Case Study
Expectations: In Over His Head

Tom arrives as a Research Experience for Undergraduates (REU) student, excited by the new research opportunities in front of him. After talking with him, Tom's mentor, Alice, learns that he is a junior at a small college where there are only two physics professors, one of whom knows a bit of astronomy. He has not had any astronomy or astrophysics courses, although he helped set up a new undergraduate observatory on the campus. He has had no experience with scientific computing. As Tom seems like a sharp student, Alice decides to engage him in an astrophysics research project that includes some computing elements.

Tom is enthusiastic about the numerical simulation project that he has been given. He is attentive during the first weeks as he receives a lot of preparatory information covering a wide array of subjects. His first steps in actually doing the project are slow and a bit tentative, which Alice chalks up to a steep learning curve. He puts in full days and asks a lot of questions, albeit rather elementary ones.

But by the fifth week, Alice begins to wonder if Tom may be in over his head. He isn't progressing with either the computing or the astrophysics as fast as she had expected. He has become quiet at team meetings now that the conversations have shifted toward ongoing research, and when questions are directed to him about his research, Tom answers curtly and without much content. He doesn't talk with the other REU students about his work, especially an REU student in the same research team who is making great progress.

Alice is concerned that the summer may be turning into a negative experience for Tom. But when she asks Tom how things are going, Tom says everything “is fine.” He still puts in many hours each day, although Alice is not sure what he is doing.

Alice wonders what to do now, if anything.

Case Study
Expectations: Mismatched Priorities

Jo was helping me collect data for a paper we hoped to submit for publication at the end of the semester. One of the last, key experiments we needed to run was a study of the temperature dependence of the sample's conductivity that required continuous data acquisition over about six hours. In order to have a long block of time available to us, I scheduled the experiment for a Saturday. Jo helped me get everything ready on Friday: we prepared all of our thin-film samples, soldered probes to the substrates, made certain we had a full liquid helium tank, calibrated the instrument, and gathered all of the other equipment we would need to conduct the experiment.

On Saturday morning I waited for several hours for Jo to show up but she never did. Finally I started the experiment myself. It wasn't a huge problem to have to do the experiment myself, but I was disappointed that Jo didn't show up. The next Monday, I expressed my disappointment, and her reply was, "The Pitchfork Music Festival was starting in Chicago, and I really wanted to go see this band playing there." I didn't know what to say.