EAPS WEEKLY NEWSLETTER
February 7, 2022

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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:
TikTok SuperHeroesofScience
Facebook EAPS Outreach
Facebook Superheroes of Science
Twitter    EAPS departmental outreach web page
Instagram

Tell us about your major. #1minscience
We are giving prizes each month to an entry for the 1 Minute Science Challenge. One of the most popular #1minscience videos we have is Ryland’s "What is Environmental Science? Students want to know what you study in your major. Record a vertical video that is under 1 minute and send the video to Steven Smith (mrsmith@purdue.edu). You can use your phone or get with Steven and he can record/edit for you in the outreach lab! Let’s take a minute and tell the world what we study!

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

NEWS/OPPORTUNITIES
FACULTY CANDIDATE COS ORIGINS OF LIFE SEARCH – DR. SUKRIT RANJAN
THURS., FEB. 10, 10:30-11:30 A.M. HAMP 2201
SCOL Post-Doctoral Fellow, Northwestern University
Website       Curriculum Vitae

Abstract: Advances in origins-of-life chemistry are transforming our understanding of how life emerged on Earth, while upcoming space missions and telescopes offer the prospect of detecting life on other worlds. Fundamental to both quests is interaction of UV radiation with molecular systems (photochemistry). Photochemistry controls the chemical context for the origin of life on Earth and influences the molecular signposts with which we hope to detect life elsewhere. I will share photochemical work which refines our understanding of early Earth environments, and demonstrate how such understanding enables assessment and improvement of theories of origins-of-life chemistry. I will discuss photochemical efforts to elucidate potential atmospheric biosignatures of life on other worlds, and show how the search for life on other worlds may enable tests of theories of
the origin of life. In sum, I will review theoretical, experimental, and observational work towards understanding the origin and distribution of life in the universe through the lens of photochemistry.

**Bio:** Sukrit Ranjan is a CIERA Postdoctoral Fellow at Northwestern University, where he arrived after completing an S.B. in Physics from MIT, a PhD in Astronomy & Astrophysics from Harvard, and a Simons Collaboration on the Origin of Life Postdoctoral Fellowship in Earth, Atmospheric, and Planetary Sciences at MIT. Sukrit’s research focuses on applying photochemistry to questions related to the origin of life on Earth and the search for life on other worlds. Recent highlights of his work include revision of the theory of prebiotic nitrogen fixation, the first measurements of the near-UV absorption of water vapor and its photochemical implications, and elucidation of photochemical runaway in planetary atmospheres. His work has won support from NSF, NASA, and the Simons Foundation, and been honored by the AAS Roger Doxsey Prize and the NAI Early Career Scholarship. His teaching and mentorship contributions have been honored by the Certificate of Distinction in Teaching and 2 Outstanding Mentor awards at Harvard. Learn more about Sukrit.

**Co-Host Contact:** Stephanie Olson and Brandon Johnson.

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**GDSP Research Project Presentation**

On Wednesday, 2/9, 12:30-1:30 PM, Mitchell Spangler is presenting his GDSP research project with Prof. Bob Nowack on “Seismic Interferometry from Ambient Noise from Wind Turbines and other Anthropogenic Sources”. This will be a virtual event over Zoom: Meeting ID: 953 9852 9404 Passcode: 022765

**Abstract:** We investigate seismic noise from anthropogenic sources, in particular wind turbines, for seismic interferometry. The data is from the 17-station Autocorr Seismic Array located in the Midwestern United States. The array has a linear component that extends about 30 km from north to south and a subarray to the south with a diameter of 10 km. The array was deployed from August 2019 to July 2020. The northernmost seismic stations of the array are located within the southern end of one of the largest onshore wind farms in the world. To the south of the array there are regularly occurring east-west running trains. However even during times when trains are present, the frequency signatures of the wind turbines are dominant over much of the array, including seismic stations well to the south of the wind farm. Shallow refraction data are available nearby individual seismic stations of the array. Since the frequency signatures do not vary for stations with differing basement depths, they are inferred to be source effects of the wind turbines. When utilizing seismic interferometry, coherent Rayleigh wave signals are observed for time windows of seismic noise as short as 15 minutes. There are also concurrent estimates of average hourly wind speeds and wind gusts at the locations of the seismic stations. These data show that for seismic noise correlations, clear south propagating Rayleigh waves are observed for moderate to large average hourly wind speeds. For lower wind speeds, less coherent Rayleigh wave signals are observed in the one-hour noise correlations. For seismic stations within the wind farm, both north and south propagating Rayleigh waves are observed in the correlations. However, for seismic stations to the south of the wind farm, only south propagating waves are observed, which are inferred to be coming from the wind farm.

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**PSPSPS Seeking Submissions of Pet Photos for Calendar**

The EAPS 22-23 Committee on Planning the Selection of Purdue's Special Pets (PSPSPS) is seeking submissions of pet photos from willing participants within the EAPS department for inclusion in an upcoming publication. This objective of this program is to create a calendar showcasing the lovely pets within our department and give them the recognition and attention they deserve. Please fill out this form for submission. (Google login required to submit form.) The calendar will cover an 18-month period, beginning in August of 2022 and ending in December 2023. If you have multiple pets that you would like included, please try to include them in the same photo. If anyone has important dates they would like included in the calendar, those can be added as well (pending committee approval outlined in the PSPSPS handbook). The submission deadline to be included in the calendar is February 28, 2022. We will send out regular reminders until that point. Calendars will likely cost $15-20 and the money will support the EAPS Graduate Student Assembly. Please do not hesitate to reach out to hvannier@purdue.edu if you have any questions.
APOPHIS T-7 YEARS: KNOWLEDGE OPPORTUNITIES FOR THE SCIENCE OF PLANETARY DEFENSE
Call for Abstracts and Registration Now Open!
May 11–May 13, 2022
Virtual
The Apophis T-7 Years: Knowledge Opportunities for the Science of Planetary Defense virtual workshop is scheduled for May 11–13, 2022. This workshop will explore the dynamic details and corresponding science opportunities presented by the April 13, 2029, near-miss passage of the asteroid Apophis.

Call for Abstracts: Abstract submission deadline—March 23, 2022, 5:00 p.m. U.S. Central Daylight Time (GMT -5)
Registration: Registration fees are being collected for this virtual workshop. Only registered attendees will receive an email from Houston Meeting Info with virtual connection information. Registration is available through May 13, 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

53RD LUNAR AND PLANETARY SCIENCE CONFERENCE
MARCH 7-11, 2022
THE WOODLANDS, TEXAS/VIRTUAL
The 53rd Lunar and Planetary Science Conference (LPSC) will be a hybrid conference on March 7–11, 2022. Proof of full vaccination for all in-person conference attendees is required. If you are not comfortable attending in person, we invite you to consider virtual participation.

Program
- Detailed information about the schedule is available by viewing the program and abstracts.
- Check the author index to see where a particular presentation is scheduled.
- Visit the Conference Schedule page for a downloadable copy of the agenda.
- Vaccination Verification and Registration Information: Instructions to submit your proof of full vaccination verification (in-person attendees only) and to register for the conference (in-person and virtual attendees) are available at the LPSC Registration page.

Deadline for early registration: February 18, 2022
Onsite registration will not be available.

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 conference to update your profile information. From the meeting portal home page, click on Edit Profile to get started.

EAPS GRAD STUDENT RESEARCH OPPORTUNITIES

Click here for more information.

2022 INDIANA VIEW STUDENT SCHOLARSHIP
The IndianaView Student Scholarship Program provides an opportunity for participants at our member institutions to support the goals and objectives of IndianaView and AmericaView. IndianaView will award up to six $750 scholarships to six different students. The purpose of the scholarship program is to promote student development in remote sensing and other geospatial technologies.

Who Can Apply? Undergraduate or graduate students using remote sensing and/or other geospatial technologies in their research at any of the IndianaView educational institutions.

Scholarship applicants must be endorsed by a faculty member from one of these educational institutions.

What activities does the scholarship support? IndianaView wishes to see a significant portion of the award used to support fieldwork that complements a student's research, travel to a professional meeting, data purchase, software purchase, minor equipment purchase, professional society membership, journal subscription, publication cost, and/or book purchase. The scholarship cannot support international travel.

Please include the following in your application (send via email):
Resume -- Your CV/Resume must include: a) your name, address, phone number, and e-mail address; b) educational background; c) work
experience (if applicable); d) personal involvement with remote sensing and other geospatial technologies (through coursework, projects, work experience, or any other activity).

Essay -- Please include a 1-page essay (double-spaced) that addresses your personal interest in remote sensing and/or other geospatial technologies and your plan (including time frame) for using the scholarship funds to promote your personal development in the field.

Letter of Recommendation -- The faculty member who is endorsing you should send a letter of recommendation in a separate email.

Submit the application documents via email to: kongn@purdue.edu.

All materials must be received by the end of the day on February 25, 2022. Valid applications will be considered by a review panel. Awards will be announced in mid-March 2022. Note: Students receiving awards are required to provide feedback about how the scholarship benefited their professional development and prepare a fact sheet about the project. Fact sheet templates will be provided. Funds must be spent by August 31, 2022.

For questions, contact Dr. Nicole Kong, IndianaView Coordinator.

Dr. Nicole Kong, Director, IndianaView
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West Lafayette, IN 47907-2058
E-mail: kongn@purdue.edu
Telephone: (765) 496-9474

UNDERGRAD RESEARCH OPPORTUNITY-
ARCTIC REU GREENLAND

Arctic REU Greenland is an NSF Research Experiences for Undergraduates (REU) site led by Concord University (West Virginia) and Montana State University. The REU is focused on field research in Precambrian metamorphic rocks integrating geologic mapping, structural geology, and earthquake geodynamics.

Travel expenses to the program and full logistical support for fieldwork in Greenland will be provided. Students will receive stipends of up to $5000 to support their work. Funding for travel to a geologic conference in the fall to present research results is also included.

Field work in Greenland is scheduled for June 23 to August 4, 2022 (pandemic dependent). Students will participate in online seminars and research activities before field work in April and early May, and again in late-July and August after our return.

Applicants should be undergraduates with a planned date of graduation no earlier than December, 2022. Ideally, applicants should have completed or be enrolled in a course in mineralogy, petrology, or Earth materials, although exceptions are possible. Coursework in structural geology and/or field geology or field methods is useful. NSF requires REU participants to be US citizens or permanent residents. Because of the late start time in July, students completing a geology field camp early in the summer may be able to attend this REU.

We especially encourage applications from first-generation college students and members of under-represented groups.

REU website
Application deadline: February 7, 2022
Contact information:
Joe Allen, Concord University, or Colin Shaw, Montana State

LOW-COST SCIENCE MISSION CONCEPTS
FOR MARS EXPLORATION
WORKSHOP POSTPONED
PASADENA, CALIFORNIA

As a consequence of the recent and significant rise in covid-19 cases, the organizing committee for the low-cost science mission concepts for mars exploration workshop has decided to postpone the meeting. The workshop, originally planned for January 11–13, 2022, is now scheduled for March 29–31, 2022, and will be held at the same venue, the Westin Pasadena Hotel in Pasadena, CA.

METEOROIDS 2022 CONFERENCE
June 13--17, 2022
Virtual

The Meteoroids 2022 local organizing committee has closely watched ongoing developments of the COVID-19 pandemic and met to reconsider in-person delivery in Huntsville, Alabama. Given the recent sharp increase in positive cases and the unpredictable appearance of new variants, the committee has decided to shift the conference from in-person to fully virtual. Although it is disappointing not to be able to meet in person, the health and safety of all participants is our top priority.

Meteoroids 2022 is the eleventh international conference in a triennial series of meetings on meteoroids, their origins, and their associated phenomena. Past conferences have featured a
combination of invited and contributed talks and posters covering topics such as meteor observational techniques, meteorite recoveries, meteoroid stream dynamics, ablation physics and airbursts, impacts on airless bodies, the production of dust and meteoroids by asteroids and comets, space missions, and spacecraft anomalies. We look forward to planning a successful conference and to seeing you virtually! Details will be available soon.

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

**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 conference to update your profile information. From the [meeting portal home page](http://www.eaps.purdue.edu/), click on Edit Profile to get started.

For more information, contact Meeting and Publication Services, USRA/Lunar and Planetary Institute

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**ADVANCING IDEA IN PLANETARY SCIENCE**

**Call for Abstracts and Registration Now Open!**

**Advancing IDEA in Planetary Science**

**April 25--April 29, 2022**

**Virtual**


**Call for Abstracts:** Abstract submission deadline - February 23, 2022, 5:00 p.m. U.S. Central Standard Time (GMT -6)

Registration fees are not being collected for this virtual conference, but registration is required for communication purposes, including virtual access information.

**Registration is available through April 29, 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](http://www.eaps.purdue.edu/), click on Edit Profile to get started.

For more information, contact Meeting and Publication Services, USRA/Lunar and Planetary Institute

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**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.

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

**NEW DATES: May 4-6, 2022**

**Denver, Colorado**

The Science Objectives for Human Exploration of Mars Workshop will be delivered on May 4–6, 2022 (new dates) in Denver, Colorado, with some components available virtually.

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.

Call for Abstracts: Abstract submission deadline -- February 24, 2022, 5:00 p.m. U.S. Central Standard Time (GMT -6)
Refer to the workshop website for detailed abstract submission information regarding contribution expectations, notional scenarios for a human mission to Mars, format, and guidelines. Registration

In-Person registration deadline -- April 20, 2022
Virtual registration deadline -- May 6, 2022
Registration fees are not being collected for this workshop, but registration is required. Before the workshop, registered attendees will receive an email from Houston Meeting Info with virtual connection information.

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.

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
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) 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.

BRYAN ENVIRONMENTAL CONSULTANTS
Homewood, IL
SEEKING PART-TIME TO FULL-TIME POSITIONS
- Bachelor’s or Master’s degree in environmental engineering, civil engineering, geotechnical engineering, geology
- Knowledge of State and Federal environmental regulations a plus
- Experience with Phase I and II Environmental Site assessments a plus
- Strong writing skills
- Proficient in all Microsoft Office applications
- Must have cell phone and computer (laptop)
- Valid Driver’s License

WANG ENGINEERING
SEEKING Engineering Geologists, Geotechnical Engineers
Contact: Cornelia Lidia Marin, PG

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
• Awarded 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.

Purdue Envision Center (under ITAP)
Recruiting EAPS Students
At the Envision Center looking to recruit EAPS students with background and interest in weather visualization. Details on the job opening can be found here.

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.

AGI Geoscience Job Center
Check listings here.

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.

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.

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

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.

**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.

**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.