



**NASA Planetary Data System
Student Investigators
2013
Student Handbook**



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Overview

Welcome to Planetary Data System Student Investigators! The objective of this initiative is to involve undergraduate students in research and development projects related to the holdings of NASA's Planetary Data System (PDS). Through the PDS Student Investigators, the PDS strives to prepare the next generation of PDS science investigators.

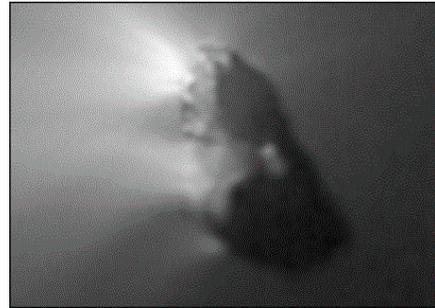


Figure 1: Comet Halley/ESA

The PDS includes nodes operated by university/research center science teams and the Jet Propulsion Laboratory (Atmospheres, Geosciences, Planetary Imaging, Planetary Plasma Interactions, Rings, Small Bodies, and Engineering). These nodes specialize in specific areas of planetary data. The contributions from these nodes provide a data-rich source for scientists, researchers and developers. You can visit them through the links on the PDS Home Page (pds.nasa.gov). You will learn more about the archives of each node, and about the education and public outreach services that these nodes provide.

As a PDS Student Investigator, you will conduct a research and/or development project using data from one of the nodes. You will develop a proposal that describes your project concept, and you will present this proposal during an online meeting of your PDS Student Investigator peers. You also may be called upon to present your proposal to the PDS Management Council. Final proposals will be posted on the PDS SI website. You will work on your research project with guidance from your mentor at the PDS node over the course of the program. As a group, the PDS SIs will meet approximately monthly, online and/or via teleconference, to discuss the progress of their research with each other and the PDS SI Coordinator. Your Node mentor is always invited, but not required, to attend the monthly discussions. After your project is well underway, you will present your work-in-progress at a professional meeting, chosen by your mentor, in the second year of your internship. Finally, you will prepare a summary paper of your project and submit it to the PDS one month prior to the conclusion of the internship. If you have achieved significant results during your research, you will be encouraged to develop a paper with your mentor to submit to a professional journal.

This handbook provides details on what is expected of you as a PDS Student Investigator. The ensuing sections discuss the proposal, communication (reporting and points of contact), travel, and how to get paid. A timeline with important milestones is given at the end of the document (you may want to copy the timeline and put it up on your wall).

The PDS is delighted to have you as a Student Investigator. We look forward to working with you to make this an interesting and rewarding experience.



Figure 2: Saturn's Rings/NASA/JPL

Proposal

During the first several months of the program, you will develop a proposal for your project with guidance from your mentor at the Node. You will spend some time doing background research, then you will craft a problem that can be addressed using data from your PDS node. An outline of the proposal is due before the project teleconference in December. You will submit a significant draft of the proposal at the end of January, and the final proposal, with the approval of your mentor, shall be completed in March. Plan on preparing a ten-minute presentation that summarizes your proposal. You will present this summary during the March teleconference. You also may be required to give a brief presentation on your proposal via teleconference to the PDS Management Council.

The research proposal should contain the following sections: Abstract, Introduction, Research Question, Method, and Timeline. The Abstract (often easiest to write last) is a short paragraph that describes the main points of the proposal. The Introduction should be a summary of the background research that led to the development of the proposal. It should include a discussion of related work. This section should lead naturally into a statement of your Research Question, which is the crux of the project that you will do as a PDS Student Investigator. The next section should describe the Method that you plan to use to answer your research question, and it should indicate which data from the PDS you plan to use. Finally, a Timeline should be included to point out major milestones along the way, such as: data retrieved and analyzed, meeting abstract draft submitted to mentor and SI coordinator, abstract submitted to the conference (find out early when the abstract is due!), draft of final paper submitted to mentor, draft of paper submitted to SI coordinator, and Final Report completed. You will have the chance to ask questions and share the draft of your proposal during the monthly teleconferences (see next section).

Communication

One goal of the PDS Student Investigators activity is to support SIs in the development of their written and oral science communication skills. Approximately once per month, we will meet to discuss everyone's progress and challenges in their research. Since SIs are located at different nodes in the PDS that are geographically distributed around the country, we will meet via teleconference and occasionally using online conferencing tools. These meetings will typically be held on the same day and time each month, though we will work together to determine a time slot that works with everyone's class schedule. On the Friday preceding the week of the monthly teleconference, you should send the SI coordinator a short summary of your month's work, including accomplishments and challenges you may have faced.

Use the following number to connect to the monthly teleconference:

Toll-free dial-in number: 866-626-4124

Passcode: 6006686 followed by the # key

Send your monthly summaries to: susan.hoban@nasa.gov

In addition to participating in the monthly SI meetings, you should meet with your mentor regularly. Speak with your mentor to determine a schedule that works for both of you so that you are able to keep your mentor informed of your progress.

Travel

You will take up to two trips as a PDS Student Investigator. Sometime during the internship, you may travel either to a NASA Center or to a meeting of the PDS Management Council at one of the PDS Nodes. The SI coordinator will keep you informed of the potential opportunities for this trip.

During the second year of your internship, you will travel to a professional meeting of your mentor's choice to present the results of your work-in-progress.

The travel expenses for both of these trips will be paid for as part of your internship. Travel arrangements will be coordinated through the PDS Student Investigators office at UMBC.



Figure 3: Mars Rover/JPL/NASA

How To Get Paid

This is everyone's favorite section! You will be compensated for 10 hours/week during the semesters, and 40 hours/week during the summer months (June – mid August), and 40 hours/week for two weeks during winter break (typically in January, but we will determine what works best for each student). You will be paid \$12/hour.

You will be hired as a “Contingent Employee” of the University of Maryland, Baltimore County (UMBC). You will be required to fill in bi-weekly timesheets. Your mentor must sign the timesheet. At the end of the reporting period (which will be marked on your timesheet), you must fax the timesheet to UMBC. At the end of each month, you must mail the original, signed timesheets to UMBC. See below. You are responsible for submitting your timesheets. **Take this responsibility seriously.** Although you will be an employee of

the State of Maryland, you will be "living and working in another state," so when filling out your tax forms, on the W4- line 7, you will enter exempt for state allowance and write in the same section "living and working in another state."

FAX bi-weekly timesheets at end of pay period to: Ms. Lynne Griffith, 410.455.1072

Mail original timesheets at end of month to:
 Ms. Lynne Griffith
 Room 211, Physics Building
 University of Maryland Baltimore County
 1000 Hilltop Circle
 Baltimore, MD 21250

If you have questions about your timesheets, contact Lynne at 410-455-1958 or <griffily@umbc.edu>

Important Contact Information

| For what? | Name | Phone | e-mail |
|--|--------------------|--------------|----------------------|
| PDS College Student Investigators office | Dr. Susan Hoban | 410.455.8033 | susan.hoban@nasa.gov |
| Payroll | Ms. Lynne Griffith | 410.455.1958 | griffily@umbc.edu |
| Your Mentor! (fill this in!) | | | |

Timeline

| Date | Milestone |
|------------------------------------|--|
| Yr 1 Summer/Fall | Hiring. If you are hired in the summer, charge 40 hours per week. If you are hired during the school year, charge 10 hour per week. Conduct research for proposal. |
| Yr 1 Friday, 2nd week of August | Last day to charge 40 hours/week. |
| Yr 1 Monday, 3rd week of August | Begin charging 10 hours/week. |
| Yr1 December | Outline of research proposal due. |

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|---------------------------------------|--|
| Yr1 January | Draft proposal due. During this time, you may choose 2 weeks to charge 40 hrs/week. |
| Yr 1 March | Final proposal due. Summary presentation to be presented during monthly telecon. MAYBE: Present proposal to PDS Management Council, via teleconference. |
| Yr 2 June | Begin charging 40 hours/week. |
| Yr 2 Summer/Fall | Submit abstract for professional meeting of mentor's choice. Check web to find Abstract Deadlines for DPS, AGU etc. |
| Yr 2 Friday, 2nd week of August | Last day to charge 40 hours/week. |
| Yr 2 Monday, 3rd week of August | Begin charging 10 hours/week. |
| Yr 2 Fall | Present paper at professional meeting. (Unless your mentor chooses LPSC). |
| Yr 2 January | You may choose 2 weeks during this period to charge 40 hours/week. If your mentor chooses LPSC, the abstract is usually due in January! |
| Yr 2 March | Outline of final paper due. If your mentor chooses LPSC, you will be attending that conference in March. |
| Yr 2 April | Draft of final paper due. |
| Yr 2 | Final paper due to mentor and PDS CSI coordinator. |
| Yr 2 Last Friday in May | Final payroll day for PDS SI. |