JPL Education Office Project Plan Fact Sheet

**The preparation of a project plan has several important purposes:**

It ensures communication between you and your mentor and/or your co-mentor prior to the start of your project.

If well done, it shows that you have an understanding of what you will do and why the work is necessary or desirable.

It outlines the approach you will take to carry out your task.

It provides a schedule or timeline for accomplishing the individual steps and overall goals of your project.

It encourages your mentor and his or her staff to make the arrangements necessary to accommodate you and your needs before your arrival.

The purpose of these guidelines is not to provide a template that you must follow, but rather to suggest a structure for your paper and to encourage you to think more deeply about the content of the different sections. Your mentor may suggest a different approach for you to take in developing and writing your plan, and you should follow his/her advice.

Also keep in mind that what you submit should reflect the conversations you have had with your mentor and the guidance you have received from him or her, but it must be your product.

**How can I do this? I have no experience and no prior knowledge of the subject.**

Many first-tier jobs require that you follow step-by-step instructions given to you by your supervisor, day by day. Such jobs often do not require that you have a good understanding of where your work is heading, why it is being done, or what to do when something goes wrong. Such work is also often not satisfying or fulfilling because it does not allow or require you to become personally engaged.

Success in research demands that you be deeply involved in what you are doing, understand its purpose, and take personal intellectual responsibility for accomplishing its objectives, as well as (for example) figuring out what to do when you run into obstacles. (What to do may be to seek help from other people!) The sense of personal accomplishment that can come from prevailing against all obstacles and reaching your goals can be deeply satisfying, even exhilarating.

The best way to prepare for a research project in any field (science, engineering, or technology advancement, for example) is to do the preliminary groundwork that a proposal or research plan requires of you. Asking for such preparation from you is our way of helping you get a running start.

**Who will read my project plan?**

The people who will read your plan will include your mentor and/or co-mentor, technical reviewers for the program, and the program coordinator(s). The primary beneficiary of the plan, however, will be you, in that the work that you have to do to prepare to write it, and the writing itself, will help you clarify your thinking about your project and its purpose.

**How long should the plan be, and what should be included?**

A research plan of two or three pages, carefully thought out and precisely worded, should be sufficient to make all the important points. Concerning structure and content: start out with the sections indicated below and try to answer the questions provided in each part. When you have this material developed, you may be able to reorganize it so that it flows more logically while covering the same ground.

*Introduction/Background*

What is the general technical area in which you will be working? What is the problem that you are trying to solve, and how did the problem arise? Why is its solution interesting or worthwhile? What is the status of related research by your mentor or by the group that you will be joining, and what will be the contribution and significance of your effort if it is successful?

You will probably have to ask your mentor a lot of questions and read some or all of the reference material provided for you in order to answer these questions and others below.

*Objectives*

What do you aim to accomplish in your project? What will you measure, and under what conditions; or, what will you calculate, model, or simulate; or what will you design, and what are the requirements; or what will you build or test? What is your starting point? What are your initial assumptions or conditions? What will be the result or product of a successful outcome for your project? What are the criteria for project completion or for success? (In other words, how will you know when you have accomplished what you set out to do?)

*Approach*

Specifically, how will you reach your objective or produce your desired final product? What are the principal steps or milestones along the path? How long will each take? What steps promise to be the most difficult, and how will you overcome the difficulties? What equipment or other resources will you need? Which of these are inherited, and which will you have to make or procure? With what other people or groups will you be collaborating? Will completion of your project depend on results from other people in related projects? (That question may be especially pertinent for team projects.)

*Project Schedule*

Preparing a schedule of the principal activities and events is a good way of showing the readers that you have taken a systematic approach to planning your work.

*References*

List all pertinent papers or reports that you have consulted to prepare your plan. Include remarks or suggestions from your prospective supervisor, from graduate students, or from other people with whom you have talked.