

# EAPS WEEKLY NEWSLETTER

December 13, 2021



Have a great winter break!

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## EAPS MEETINGS & EVENTS

[PURDUE CALENDAR](#) 2021-22

[EAPS K-12 OUTREACH CALENDAR OF EVENTS](#)

[REPORT YOUR OUTREACH AND ENGAGEMENT  
ACTIVITIES](#)

## OUTREACH NEWS

Did you know, faculty use the Superheroes of Science [YouTube](#) channel for broader impacts on their grants and in their instruction? The channel has had over 10,000 views this year so far. Help us continue to grow the channel and increase the impact by subscribing and sharing videos.

The Purdue University Superheroes of Science Podcast is on most podcast players as well as [YouTube!](#)

Social sites:

<http://www.eaps.purdue.edu/>

[TikTok SuperHeroesofScience](#)

[Facebook EAPS Outreach](#)

[Facebook Superheroes of Science](#)

[Twitter EAPS departmental outreach web page](#)

[Instagram](#)

**WANT TO HELP OUTREACH?** Write a favorable review on the Superheroes of Science podcast. This helps their ratings go up and helps them become more visible in various podcast platforms.

## PUBLICATIONS

- **Wang, S.,** M. Zhou, K. Adhikari, **Q. Zhuang,** Z. Bian, Y. Wang, X. Jin, Anthropogenic controls over soil organic carbon distribution from the cultivated lands in Northeast China, *CATENA*, Volume 210, 2022, 105897, ISSN 0341-8162, <https://doi.org/10.1016/j.catena.2021.105897>.
- **Zha, J. and Zhuang, Q.:** Quantifying the role of moss in terrestrial ecosystem carbon dynamics in northern high latitudes, *Biogeosciences*, 18, 6245–6269, <https://doi.org/10.5194/bg-18-6245-2021>, 2021.
- Stavert, A. R., Saunio, M., Canadell, J. G., Poulter, B., Jackson, R. B., Regnier, P., Lauerwald, R., Raymond, P. A., Allen, G. H., Patra, P. K., Bergamaschi, P., Bousquet, P., Chandra, N., Ciais, P., Gustafson, A., Ishizawa, M., Ito, A., Kleinen, T., Maksyutov, S., ... **Zhuang, Q.** (2021). Regional trends and drivers of the global methane budget. *Global Change Biology*, 00, 1– 19. <https://doi.org/10.1111/gcb.15901>
- **Zhang, L.,** T. Ren, Y. **Yu, Y.** Yao, C. Li, Y. Zhao, **Q. Zhuang,** Z. Liu, X. Zhang, S. Li, Optimization of environmental variable functions of GPP quantitative model based on SCE-UA and minimum loss screening method, *Ecological Informatics*, Volume 66, 2021, 101479, ISSN 1574-9541, <https://doi.org/10.1016/j.ecoinf.2021.101479>.
- Kristel Izquierdo, Michael M. Sori, Jason M. Soderblom, Brandon C. Johnson, Sean E. Wiggins; "Lunar Megaregolith Structure Revealed by GRAIL Gravity Data;" *Geophysical Research Letters*, 2021; <https://doi.org/10.1029/2021GL095978>

## NEWS/OPPORTUNITIES

**ANNOUNCING THE FIFTH HANDS-ON TRAINING  
IN HANDLING AND MANIPULATION OF SMALL  
EXTRATERRESTRIAL SAMPLES**

April 13–15, 2022

**Purdue University, West Lafayette, Indiana  
(Boiler up!)**

**Applications are being accepted!**

Many current and future extraterrestrial sample collections do and will consist of small particles — less than 100 micrometers across — and these can be challenging to work with. Such samples include Earth-collected cosmic dust, returned comet and interstellar samples from Stardust; and returned asteroid samples from the Hayabusa, Hayabusa2, and OSIRIS-REx missions. In this training, attendees will receive hands-on training in manipulation and micromanipulation of comparable small samples, learning from the experts from the Astromaterials Research Division at Johnson Space Center (JSC) and Purdue University.

**Application deadline: January 31, 2022**

For training details and to submit your application, please visit the [website](#).

For more information, contact, Meeting and Publication Services, USRA/Lunar and Planetary Institute, [meetinginfo@hou.usra.edu](mailto:meetinginfo@hou.usra.edu)

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**LPI SUMMER INTERN PROGRAM  
IN PLANETARY SCIENCE**

The LPI Summer Intern Program in Planetary Science provides undergraduate students with an opportunity to perform cutting-edge research, learn from widely respected planetary scientists, and discover exciting careers in planetary science. During the 10-week internship, students have opportunities to participate in enrichment activities, including lectures and career development workshops. Many of today's leaders in planetary science began as LPI summer interns. Every career starts somewhere, and we encourage you to join us as you embark on your journey.

**Program dates: June 6–August 12, 2022**

**Application deadline TODAY: December 13, 2021**

Given the uncertainty of the COVID-19 pandemic, the 2022 program may be held in person, virtually, or as a combination of those formats. Selected participants will be notified in March 2022 of the internship format. [Apply and learn more](#).

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**DECADAL SURVEY ON BIOLOGICAL & PHYSICAL  
SCIENCES RESEARCH IN SPACE 2023–2032**

The Decadal Survey on Biological and Physical Sciences Research in Space 2023–2032 is now accepting white papers. White papers can either be “topical” and focus on a single research area, scientific investigation, or experiment, or be for “research campaigns” that address broad or

large-scale goals and can span multiple topics or research disciplines. Of particular interest is “[transformative research](#)” for ideas, discoveries, or tools that radically change our understanding of an important existing scientific or engineering concept or that lead to the creation of a new paradigm or field of science or engineering.

The National Academies of Science, Engineering and Medicine (NAEM) has released this call for white papers and the white papers will contribute to the development of their report for the next [Decadal Survey on Life and Physical Sciences Research in Space 2023-2032](#). These white papers serve as the input from the scientific community into the decadal survey. The report will be used by the Science Mission Directorate of the National Aeronautics and Space Administration (NASA) to provide the framework for the vision, priorities, and strategic plan and budget for NASA's research efforts in the area of biological and physical sciences in reduced gravity environments.

The [call for 2- to 5-page white papers](#) has the following due date:

- “Research Campaign” white papers should be received by **December 23, 2021**.

Information about past microgravity materials science research conducted aboard the International Space Station (ISS) may be found at [A Researcher's Guide to Microgravity Materials Research](#).

The most recent decadal survey was entitled “[Recapturing a Future for Space Exploration: Life and Physical Sciences Research for a New Era](#),” which was subsequently followed by “[A Midterm Assessment of Implementation of the Decadal Survey on Life and Physical Sciences Research at NASA](#).”

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**LUNAR SURFACE SCIENCE WORKSHOP  
INCLUSIVE LUNAR EXPLORATION**

**January 26–27, 2022, Virtual**

The goal of this LSSW session is to begin an open dialogue about how to explore the Moon responsibly, ethically, and inclusively. As the Artemis era begins, this is a time to intentionally make key decisions that will impact the lunar and planetary workforce and the future of exploration. Inclusion is one of NASA's core values. This session will discuss best practices related to advancing inclusion and diversity in the lunar science and exploration community and

initiate conversations about how to explore the Moon responsibly, ethically, and inclusively. One expected outcome of this session is a publicly available report of key findings and recommendations to NASA and the community, including best practices.

**Registration fees are not being collected, but registration is required. Registration will be available through January 27.** Virtual connection information will be provided to registrants before the session. For more information, contact: [Meeting and Publication Services](#), USRA/Lunar and Planetary Institute

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### **ADVANCING IDEA IN PLANETARY SCIENCE**

**April 25-April 29, 2022**

**Virtual**

Over the last few years, there has been a transformation of thought in the planetary and astrobiological sciences regarding the principles of inclusion, diversity, equity, and accessibility (IDEA). NASA and other planetary science stakeholders have committed to fostering IDEA principles throughout their agencies and funded programs. NASA has added language to standard Announcements of Opportunity, requested information and feedback from the community on agency practices, and added inclusion as a core value. Additionally, for the first time, the Planetary Science and Astrobiology Decadal Survey requested white papers on the state of the profession from the community and will include those findings and recommendations. The Decadal Survey on Astronomy and Astrophysics, which partially includes planetary science, has already released recommendations to advance the field. In the wake of these activities, the LPI's IDEA conference aims to leverage this momentum to ensure that the planetary science community can take giant leaps to advance IDEA principles in the workforce over the next decade.

Important: **To be added to the mailing list to receive additional information about this conference, submit an indication of interest by January 4, 2022.**

Meeting Portal Updates: We have modified the meeting portal to follow best practices that support inclusion, diversity, equity, and accessibility. We encourage you to log into the [meeting portal](#) before the workshop to update your profile information. From the meeting portal home page, click on Edit Profile to get started.

For more information, contact Meeting and Publication Services, USRA/Lunar and Planetary Institute [meetinginfo@hou.usra.edu](mailto:meetinginfo@hou.usra.edu)

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### **EAPS GRAD STUDENT RESEARCH OPPORTUNITIES**

If you are interested in an EAPS grad research opportunity, [click here](#) for more information.

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### **SCHOLARSHIP OPPORTUNITY - SWANA**

SWANA, a solid waste disposal organization has statewide scholarships available to college students. Applicants must be student members of the organization but membership is free. [For more information.](#)

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### **MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE FUNDED GRADUATE ASSISTANTSHIP – VILLANOVA UNIVERSITY**

The Department of Geography and the Environment at Villanova University invites applications for a graduate student to participate in a [NOAA-funded research project](#) investigating why tornado disaster potential and mortality is greater in the Southeast compared to any other U.S. region. Overall, the project is focused on developing tangible and actionable solutions to the Southeast tornado problem, especially for the region's more vulnerable demographics. We seek a student who is excited to engage in a collaborative, interdisciplinary project that will culminate in an M.S. degree in Environmental Science. The successful applicant will lead and work alongside undergraduates who are assisting on research aimed at uncovering the relationships between tornado risk, warnings, reports, and societal vulnerability. The candidate will also develop a thesis project that supports this funded NOAA project.

The successful candidate must: (1) fulfill all admission requirements for the MS in Environmental Science program and the Graduate College of Liberal Arts and Sciences at Villanova University; (2) have a BS in environmental science, atmospheric science, geography, earth sciences, or related discipline; (3) have existing or be willing to develop their geographic information system (GIS) skillset; and (4) be willing to lead a group of and work alongside undergraduate students to solve problems central to the project goals. We welcome and encourage applicants from groups

historically underrepresented in STEM and Environmental Science. The fully funded student position (stipend + tuition waiver) is available starting August 2022. Villanova is a Catholic university sponsored by the Augustinian order, located in the ethnically, racially, and culturally diverse Philadelphia metro region. Diversity and inclusion have been and will continue to be an integral component of the University's and the Department's missions. To apply, email a cover letter, CV, copies of transcripts, GRE scores, and the names and contact information of three references able to speak about your academic experiences to [Dr. Stephen Strader](#). For full programmatic requirements see here. In addition, we ask the candidate to also **apply to the program using the prior link officially by 1 February 2022**. Only those students who officially apply to the MSES program through the Graduate School by 1 February 2022 will be considered. Note: Please indicate in your application materials that you wish to be considered for "Dr. Strader's NOAA grant funding". Applications will be reviewed beginning 1 February 2022, with funding decisions made by 1 April 2022.

**APOLLO 17 – ANGSA WORKSHOP**

**October 26–28, 2022**

**Lunar Planetary Institute**  
**Houston, Texas**

The 3-day workshop is currently planned as an in-person workshop, October 26–28, 2022, at the Lunar and Planetary Institute in Houston, Texas. The 50th anniversary of the Apollo 17 mission is in Dec. 2022. By every metric, this mission to the Taurus-Littrow Valley (TLV) was the most accomplished of any of the Apollo missions to the moon, leading to 50 years of extensive, continuing analytical investigations of its observations, samples, photography, and geophysical data. The goals of this workshop are:

- revisiting the TLV by integrating new geologic and exploration context, new ANGSA sample data, orbital observations, and the full breadth of data sets from all six Apollo landed missions for a fuller understanding of the moon, the sun, and the earth
- establishing links among multiple generations of lunar scientists and engineers as we prepare for our future on the moon
- focusing on scientific and design lessons learned from both Apollo and from ANGSA in preparation for near-term human exploration of the moon.

We will also focus on specific topics, with short reports expected from the breakout groups and presented during the workshop. Presentations and results of the workshop will form the basis of a special issue in a peer-reviewed journal. Manuscripts for this special issue will be due within three months after the workshop.

**SCIENCE OBJECTIVES FOR HUMAN EXPLORATION OF MARS WORKSHOP**

**May 2–5, 2022**

**Denver, Colorado**

We are happy to announce the Science Objectives for [Human Exploration of Mars Workshop](#) currently planned to be held in person May 2–5, 2022, in Denver, Colorado. The workshop is co-sponsored by NASA's Science Mission Directorate and the Human Exploration and Operations Mission Directorate to actively engage the scientific community to determine what science could be done by human crews on the martian surface and how it can be achieved. This workshop will discuss the highest priority science objectives for a first human mission to Mars and then develop several different possible concepts of operation that will enable that science. With the Artemis missions, humans will return to the Moon using innovative technologies to explore the lunar surface. We will use what we learn on and around the Moon to send the first astronauts to Mars. A human mission to Mars will be a landmark achievement and a golden opportunity to conduct groundbreaking science on Mars. The potential scope of the science activities is extraordinary. Important: To be added to the mailing list to receive additional information about this workshop, submit an indication of interest. For more information, contact [Meeting and Publication Services](#), USRA/Lunar and Planetary Institute.

**MS AND PHD EAPS STUDENTS BROADEN YOUR GRAD EXPERIENCE**

For those MS and PhD students in EAPS that would like to broaden their graduate experiences while at Purdue, EAPS is affiliated with the Computational Interdisciplinary Graduate Programs (CIGP) at Purdue. While working toward a graduate degree in EAPS, graduate students can also have a concentration (specialization) in the area of Computational Science and Engineering (CSE). For more



information, [click here](#). A short video about the CIGP/CSE program can be found [here](#).

**Spring Application Deadline:** March 1

**Fall Application Deadline:** October 1

## POSITIONS AVAILABLE- CAREER OPPORTUNITIES

### STUDENT OPPORTUNITY – WEB VISUALIZATION PROGRAMMER

This student will be working on building interactive real-time 3D visualizations for web. This will involve working with geospatial visualization frameworks like CesiumJS, back-end infrastructure like AWS and front-end JavaScript frameworks. The student may also be involved in collaborating with artists and implementing innovative interaction techniques along with deploying and testing. This position will create opportunities to grow the student's portfolio and provide experience in project development pipeline, client interactions, time and team management.

Skills, Proficiency & Requirements

- Experience with JavaScript and Python is required.
- Experience with working with geospatial data is required.
- Experience with front-end web frameworks is required.
- Knowledge of linear algebra is preferred.
- Familiarity with AWS/Docker is preferred.
- Experience with a graphics API like OpenGL/WebGL is preferred.
- Knowledge of aviation, meteorology is preferred.

Apply by sending your resume and portfolio to the Envision Center: [envision@purdue.edu](mailto:envision@purdue.edu)

### USGS GEOCHRONOLOGY DATABASE IS HIRING AT THE MASTERS LEVEL

#### **Facility Operations Specialist**

The USGS geochronology database (still in beta form, but hoping to go live in 2022) team is hiring at the master's level (GS-9, [see here](#) for qualifications). The hire will work with our team to continue building and populating the database. We're especially looking for people with experience with geochronology and/or databases.

We expect an ad to go live on USA Jobs soon. The system will likely only accept the first 100 applicants, which is often reached within the first day of posting. Anyone interested can contact

Leah Morgan (<mailto:lemorgan@usgs.gov>) with questions.

### IU GEOLOGICAL FIELD STATION RESIDENT MANAGER

#### **Facility Operations Specialist**

[This position](#) is located at The Judson Mead Geologic Field Station in SW Montana.

### POST-DOC OPPORTUNITY - AIR FORCE SCIENCE & TECHNOLOGY FELLOWSHIPS

The National Academies of Sciences, Engineering, and Medicine administers postdoctoral and senior research awards at the U.S. Air Force Research Laboratory (AFRL), the U.S. Air Force Institute of Technology (AFIT), and the U.S. Air Force Academy (USAFA) under the [Air Force Science & Technology Fellowship Program \(AF STFP\)](#).

Seeking highly qualified candidates who are U.S. citizens and hold, or anticipate earning, a doctorate in a variety of fields of science or engineering.

**Application deadline dates (four annual review cycles): February 1, May 1, August 1, November 1**

Awardees have the opportunity to:

- Conduct independent research in an area compatible with the interests of the Air Force laboratories
- Devote full-time effort to research and publication
- Access the excellent and often unique Air Force research facilities
- Collaborate with leading scientists and engineers
- Awardee benefits:
- Base stipend starting at \$76,542; may be higher based on experience
- Health insurance (including dental/vision), relocation benefits, and a professional travel allowance

Applicants should contact prospective AFRL, AFIT and USAFA Research Adviser(s) at the lab(s) prior to the application deadline to discuss their research interests and funding opportunities. For detailed program information, to search for AFRL, AFIT, and USAFA Research Opportunities, and to contact prospective Research Adviser(s), visit [www.nas.edu/afstfp](http://www.nas.edu/afstfp).

### NATIONAL WEATHER SERVICE POSITIONS AVAILABLE

[Check here for available positions](#) with the National Weather Service.

### ASTROCAMP

AstroCamp is looking for graduating students (undergraduate or graduate) for a full-time program instructor position for physical sciences and astronomy concepts at their [outdoor science school in California](#). Link to job [here](#).

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**AGI GEOSCIENCE JOB CENTER**

[Check listings here.](#)

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**FULL TIME METEOROLOGIST WITH KDRV-TV**

[Full-time newsroom opening for an on-air meteorologist](#). Will prepare and present the forecast for weekday morning and midday newscasts. This is a great opportunity for a meteorologist looking to develop his or her forecasting skills in a dynamic weather environment with ocean beaches, mountain ranges, and scenic river valleys as microclimates in our coverage area. For more information, contact Mark Hatfield, former News Director, turned General Manager for KDRV-TV, the Allen Media Broadcasting-owned ABC affiliate in Medford, Oregon: [markhatfield@kdrv.com](mailto:markhatfield@kdrv.com). Recent grads or students soon to be graduating are encouraged to apply.

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**GRADIENT CORP**

**MULTIPLE OPPORTUNITIES**

Please feel free to contact [Qian Zhang](#) if you are interested in applying and/or have any questions about the company and the opportunities.

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**FURMAN UNIVERSITY**

**Assistant/Associate/Professor in Water Resources**

The Department of Earth, Environmental, and Sustainability Sciences at Furman University invites applications for a tenure-track Assistant/Associate/Professor position in Water Resources beginning in August 2022. The successful candidate will have a Ph.D. in Earth Sciences with a specialization in hydrology, hydrogeology, hydroclimatology, or closely related fields prior to August 1, 2022. Candidates must demonstrate a commitment to excellence in teaching, mentoring, and establishing a productive research program that leads to transformative experiences for undergraduate students through mentored thesis research, which is a required hallmark of our program. We seek candidates whose teaching and scholarship align with the department's

integrated focus on sustainability, resilience, equity, and social justice within the context of the water, energy, food, and climate nexus. Teaching responsibilities consist of four courses with labs per year, including an introductory level earth science course and upper-level courses in Hydrogeology and Watershed Hydrology. In addition, there will be opportunities to offer a first-year writing seminar and courses in the area of candidate's expertise.

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**UNIVERSITY OF TEXAS AT DALLAS**

**DEPT OF GEOSCIENCES**

**HIRING 3 TENURE-TRACK FACULTY IN SUSTAINABLE EARTH SYSTEMS SCIENCE**

Apply [here](#). Questions about the positions can be directed to Prof. [David Lumley](#).

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**POSTDOC RESEARCH ASSOCIATE - TEXAS A&M**

Texas A&M is looking for a postdoc starting in the January-May 2022 time period. This opportunity is part of the TAMU component of the DOE TRACER project. While there is an aerosol-cloud interaction component, they are particularly looking for someone with experience or interests in idealized modeling of convection and/or radar analysis. They are also looking for someone that can take a leading role in field deployments (mobile radiosonde launches) in summer 2022. [LEARN MORE](#)

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**POSTDOC IN STABLE ISOTOPES AND REACTION KINETICS – INDIANA UNIVERSITY**

[Applications](#) are invited for a Postdoctoral Research Associate at Indiana University, USA. The project aims using non-traditional stable isotopes to measure reaction rates and understand the mechanisms of mineral-aqueous solution reactions. See our recent publications for details (Zhu et al., 2016, Chemical Geology; Zhu et al, 2020, 2021, GCA). The project will employ a combined experimental, analytical, theoretical, and modeling approach. The successful candidate will hold a Ph.D. in earth sciences or a closely related field. A strong background in either stable isotopes or kinetics and thermodynamics is required. Experience performing aqueous geochemical experiments, and using geochemical equilibrium and kinetics models is highly desirable. Salary is competitive and includes fringe benefits. The initial appointment will be for one year, with

the expectation of renewable for another two years, subject to performance and funding availability. The candidate will be based on the Bloomington campus of Indiana University, and will have access to an extensive suite of analytical tools, including MC-ICP-MS, TIMS, ICP-OES, ICP-MS, FESEM, and FETEM.

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### **OPEN POSITIONS AT UTAH STATE**

**Assistant Professor, Climate Resiliency Extension Specialist**- We seek an individual with expertise in climate mitigation, adaptation, and resilience science alongside a depth of knowledge in any related natural resource management field (e.g., water resources and conservation, water quality, aquatic ecology, fish ecology, fisheries management, plant, riparian, and wetland management, biogeochemistry). Successful candidates must have a commitment to stakeholder engagement, co-production of knowledge, collaborative decision-making, teamwork, and communication, as well as strong interpersonal skills. We are particularly interested in innovative candidates committed to helping natural resource managers adapt to and mitigate climate change impacts. The primary clientele for this Extension Specialist will be local, federal, and state agency staff and/or industry partners charged with managing natural resources in Utah and throughout the Intermountain West. The position consists of 60% extension, 30% research, and 10% service, with an anticipated start date of August 1, 2022.

**Assistant Professor, Climate Data Analysis**- We seek an engaging educator and researcher with the technical proficiency and broader conceptual awareness of climate science who can help position and adapt watershed science research and management within the realities of the climate emergency. Other valuable characteristics include experience working with large, multi-dimensional data (e.g., netCDF, HDF, GRIB, TIFF), climate model outputs (i.e., CMIP GCMs, downscaled data), translating gridded climate data into other formats for hydroclimate and ecological analysis, uncertainty and risk quantification, meteorological station time series data, and/or making climate data tools for policymakers and decisionmakers. Other preferred characteristics include proficiency in Python and/or R, strong data visualization and communication skills, and experience leading collaborative efforts. The position consists of 60%

teaching, 30% research, and 10% service, with an anticipated start date of August 1, 2022.

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### **POSITIONS AVAILABLE IN METEOROLOGY AND ATMOSPHERIC SCIENCE**

[View current career listings](#)

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## **NEWSLETTER INFO**

### **IMPORTANT NOTICE ABOUT THIS NEWSLETTER**

This newsletter is used as the primary information source for current and upcoming events, announcements, awards, grant opportunities, and other happenings in our department and around campus. Active links to additional information will be provided as needed. Material for inclusion in the newsletter should be submitted to Cheryl Pierce (pierce81@purdue.edu) **by 5:00pm on Thursday of each week for inclusion in the Monday issue.**

For answers to common technology questions and the latest updates from the EAPS Technology Support staff, [click here](#). As an additional resource for information about departmental events, seminars, etc., see our [departmental calendar](#).