students can have the opportunity attend and become "enlightened" as well.

Good work NIMBioS and other sponsoring partners! I would like to see more opportunities like these offered to graduate students.

Lou is a fantastic leader and Kiona did an incredible job dealing with explicit problems.