

Guide to the Arizona Winter School

Welcome to the Arizona Winter School! The next five days are going to be intense, so before you plunge in, look over these suggestions on how to get the most out of them. We've divided the suggestions into three sections, one for students, one for speakers, and one for postdoctoral assistants (feel free to cheat and look at the other sections if you want).

1 For students

The most important thing to remember is that the Arizona Winter School is for you, not for the speakers, postdocs, or other people attending the workshop. The courses, notes, projects, problems, and study groups have been designed for you. Take part in them!

1.1 How it all works

There are four (sometimes five) related topics of each school. For every topic, we have invited an expert (or two) to give a series of talks, for which lecture notes are posted in advance. We have also asked the speakers to propose in advance a related project on which some of you will be working. Each speaker has requested and been assigned a postdoctoral (sometimes tenure-track, even) assistant to help with the project. In addition, we have asked one or two postdoctoral fellows to create problems that can be worked on during the school.

You get to rank preferences for whether you wish to work in a particular project group, problem session, or study group. You will be assigned in groups to one of these, though you should feel free to move around if it suits you better when the time comes (at least unofficially... you will usually not be part of the presentation if you weren't that project group in the first place, though). If you're in a project group, you'll be working with the speaker (your team leader) and postdoctoral assistant for that lecture series both before and during the school, and you will be part of a presentation with your team members at the end. If you're in a problem session, then you'll work with the postdoctoral fellow and your fellow students on the fun and challenging problem sets during the evenings. If you're in a study group, then you'll work with you fellow students to understand the material of one of the courses, and yes, the speaker and postdoctoral assistant for that course should be happy to help if you don't understand something: just ask!

1.2 Before the school (i.e., now!)

Read the project descriptions, lecture notes, and problems that have been posted on the AWS web site. If you're in a project group or study group, try to at least read those for your group, all of them if at all possible. Follow up on the references cited, and discuss them with your team members. Start to think about the projects that have been proposed. If you don't understand something, email your team leader and your team members with your questions.

You aren't going to have a lot of time to do all of this during the school itself. If you come as prepared as you possibly can, you will get a lot more out of it. If you feel overwhelmed by the project description, show it and the lecture notes to your Ph.D. advisor and ask for suggested background reading. If you have time, organize a local seminar at your institution on background material for one or more of the topics.

1.3 Lectures

Read the notes in advance. Don't be afraid to ask questions during the lectures. Grab the front rows; they are for you. If you don't want to ask a question during the lecture, go up to the speaker afterwards. If there are points you don't understand, ask the speaker to clarify them.

1.4 Working groups

There's a good chance that some of you will get stuck or very confused at some point during your work on your assigned task. Don't think that you are the only one! There are plenty of others who are and have been in the same boat. There are many people you can ask for help: your team leader, your fellow team members, a friendly postdoc or senior graduate student who happens to be floating around, or one of the organizers of the school. Go back and look at the lecture notes and papers that you read in preparation for the school, and see if they shed any new light on the problem.

1.5 Evening sessions

These are where most of the work and learning happens. Take advantage! Ask one of the speakers or postdocs to expand on that day's topic, or to give a preview of what is coming. Winter School alums will probably come down to watch you suffer; make them work by helping you (you'll be able to pick them by the fond smile of reminiscence on their faces).

"Ombudspeople" (typically a Winter School alum and a Southwestern Center member) will be available at the evening sessions and will try to resolve any issues that come up. If you are having trouble, but not quite sure who to ask or how to ask about it, then they are the people to go to.

1.6 Presentations

If you're in a project group, you won't have a lot of time to give your part of the presentation, so make it as brief and efficient as possible. Practice your presentation with other members of the group. Most novice speakers make the mistake of preparing too much material; don't try to fill up all the time available. You will have questions from the audience, and it generally takes longer to explain something than it does to think it through in your head. If you have messy details to report, don't report them. Summarize the key points or put them on an overhead slide. Coordinate with your team members so that you all use the same notation and don't have to repeat it.

1.7 What to do in your spare time

You don't need to worry about this, you won't have any (except perhaps for part of the wonderful free afternoon).

2 For speakers

2.1 Lectures

The most important thing to remember is that the Arizona Winter School is not for the big shots sitting in the front row (they should be sitting further back anyway), it is for the students. There is a wide range of levels, and we want to serve them all. Many AWS speakers have made the mistake of preparing too much material for the time available. It is better to make the talks clear and understandable and use the evening question sessions for filling in extra details. If at all possible, coordinate your presentations with the other speakers, especially if you think there might be some overlap in or relationship between your talks. A bit of coherence to the school goes a long way.

2.2 Working groups

A team of graduate students will be assigned the project you proposed. You are their team leader. You are responsible for getting them through the project, and preparing them to make a coherent presentation on their work at the end of the school. You will also have an assistant: please discuss the project with him or her beforehand. Take the time to get to know your students by email before the conference. If there are some who seem less prepared, suggest reading to them. Meet with your students early during the school, and set up a regular system of work sessions with them. In addition to mathematical help, they may well need help on how to prepare a presentation. Serious attention to the team projects can pay off well; in the past, some of the projects have produced publishable work.

2.3 Evening question sessions

The evening question sessions are a crucial part of your job; that's where students who didn't understand a point in your lecture can ask you about it, and that's where your team members will get guidance from you. This is where your assistant can be a great help: it's going to take a coordinated effort from both of you to get them through the task.

There is likely to be a separate study group working on understanding the material from your lectures as well. Please be willing to occasionally check on them and/or answer their questions so they can get the most possible out of the school as well.

2.4 What to do in your spare time

Alas, you won't have any of this either (again, except for the wonderful free afternoon).

3 For assistants

This brief section is for those who agreed to assist one of the speakers with their project group or run an evening problem session.

3.1 Project groups

Get to know your group early on! Why not introduce yourself before the school? If you're assisting a project, then while the speaker holds the ultimate responsibility for it, you play a crucial role in ensuring its success. Ask the speaker beforehand what is expected from you and how you're going to coordinate duties in the evenings. Often, you may want to arrange to meet with your group between lectures to chart their progress as well. Sometimes, you'll be able to give them that extra one-on-one attention that they need.

3.2 Problem sessions

Again, get to know your group early on. You're in charge of making the problem session run smoothly. Have your problems prepared well in advance. Have an idea in mind for how you would like the sessions to go, and be flexible when it comes to the actual sessions. Be ready to spend long hours with the students at the working session! And have lots of patience: they don't know the material as well as you do yet.

3.3 What to do in your spare time

Again, this does not exist, except (if you're lucky) you might get to enjoy the wonderful free afternoon.