

**THE IMPLEMENTATION OF PLANETARY SCIENCES AT PURDUE UNIVERSITY.** L. S. Brock, H. J. Melosh, N. Stewart. Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, West Lafayette, Indiana 47907. (lbrock@purdue.edu)

**Introduction:** Purdue University has always held an outstanding reputation in engineering, physics, and space exploration. To enhance this tradition, as well as further amplify diversity at Purdue, the Department of Earth and Atmospheric Sciences has expanded in an exciting, new direction, Planetary Sciences. The addition of Distinguished Professor Jay Melosh in 2009, a university leading faculty hire, has allowed the Planetary Science Department to develop and emerge as one of Purdue's top fields [1]. Currently, the department has twelve faculty members involved in planetary research, and has intentions of adding additional faculty members [2].

Research contributions in Planetary Sciences have initiated several new developments in the Department of Earth and Atmospheric Sciences, including a name change. This new, interdisciplinary branch has attracted additional students interested in Planetary Science as well as offered new experiences for previous students in other areas of the department such as atmospheric science, environmental science, geology/geophysics, and physics. The continued growth will allow more exciting opportunities to unfold. Future plans include adding additional courses into the department as well as implementing an undergraduate degree in Planetary Sciences.

**Departmental Name Change:** Many faculty members and students were unaware of the addition of Planetary Science at Purdue, let alone the incorporation of the area into the Department of Earth and Atmospheric Sciences. Extensive discussions and options ensued, and the proposal was made to change the name of the department to the Department of Earth, Atmospheric, and Planetary Sciences.

In 2011, we reached out to alumni, students, and faculty, as well as members of other departments at Purdue, to gauge input on the potential name change. Input received was 97% positive and in favor of the change. Following this widely positive input, a confidential vote was completed at a faculty meeting, and a unanimous vote determined the name change would commence [1]. Approval was sought from the Dean of the College of Science, Provost, President, and Board of Trustees, and in the spring of 2012 the departmental name was officially changed to the Department of Earth, Atmospheric, and Planetary Sciences [2].

This change has allowed the growth and recognition of the Planetary Science program to become more widely known. It also helps eliminate factors that may

have previously held back potential students interest in Purdue and graduate students seeking jobs.

**Current Research:** The Department of Earth, Atmospheric, and Planetary Sciences is currently involved in several research areas and provides research opportunities for undergraduate and graduate students in many disciplines. Research focuses on topics ranging from impact modeling to geomorphology of small bodies, and faculty have been actively involved in NASA's GRAIL Mission as well as the past DIXI and NExT cometary encounters with Hartley 2 and Temple 1. Weekly, topical research meetings are also held within the department and anyone, especially those with an interest in Planetary Science, are welcome to attend. This helps bring the rest of the Department of Earth, Atmospheric, and Planetary Sciences up-to-date on current research and future direction.

Planetary Science is inherently an interdisciplinary subject. The program has also attracted graduate students from other related programs, such as Physics and Aeronautical and Aerospace Engineering (AAE). Currently, LPSC abstracts have been submitted by three students in Earth, Atmospheric, and Planetary Sciences, three students in Physics and two students in AAE.

The incorporation of Planetary Sciences has also provided additional offerings of new graduate-level and upper division undergraduate courses. These rotating courses, such as Planetary Surface Processes, have provided excellent means for getting students immersed in Planetary Sciences at Purdue. The courses have not only provided individual educational opportunities for students, but they have brought diversity into the classroom with the interactions and presentations of students in differing departments.

**Future Developments:** The growth and interest in expanding Planetary Science at Purdue has been increasing since its inception in 2009, but has only generally targeted students pursuing graduate degrees. The next step in the department is to initiate an undergraduate degree in Planetary Science. A plan of study is currently being developed, which will focus on providing interdisciplinary educational experiences from Purdue's already outstanding reputation in the sciences. This unique degree will combine the coursework from several disciplines as part of the required core and will include chemistry, computer science, geology, mathematics, and physics. Students will also be able to focus their multidisciplinary approach by

selecting advanced elective courses from areas such as astrobiology, astronomy, atmospheric science, chemistry, physics, etc. The foundation provided will allow students to succeed in future research, graduate studies, and careers in Planetary Science.

The implementation of an undergraduate degree in Planetary Sciences will also be coupled with the development of new courses to be offered. These courses will correlate to the knowledge to be gained from completing the undergraduate degree. Ideas for future coursework are included, but not limited to Astrobiology and Exoplanets, Numerical Methods, and Planetary Atmospheres.

The close working relationship that currently exists between undergraduate students, graduate students, and faculty in Planetary Science at Purdue also make incorporating an undergraduate major an excellent endeavor. This process will allow future undergraduates entering the program to be fully immersed into the field and get a jump-start on research.

**Summary:** Purdue University has recently developed and expanded the Department of Earth and Atmospheric Sciences to include Planetary Sciences with exciting interdisciplinary options and educational experiences. As a result, the department changed its name to Earth, Atmospheric, and Planetary Sciences. The expansion of this program has brought international recognition for current faculty and graduate students, attracted interest from prospective students, and will soon offer additional opportunities for undergraduates wishing to pursue a degree in the field.

**References:** [1] Harbor, J. "The Department of Earth and Atmospheric Science is Seeking Approval to Change Its Name to The Department of Earth, Atmospheric, and Planetary Sciences." (19 Mar. 2012): <https://www2.itap.purdue.edu/bot/viewDocument.cfm?id=5342> [2] McClure, G. "Trustees Ratify Appointments, OK Department Name Change." *Purdue Newsroom*, West Lafayette, IN, (11 May 2012): [http://www.purdue.edu/newsroom/academics/2012/story-print-deploy-layout\\_1\\_19732\\_19732.html](http://www.purdue.edu/newsroom/academics/2012/story-print-deploy-layout_1_19732_19732.html)

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