

### UNDERGRADUATE CO-OP/INTERNSHIP

THE NATION U.S. News & World Report (2023)

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### ANNUAL REPORT 2022-2023



**Office of Professional Practice** 

### FROM THE DIRECTOR Phillip Dunston | Director, Office of Professional Practice



Dear Boilermakers,

It's been a few short weeks in my new role as Director of the Office of Professional Practice (OPP) at Purdue University, and I'm even more excited than on day one. The OPP staff and students shepherd an impressive, diversified set of innovative, flexible programs for learning through co-ops and internships, professional development and technical skills training. Opportunities ranging from startups right here in Indiana, to international learning experiences, make this office a jewel in the Purdue crown. Our awesome team is launching new initiatives that will uniquely position our students to be leaders in the semiconductor and pharmaceutical manufacturing industries. I look forward to making my own contributions to equipping Boilermakers with the professional skills that

they need for success. It's rewarding to highlight the great accomplishments of this team during the 2022-2023 year. We continue to pursue and achieve record growth in offered programs, student enrollment and employer engagement. This report highlights many achievements that happened over the year, and we invite you to celebrate experiential education on our campus.

As my predecessor, Professor Luna Lu states, "At Purdue, we believe OPP stands for opportunities." The mission of the OPP office is to facilitate the experiential education and work-integrated learning. Throughout the school year, we engaged with over **15,726 students** through co-op fairs, employer information sessions, professional practice courses, workshops and other events. Thank you to our **360+employer partners** for providing these excellent work-integrated learning experiences.

We celebrate 2,500+ academic co-op and internship work sessions this year, with 1,433 active co-op students and 85 students in our Global Engineering Alliance for Research & Education (GEARE) program who are studying and working abroad in 19 countries around the world. We also funded 25 student summer internships for Indiana startups and early-stage companies, to help boost economic growth and workforce development in our home state. Our Milestones Technical Skills courses awarded 743 students with hands-on learning opportunities and a micro-certificate/digital badge in engineering and prototyping skills.

OPP's history of excellent leadership is evident in the dynamic growth that has occurred and continues today. I am blessed to join a team that is already firing on all cylinders. I tip my hat to past Directors I've known personally during my time at Purdue: Luna Lu, Eric Nauman and Eckhard A. Groll. It's my pleasure to collaborate with our professional staff and highly skilled undergraduate and graduate students.

We are soon to bring in new faces with new talents and ideas to benefit the Purdue Family. We will continue in pursuit of our next giant leap with preparing Boilermakers for the work force. Experiential Education is a pivotal piece of student success and we are happy to be on the forefront of this effort. OPP is a star player in Purdue achieving excellence at scale!

Boiler Up!

*Dr. Phillip S. Dunston is a Professor of Construction Engineering, holding joint appointments in the Lyles School of Civil Engineering and in the Division of Construction Engineering and Management at Purdue* 

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## OUR PROGRAMS

#### **COOPERATIVE EDUCATION (CO-OP)**

Purdue Co-op has been the premier professional work experience program at Purdue University for over 60 years. Students participating in the program can earn an academic certificate upon graduation and enhance their academic knowledge with practical skills through progressively challenging work experiences with industry partners. Purdue's Industry & Extensive Industry co-op models (defined below) for undergraduate students can result in 12-20 months of work experience. Co-op provides students with an in-depth knowledge of a company. More than 80% of Purdue co-op students earn a full-time offer with their company prior to graduation. Graduate students may participate in the Master's co-op program, which allows students to complete a 6-12 month work rotation with an employer prior to completion of their degree.

After extensive conversations with top co-op universities in the U.S. and Canada, internal conversations with faculty, co-op coordinators, and students, and external conversations with industry partners, Purdue has updated the co-op certificate program. This update provides greater access and flexibility to both students and employers. U.S. News & World Reports ranks our Co-op and Internship program as #7 in the nation.

#### **INDUSTRY CO-OP CERTIFICATE**



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The Industry Co-op Certificate is awarded to students who complete approximately one year of full-time work (at least one fall/spring semester) experience related to their academic field of study. Students are required to register for a cooperative education course during each academic term for which they are engaged in full-time work with an employer. Students are required to complete a minimum of three work terms, and participate in a progressive experience, with a minimum of two work terms occurring with the same employer. Students must complete all necessary requirements specific to their academic discipline.

#### **EXTENSIVE INDUSTRY CO-OP CERTIFICATE**

The Extensive Industry Co-op Certificate is awarded to students who complete approximately 18 months of full-time work experience related to their academic field of study. Students are required to register for a cooperative education course during each academic term for which they are engaged in full-time work with an employer. Students are required to complete five work terms, and participate in a progressive experience, with multiple work terms occurring at the same employer. Students may change employers one time. Students must complete all necessary requirements specific to their academic discipline.

#### **GLOBAL ENGINEERING ALLIANCE FOR RESEARCH AND EDUCATION (GEARE)**

GEARE is Purdue's premier global professional training program, available to students from all engineering disciplines and computer science. GEARE students enhance their global competency by completing language study, one semester of study abroad, a minimum of one domestic internship, a minimum of one global internship, three one-semester cultural training seminars and a minimum of one global design team project. GEARE has recently added Humanities Informed Engineering Projects, a three-credit course exploring the impact of culture on various engineering projects across the world. This course was developed via a National Endowment for the Humanities grant in collaboration with the Purdue School of Languages and Culture.

The Office of Professional Practice develops relationships with world-renowned university partners and global industry partners interested in developing future employees with top of the line technical and global skills. Our office maintains strong partnerships with universities and global employers in more than 20 countries. Purdue's recent membership into the International Association for the Exchange of Students for Technical Experience (IAESTE) network provides students with internship opportunities in over 80 countries.

GEARE utilizes the Intercultural Development Inventory (IDI) and a series of courses to help students maximize their growth in global competency. Continuous assessment finds GEARE to be one of the most effective programs in encouraging global competency development among its participants.

#### **INTERNS FOR INDIANA (IFI)**

The Interns for Indiana program connects entrepreneurial-minded Purdue University students to Indiana startup and early-stage companies in order to promote economic development, enhance student success and provide professional opportunities to high performing students. Students will complete their internship during the summer. The Office of Professional Practice offers funding to help these companies hire student talent. Throughout the past two years, 450+ students have applied to be part of the program and 30 students have been awarded internships. OPP currently assists with stipend funding for current students and hopes to expand programming and grow the program size.

#### **MILESTONES**

The Milestones program was created in 2019 to enhance technical skills to supplement and enhance knowledge gained in the classroom. Milestones modules average 15 hours of hands-on education in a particular technical field. The modules are currently offered for free to Purdue students. Students successfully completing a Milestones module will earn a digital certificate. Milestones modules include CAD/3D Printing, Finite Element Analysis and Fabricating Composites (Prototyping and Manufacturing Family), along with Arduino Programming, Introduction to Electronics, Biomedical Instrumentation and an electronics capstone project on Designing a Smartwatch (Electronics and App Development Family). The Milestones program aims to enhance the technical abilities of Purdue students while providing industry with co-op students and interns ready to make an impact.

#### LEARNING WHILE WORKING (LWW)

Learning While Working (LWW) is a co-op model allowing students to gain a year-long, professional work experience, while earning credits to reduce the time of the normal co-op study plan to 4-4.5 years. OPP is building partnerships with co-op employers to hire cohorts of students for full-year continuous co-op experiences. While working, students may enroll in online courses during each of the three academic periods for which the student will be registered for co-op. In addition, each company participating in LWW can offer an engineering project to the entire cohort of LWW students. The project will include company mentors as well as a Purdue faculty mentor. Through a combination of industry projects and online courses, students are able to reduce their time to graduation and earn up to 15 credits while working full-time.

## **OPP GROWTH**



**EMPLOYER** SATISFACTION WITH STUDENT WORK

**STUDENT** JOB SATISFACTION





CO-OP STUDENTS ARE PAID AN AVERAGE OF **\$22 PER HOUR** AND SEE **INCREASES IN PAY** WHEN RETURNING FOR **PROGRESSIVE WORK SESSIONS** 



**86%** OF STUDENTS REPORTED THEY WOULD BE **INTERESTED WORKING FULL-TIME WITH THE COMPANY** WHERE THEY PARTICIPATED IN A CO-OP OR INTERNSHIP EXPERIENCE



APPROXIMATELY **50%** OF CO-OP STUDENTS RECEIVE **HOUSING BENEFITS** OR A **HOUSING STIPEND** FROM THEIR EMPLOYER



## **OPP STAFF UPDATES**

#### WELCOME, PHILLIP DUNSTON

Dr. Phillip S. Dunston is a professor of Construction Engineering, holding joint appointments in the Lyles School of Civil Engineering and in the Division of Construction Engineering and Management at Purdue. Dr. Dunston received his Ph.D. in Civil Engineering in 1995 from North Carolina State University and joined the faculty at Purdue in 2002. In 2003, he received the NSF Early Career Award. He became involved with Advancing Minorities' Interest in Engineering (AMIE), a coalition of leading corporations in such sectors as technology and healthcare; government agencies; and the ABET-accredited Engineering Schools at Historically Black Colleges and Universities (HBCUs). In 2008, he was a recipient of the Purdue CoE Leadership Award. A career-long passion of his has been to address the challenge of stimulating and expanding the



pipeline of underrepresented students toward earning a PhD and pursuing faculty careers. He has been a part of both NSF and Purdue sponsored efforts, most recently co-chairing the Purdue Trailblazers in Engineering workshops, along with becoming a Dean's Faculty Fellow for HBCU engagement.

#### **CONGRATULATIONS, JOE TORT**

During the 22-23 academic year, Joe Tort was selected to be one of the seven inaugural Purdue University Experiential Education (ExEd) Champions. As an ExEd Champion, Joe mentored university staff through training to enhance the quality and breadth of experiential education across campus. Joe also completed the Experiential Education Academy organized by the Society for Experiential Education. This includes modules in the Fundamentals of Experiential Education, Principles of Ethical Practice, Reflection, Assessment, Legal Issues, Diversity, Equity and Inclusion in ExEd. Joe also successfully organized Purdue's membership in the IAESTE exchange network making Purdue one of two cooperating universities in the United States. This program will provide international internship opportunities for Purdue students in more than 80 countries around the world while enabling Purdue to recruit talented students across the globe for research internships on campus.

#### **CONGRATULATIONS, JENNY STRICKLAND**

In 22-23, Jenny Strickland was appointed to the board for Cooperative & Experiential Education Division (CEED) of the American Society for Engineering Education, in service as Membership Chair. In this role, she connects with professionals in work-integrated learning and experiential education from various universities and industry. Jenny graduated from the Purdue Engineering Staff Leadership Academy (PESLA) this January, where she presented a poster on Adding Value to a 0-Credit Course; she received an award for the best project poster in her group. She then went on to present this at the Conference for Industry & Education Collaboration (CIEC) where she engaged with 100+ higher education professionals and industry partners to discuss the value of these experiences. Notably, Jenny was a finalist for this year's College of Engineering "Best New Employee" award.





#### **CONGRATULATIONS, PATRICK FRANCIS**

Patrick was selected as a member of PESLA (Purdue Engineering Staff Leadership Academy) cohort 4.0, where he will collaborate with fellow staff members on understanding more about the University and college while bringing more awareness to OPP. In February, he attended the Conference for Industry & Education Collaboration (CIEC), where he was chosen to be a presenter on the topic of "Developing Industry Talent Pipelines" and shared about the growth of the Learning While Working (LWW) initiative. In April, he joined colleagues from Symplicity CSM as a webinar panelist to bring awareness to student engagement utilizing technology and showcasing how OPP has seen over 200% growth in our online database for co-ops, events and workshops. In June, Patrick presented at NACE (National Association of Colleges and Employers) on the growth of LWW and how our programs have become more flexible and interactive, with a strong focus on students and industry partnerships. Patrick received a Bravo Award in recognition of his work with Engineering 103 courses, improving Symplicity database usage and helping organize one of the largest Co-op Days Career Fairs to date.



#### **WELCOME, JULIE PERETIN**

Julie joined OPP in August 2022 as the Programs Administrator. She has worked most recently for the Montessori School of Greater Lafayette and has experience working within several arts and community organizations. Julie's strength is efficiency; she appreciates being able to get information and materials where they can be used effectively to get a job done well. Her role includes supporting the staff, students, scheduling, purchasing, etc. and keeping track of OPP's spaces in the Gateway Complex. She also manages the Industry Partner spaces in Lambertus and Dudley for companies that employ Purdue students to use while they are visiting campus, as part of the Purdue Industry Partners in Residence Program. Julie received a Bravo Award in recognition of her customer service, organizational skills and facilitating a seamless transition for OPP staff to Lambertus.



#### WELCOME, HEATHER FABRIÈS

Heather began her career at Purdue University in 2009 as Operations Manager for the Purdue Improved Cowpea Storage (PICS) project. She became Director of Corporate Relations for the College of Engineering in 2017 and moved to EPICS in November 2019 to take the role of EPICS University Coordinator. In January 2023, Heather joined as the GEARE Program Manager in the Office of Professional Practice. Within this role, she is dedicated to leading efforts in the GEARE program to develop co-op programs with global employers and prepare students for experiential learning experiences abroad. Heather is an adjunct faculty member at Ivy Tech Community College, teaching courses in Business Management, Entrepreneurship, and Accounting. She holds a B.A. in Political Science and French from Indiana University and an MBA in Management from Indiana Wesleyan University.

#### THANK YOU & CONGRATULATIONS, LUNA LU

The Office of Professional Practice would like to thank Dr. Luna Lu, Reilly Professor of Civil Engineering, Acting Head of the Lyles School of Civil Engineering and former Director of OPP, on her transition to a new role as Associate Dean of Faculty in the College of Engineering. Under the leadership of Luna, OPP was able to create the groundbreaking Learning While Working Program and expand our experiential learning offerings, including a signature First-Year Engineering exploration night.



## **OPP SPONSORS**

OPP would like to thank our Corporate Sponsors for their generosity during 2022-2023 academic year. Through their continued support and engagement, our team is able to make a deeper impact on the overall outcomes of OPP students. We look forward to continuing to support the success of work-integrated learning partnerships in the 2023-2024 academic year.

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### **INAKE AN IMPACT** THROUGH OPP SPONSORSHIP PROGRAM

Office of Professional Practice (OPP) Corporate Sponsorship supports industry connections with direct access to Purdue students across 13 different colleges and schools. Sponsorship focuses on strategic efforts with select employers seeking to enhance outcomes on campus with a multifaceted approach to connect with early talent pipelines.

#### SCHOLARSHIP & STUDENT FUNDS

The most important impact of our sponsorship program is the ability to award students with company-named academic scholarships. In addition, sponsorship supports experienced OPP ambassadors serving as mentors and teachings assistants.

#### **EVENTS & CAMPUS ENGAGEMENT**

Host exclusive "day-on-campus" with customized programming and receive embedded OPP marketing, including featured stories on our website, social media and OPP newsletters, etc.

#### PREFERRED PROGRAMMING ACCESS

Receive early registration to career fairs with cost savings and priority invitations to campus events including ENGR 103 classroom lectures & First-Year Engineering Industry Exploration Night.

#### ASSIGNED OPP ACCOUNT MANAGER

Obtain a high touch level of support with direct access to campus engagement with a designated OPP staff member. Opportunities available for site visits and industry facility tours in person or virtual.

#### **OPP LEADERSHIP & ADVISORY TEAM**

Provide input for the future of talent and collaborate to share industry ideas. Help customize programming and build new professional development opportunities.

### \$5,000

#### annual commitment to become an OPP Corporate Sponsor





### PROFESSIONAL PRACTICE HALL OF FAME 2023

The Professional Practice Hall of Fame recognizes individuals who have had a significant influence on Professional Practice programs, as well as alumni of OPP programs who have demonstrated unparalleled excellence in their field. These individuals represent the very best that Co-op and GEARE have to offer. Hall of Fame members are known for being prime examples of how the professional experiences facilitated by OPP helped build their networks to aid in excellence throughout their professional careers.

The 2022 Hall of Fame event celebrated eight individuals. The inductees arrived to campus at the end of October and the Professional Practice Ambassadors, along with OPP, hosted a Q&A panel

with students from various disciplines. The inductees later attended a breakfast with OPP staff and learned about current programs while brainstorming new ideas for professional development and industry connection. The group toured and explored campus for a photo shoot on the Boilermaker Special, prior to arrival at the Recreation & Wellness Center for the annual luncheon celebration.

Approximately 100+ students, faculty, staff, industry partners and alumni were in attendance. A keynote was given by former Interim Dean of the College of Engineering and Don & Carol Scifres Distinguished Professor of Electrical and Computer Engineering, Mark Lundstrom. Student remarks were delivered by Peter Favour, Co-op student and Professional Practice Ambassadors President. All attendees enjoyed a catered lunch followed by the inductees sharing remarks on their nominations.



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Not pictured: Virginia Booth-Womack, Kamwana Mwara, and Caley Burke













### **PROFESSIONAL PRACTICE**



#### MARCIA "MARCY" ALSTOTT (ME '79)

Marcy completed co-op with General Motors in Warren, Michigan. She continues to serve the Purdue community as a Senior Consultant with the Silicon Valley Boilermaker Innovation group, connecting Purdue-based startups with the Silicon Valley startup community. She has been awarded both the Outstanding Mechanical Engineer Award and the Distinguished Engineering Alumni Award. Marcy currently serves as a Managing Partner for OnTap Consulting.



#### LISA LAUGHNER (ME '81)

Lisa completed co-op with Detroit Diesel-Allison in Indianapolis. She is the retired President & CEO of Go Electric, a green-tech startup accelerating a renewable energy future. She has also worked for Rolls Royce as the Vice President for Corporate Ventures and served as a Senior Development Engineer at Honeywell. Lisa has received numerous awards and sits on a variety of boards for women in technology and global sustainability technologies.



#### JIM MAGRO (EE '88)

Jim completed co-op with Hughes Aircraft in El Segundo, California. He has been a guest speaker at co-op callouts and actively hires Co-op students. He has had experiences as technical lead and lead designer of numerous products, including the G3MX dual mode memory controller for the next generation processor and the Double-Data-Rate (DDR) Controller AMD761 and AMD 762 North Bridge. Jim currently serves as a Senior Fellow at Advanced Micro Devices (AMD).



#### VIRGINIA BOOTH-WOMACK (IE '91)

Virginia completed co-op with General Dynamics in Pomona, Ca. She served as President of the National Society of Black Engineers and was heavily involved in the Society of Women Engineers and the Purdue Minority Engineering Program. She was the first black woman to become Area Manager and Lean Manufacturing Manager at Chrysler's 3.7/4.7 Mack Avenue Engine Assembly Facility in Detroit. Virginia currently serves as a the Director of the Minority Engineering Program (MEP) at Purdue.

## HALL OF FAME INDUCTEES



#### **BRIAN GRIFFIN (MSE '93)**

Brian completed co-op with Howmet in La Porte, IN. Under his direction, Howmet has sponsored nearly 15 senior design projects at Purdue. He has previously served as Manager of Laboratory and Engineering Services and Senior Project Engineer at Howmet. He has also served as a Superalloys Conference Program committee member through The Minerals, Metals & Materials Society. He currently serves at the Howmet Research Center as the Manager of Technical Services.



#### ANDREW "DREW" BENDER (CE '96)

Drew completed co-op with US Army Corps of Engineering in Louisville, Kentucky. He has served as a Volunteer Industry Alumni Mentor with the Lyles School of Civil Engineering's student/alumni mentorship program. He is a member of the Civil Engineering Professional Practice Advisory Board. He is the former Vice President and Senior Principal at Cardno. Drew currently serves as Chief Operating Office for VS Engineering, a professional civil engineering consulting firm.



#### CALEY BURKE (AAE '05)

Caley completed co-op at Kennedy Space Center with the International Space Station (ISS) and the NASA Launch Services Program (LSP). She has provided educational outreach and speaking events for NASA at Purdue. She has performed a flight controls study for the upcoming Solar Probe Plus mission, and worked numerous launches including NuSTAR on a Pegasus XL. Caley currently serves as an aerospace engineer for NASA's LSP and is the flight design analyst for the proposed Mars Sample Return mission.



#### KAMWANA "KAM" MWARA (AAE '10)

Kam completed co-op with NASA's Pathways program. He was heavily involved in numerous organizations at Purdue, including the National Society of Black Engineers (NSBE). He received recognition for an Exemplary Contribution twice at NASA, and won Aerospace Technology of the Year and Best Written Paper at the NSBE Aerospace Systems Conference in 2016. He currently serves as a Project Manager, Aerospace Engineer, and Team Lead at NASA Johnson Space Center in the Engineering Directorate.

### OPP IMPACT



**1,002** UNDERGRADUATE CO-OP WORK TERMS



4,483 PARTICIPANTS IN OPP PROGRAMS

**743** MILESTONES CERTIFICATES AWARDED

**431** GRADUATE CO-OP WORK

**421 GEARE STUDENTS** 



### **PROSPECTIVE & ADMITTED STUDENTS AT PURDUE 2 1 5 0 PRUSPECTIVE & ADMITTED STUDENTS AT PURDUE** INFO FAIRS IN COLLABORATION WITH THE OFFICE OF FUTURE ENGINEERS & PURDUE ADMISSIONS 15,726 511 STUDENTS ENGAGED THROUGH STUDENTS AT CO-OP **OPP PROGRAMS & EVENTS & GEARE CALLOUTS IDD** STUDENTS AT RESUME REVIEW EVENT IN COLLABORATION WITH CCO **37%** † 63% **OF OPP STUDENTS OF OPP STUDENTS ARE MALE ARE FEMALE** STUDENTS AT PROFESSIONAL PRACTICE DAYS CAREER FAIR & INTERVIEW DAYS

## SCHOLARSHIPS

**\$119,100** AWARDED TO SUPPORT STUDENTS IN WORK INTEGRATED LEARNING

#### LEONARD E. WOOD SCHOLARSHIP

Established in 2007, this scholarship honors the memory of the late Leonard E. Wood. Wood received his PhD from Purdue University in 1956 and subsequently joined the faculty as a Professor of Civil Engineering. He then became the School of Civil Engineering's Faculty Coordinator for Purdue's Cooperative Education Program in 1989, a role he continued in until his untimely death in 2004. The scholarship fund exists thanks to a generous donation from Professor Wood's widow, Margaret, who sought to honor his dedication to the co-op program while enabling the achievement of today's students. OPP has awarded 35 Wood Scholarships since 2007 including this year's recipients. The Leonard E. Wood Scholarship for Cooperative Education is awarded to deserving Co-op students based on academic merit and life-changing experiences brought about by the Co-op program. Cooperative education never had a greater friend, supporter or promoter, and no one better exemplified the co-op value of practical education as a mentor, counselor and teacher.



Bruno Carrilho (ME) Radhika Kulkarni (BME) Elyssia Wellington (BME)

#### WILLIAM C. & LINDA E. NELSON SCHOLARSHIP

William and Linda Nelson have been long-standing generous supporters of Purdue's Co-op program. William (Bill) is a 1974 Chemical Engineering graduate from Purdue University. A year later, he earned his Masters in Chemical Engineering. Having over 40 years of industry experience, Bill has received many awards to honor his accomplishments. Bill was inducted into the 2013 Cooperative Education Hall of Fame and was also honored as a 2017 Outstanding Chemical Engineer by Purdue University. An endowment fund was established by Bill and Linda for the creation of annual scholarships for co-op students. Additionally, incentive grants for instructors offering on-campus and/or online courses for co-op students have been generated.



Rithika Athreya (CHE) Madison Bird (CHE) Sriram Ganesh (ME)

Jiyoon Im (ME)

Iris Layadi (BME) Peiyuan Zhao (CHE)

#### OPP IMPACT SCHOLARSHIP

Office of Professional Practice alumni in both Co-op & GEARE programs continue to be generous supporters for the student experience. The OPP Impact scholarship is supported by various alumni contributions and is awarded yearly. These awards are given to OPP students who demonstrate excellence and involvement in work-integrated learning.

- Yash Narain Agarwal (CS) Raina Shreiner Barger (MSE) Alexander Beers (ME) Allison Bosshart (CHE) Catherine Bradley (CHE) Jarrett Cornell (ECE)
- Michael Esry (AAE) Carson Herrell (ME) Timothy Koller (ME) Chalisa Kulprathipanja (BME) Jamie Lam (ECE) Olivia Loesch (BME)
- Joseph Martin (CE) Carter Mayhan (ME) Hesham Mohamed (ME) Tyler Nord (AAE) Annelise Siffer (Nursing) Alyssa Williams (ME)



#### EMPLOYER-SPONSORED SCHOLARSHIP

One of the best ways to help students remember and recognize your company is to assist them with their education. The Office of Professional Practice has awarded students with \$500 scholarships through employer gifts.

Rama Coimbatore (BME) Elise Doan (AAE) Nolen Froedtert (CE) Michael Gille (CE) Alysa Hernan (ME) Ronald Innocent-Ike (ME) George Lazescu (AAE) Katherine Lindert (ME) Isabella Malik (IE) Hans Meerhoff-Bencich (IE) Allison Mou (ME) Yagmur Onder (ME) Thanh Son Le (ME) Alison Steele (BME) Divya Sunderam (BME) Mary Vaughan (ECE) Gabby Whitis (ECE) Anson Wu (AAE)

## **ENGR 103 COURSES**

OPP offers a variety of courses to help students prepare for work experiences. Our 100-level courses provide students the foundation to learn about different industries, gain perspective on professional development tools, connect with industry partners, network with peers and more. These courses are a great foundation to start with on the path to work-integrated learning experiences.

#### ENGR 10301: INTRODUCTION TO PROFESSIONAL PRACTICE

This course is available to First-Year Engineering students and aids in preparation for successful co-op or internship experiences through industry led guest lectures, professional skills workshops and student mentorship. During fall of 2022, this course transitioned from virtual to in-person instruction, and spanned over two sections. There was a substantial increase in size from 90 students to over 250. These sections were led by Jenny Strickland and Patrick Francis.

#### **ENGR 10301: SILICON VALLEY & THE TECH INDUSTRY**

This course blends professional development in the tech industry and provides an embedded spring break travel to network with employers and Purdue alumni in Silicon Valley. Students prepare for the trip to enhance their professional skills through hearing from several industry speakers to develop an understanding of how to successfully compete for opportunities in the tech industry. These 25 students were led by Jenny Strickland, Patrick Francis and Steve Sposato.

#### ENGR 10301: PHARMA CAREERS & DRUG DISCOVERY

This course offers an introduction to careers in the pharmaceutical industry. Each lecture was led by a different guest speaker presenting on how different aspects of the industry can be applied not only through academics but other work-integrated learning. Open to all students, this course welcomes those studying First-Year Engineering, any Engineering disciplines and various majors within the College of Science, College of Pharmacy and College of Health and Human Sciences. The spring 2023 section of this course saw 83 students from four different colleges. Patrick Francis, Bill Clark

and Jo Davisson served as course instructors bringing industry partners to campus weekly.

#### ENGR 10301: INTRO TO SEMICONDUCTORS (NEW)

This course introduces semiconductor technology, its role in our lives, impact and career opportunities to Purdue students. Guest speakers from some of the largest semiconductor companies in the world including Skywater Technologies, NVIDIA, Intel, ASML, Micron, and others, engage students on a weekly basis. 161 students developed their personal networks while being presented with resources and opportunities to prepare for exciting careers within the semiconductor industry. The Spring 2023 section was led by Professor Muhammad Hussain and Joe Tort, who put together the lecture series for the first-time in Purdue history in addition to having each lecture live-streamed weekly.











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#### KAI ZE EE: RISING ECE STUDENT TAKES GIANT LEAP IN EDUCATION THROUGH ENGR 103 COURSES

Prior to coming to Purdue, First-Year Engineering student Kai Ze spent two years in the military in Singapore. After completing one year of service, he realized his passion was to study engineering. While he was remotely researching for a professor at the University of Michigan, he found excitement in the fundamentals of engineering design and chose to pursue it further in college.



While attending the Engineering Student Welcome Fair during Boiler Gold Rush, Kai Ze met ENGR 103 instructors and took interest in the dynamic course offerings. He enrolled in the course hoping to improve his resume and build his LinkedIn profile. Looking back, Kai Ze believes the course had a deeper impact than he expected. Different aspects of the course challenged him, including attending career fairs and reflecting on his personal goals. Ultimately, he was surprised and impressed by his accomplishments during his first semester.

Looking back at this experience, it was clear this course was an essential piece to the foundation of his development at Purdue.

### *"Course assignments made reflection a routine, helping me analyze all of my different experiences and identify what I liked, disliked, and what I wanted to try next."*

Establishing this skill continued to help Kai Ze during his first year, especially in determining which engineering discipline he wanted to pursue. The Intro to Professional Practice course introduced him to the industry knowledge courses offered by OPP in the spring. He chose to enroll in Silicon Valley & the Tech Industry and Intro to Semiconductors.

### *"My experience with OPP has been positive and progressive while allowing me to build my professional development skills. Through the seminar courses and trip to Silicon Valley, I believe I have become a more well-rounded student and person."*

Kai Ze was selected as a member of the inaugural Purdue Summer Training, Awareness, and Readiness for Semiconductors (STARS) program. This experience will provide foundational knowledge surrounding chip design and manufacturing. This fall, he will return to campus for his first semester as an ECE student and will be serving as an undergraduate teaching assistant at OPP, mentoring first-year engineering students.





#### INTRO TO PROFESSIONAL PRACTICE

Topics covered in this course include:

- 1-on-1 Resume Review & Workshop
- Talking to Employers at a Career Fair
- Best Practices for Interviews
- Written Communication at Work
- Building a LinkedIn Profile
- Building Skills for Your Career Path
- Student Panel with OPP TAs
- Diversity & Inclusion at Work IDI Survey
- Risk & Safety in the Workplace
- Elevator Pitch Practice
- Final Resume Review
- Mock Interviews with Feedback



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#### PHARMA CAREERS & DRUG DISCOVERY

Topics covered in this course include:

- Professional Skills for Pharma
- Next Generation Bioprocessing
- Connected Care
- Continuous API Processing
- Cell and Gene Therapy
- Vaccines
- Regulatory
- Discovery and Development Interface
- Biologics
- Synthetics
- Supply Chain Strategies
- Quality Control/ Quality Assurance
- Cost, Economics and Commercialization



Catalent, AstraZeneca



#### **INTRO TO SEMICONDUCTORS**

Topics covered in this course include:

- Industry Overview & History
- Logic Microprocessors
- Memory Technology

Microsoft

- Designing Semiconductor Electronics
- Semiconductor Manufacturing & Ops
- Semiconductor Modeling Tools
- Sustainable Manufacturing Processes
- Non-silicon Semiconductor Electronics
- Semiconductors & the Auto Industry
- Digital Healthcare Technology
- Panel discussions with Purdue alumni



GlobalFoundries<sup>®</sup> SYNOPSYS<sup>®</sup> intel.

#### INTRO TO SILICON VALLEY & THE TECH INDUSTRY

SK hynix ASML 🛱 skywater

Google Medtronic Micron 💿 NVIDIA. Western Digital.

The Office of Professional Practice (OPP) partnered with Global Engineering Programs and Partnerships (GEPP) for the second edition of the study away trip. Students enrolled in a one-credit course, ENGR 103: Into to Silicon Valley and the Tech Industry, in conjunction to the trip. The course provided supplemental professional development led by OPP Program Managers, Jenny Strickland & Patrick Francis. Weekly lectures prior to the trip focused on skills-based learning, entrepreneurship and mentorship, understanding AI, the power of networking and completing the intercultural development inventory.

The jam-packed week of visits kicked off with a Tesla manufacturing facility tour and early career workshop, followed by a visit to the Google campus where students engaged in a panel discussion with Purdue alumni. Apple hosted a unique event; this group was the first student tour from any university invited inside Apple Park campus. Students were able to connect with additional Purdue alumni throughout the week at established industry partners like Intel, ASML and HPE. Students also learned about the incredible innovation of Saildrone's leading technology around ocean data solutions with autonomous surface vehicles, toured the manufacturing site of Zoox, and stepped foot into the hangar of Joby Aviation.

Students networked with members of the Silicon Valley Boiler Innovation Group (SVBIG) and attended a Venture Capital workshop.



MEDIATEK



### **UNDERGRADUATE TA STAFF**



Through the generosity of our sponsors, OPP was able to expand the team of Undergraduate Teaching Assistants to build a strong presence in ENGR 103 courses, create additional support for students going into co-op and GEARE, and diversify reach across campus. OPP's impact and engagement are large in part due to the incredible mentorship and outreach of the TAs. Their presence across campus supports student success.



Rithika Athreya CHE '24



Madison Bird CHE '24



Marek Gibson



Zach Logar



James Mock CHE '25



Anjali Padiyar CHE '23



Noah Willis ME '24

### **GRADUATING TA STAFF**



#### Maddie Barondeau CHE '23

Industry Experience Kimberly Clark, Eli Lilly

Awards & Achievements AIChE President

Full Time Role Kimberly Clark



#### Amanda George CHE '22

Industry Experience Vantage Chemicals, 3M

Awards & Achievements ASEE Co-op Student of the Year Finalist

Full Time Role 3M



### Shreya Misra

Industry Experience Laminar Scientific, Cummins

Awards & Achievements Commencement Speaker

Full Time Role Tesla

#### Nicholas Mori IE '23

Industry Experience Tesla, Microsoft

Awards & Achievements 2022-2023 Engineering Fellow

Full Time Role SpaceX

#### Madison Newman CHE '23

Industry Experience SABIC, Chevron Phillips Chemical Company

Awards & Achievements FE Licensed Engineer

Full Time Role Chevron Phillips

#### Ellen Van Daele ME '23

**Industry Experience** Exxon, Boeing, Honda, Boston Consulting Group

Awards & Achievements Former PPA President

Full Time Role Boston Consulting Group



#### Rebecca Hanna CHE '23

Industry Experience RTI International, E&J Gallo Winery

Awards & Achievements AIChE Service Scholarship

Full Time Role Ingevity



#### Allie Losey ME '23

Industry Experience Siemens, Caterpillar

Awards & Achievements Malott Innovation Award

Full Time Role Rolls-Royce





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## GET IN GEARE





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#### STUDENTS ABROAD IN 19 COUNTRIES

Australia, Austria, Costa Rica, Ecuador, France, Germany, Hong Kong, India, Ireland, Italy, Japan, Netherlands, Peru, Poland, Singapore, Spain, Sweden, Switzerland, Taiwan





**48 GLOBAL ENGINEERING** MINORS AWARDED Chinese, French, German, Italian, Japanese, Portuguese, Russian, Spanish, Korean

#### GEARE CELEBRATES 20TH ANNIVERSARY IN KARLSRUHE, GERMANY WITH PARTNERS FROM KIT AND IPEK

The Global Engineering Alliance for Research and Education (GEARE) 20th anniversary celebration was an inspiring weekend full of reconnecting, networking, learning and immersion in German culture. The weekend started off with lab tours at our host site, Karlsruhe Institute of Technology (KIT), where participants learned about the latest research happening on campus. The GEARE reunion main event held on Friday afternoon, provided talks highlighting the program's diverse history with remarks from founders and key players such as Prof. Thomas Hirth (KIT'S Vice President for Innovation and International Affairs), Prof. Eckhard Groll (Purdue's Head of Mechanical Engineering), Prof. Norbert Burkardt (KIT's Global Design Team Professor), Prof. Dan Hirleman (Purdue's Executive Director for International Advancement), Prof. Sigmar Wittig (KIT President Emeritus) and Tom Malott (Purdue Alum and Retired President and CEO of Siemens Energy and Automation). Participants also heard a special welcome message from German Consul General Wolfgang Mössinger.



Joe Tort, Associate Director for OPP, alongside Marcel Nöller, from KIT's Institute of Project Engineering (IPEK) served as the event's hosts and Masters of Ceremonies. On Saturday,

participants engaged in "World Cafe" style programming where facilitators led intercultural learning based workshops and conversation, simulating activities GEARE students participate in. The wealth of alumni experience combined with the enthusiasm of current GEARE students from Purdue and KIT led to an exciting learning opportunity for all involved.

Following the reunion celebration, participants enjoyed a group barbecue and recreational activities such as brewery tours and hiking in the Black Forest of Southwest Germany. Thanks to the 180+ Purdue GEARE and AK GEARE alum, faculty, students, and industry partners who traveled to Germany and made this a truly special event. Many thanks to our wonderful friends at KIT for hosting and for the great partnership with Purdue's College of Engineering. OPP looks forward to hosting the 25-year celebration on campus in 2028.



## **EVENTS & ENGAGEMENT**

#### TESLA COMPANY VISIT: DISCIPLINE-SPECIFIC INFO SESSIONS, CAREER FAIR & PANEL DISCUSSION

In March, 600+ students attended the Tesla showcase, consisting of a Tesla-specific career fair, discipline-specific information sessions and a keynote offered by a panel of Purdue alumni. The career fair offered students opportunities to interact with hiring managers from various divisions including Battery Cells, Silicon Development Drive Systems, Manufacturing Engineering, Electronic Systems and Battery Engineering Material Planning. Students engaged with panel of alumni and engineers as they shared what a day in the life at Tesla is like, highlighted their teams and discussed their individual journeys from Purdue to Tesla.





#### **NETWORKING & SHADOW DAY AT GUIDON**

20+ engineering students were given the opportunity to travel to Indianapolis to participate in a Networking and Shadow Day offered by Guidon Design, a combined architecture, engineering and design firm focused on sustainability and wellness. Students sat in on presentations, expanded their networks, and shadowed various full-time roles in order to understand the interdisciplinary aspects of engineering and architecture.

#### **FYE INDUSTRY EXPLORATION NIGHT**

The Office of Professional Practice, in collaboration with the First-Year Engineering (FYE) program, organized the first ever FYE Industry Exploration night. This event, held last October at the Recreation & Wellness center, witnessed an impressive turnout of nearly 800 first-year engineering students, eager to embark on their academic and professional careers. Throughout the evening, students were provided the opportunity to engage in conversations about engineering



experiences in industry with 75+ volunteer representatives. These representatives included College of Engineering alum, current staff, Co-op coordinators, upper level co-op students, engineers directly from industry and inductees from the 2021 Professional Practice Hall of Fame, Denny Warner and Dianna Clute.

#### **PHARMA & LIFE SCIENCES CAREER FAIR**

The Office of Professional Practice, alongside the College of Pharmacy, organized the inaugural Pharma & Life Sciences Career Fair in October of 2022, which saw over 400 students in attendance. Employers such as Eli Lilly, Evonik and more, came to recruit Purdue students from various majors and disciplines. Internship, co-op and full-time opportunities were available for undergraduate and graduate students from the College of Engineering, College of Health & Human Sciences, Krannert School of Management, College of Pharmacy, Polytechnic Institute and College of Science.



#### **ZOOX VISIT TO PURDUE CAMPUS**

OPP was fortunate to partner with ZOOX, an autonomous vehicle ride-share company that will provide mobility-as-a-service, and host their University Relations Recruitment Team for their first ever visit to Purdue's campus. The team led an information session to talk about the latest innovations and opportunities offered by the company. Around 100 students attended the event in Hiller Theatre to connect with the ZOOX team, ask questions and learn about the skills and preferred backgrounds they are seeking in candidates.

#### **THYSSENKRUPP TECH TALK**

Thyssenkrupp, one of our Corporate Sponsors, is a German industrial engineering and steel production multinational conglomerate. Thyssenkrupp visited campus this spring and Kristof Polmans, Senior Vice President for Research and Advanced Engineering, led a Tech Talk to students and staff surrounding the evolution of the company. His talk highlighted modes of agile leadership, importance of strong workplace culture and spoke to how students can find great outcomes at the company.





#### **GEARE NETWORKING NIGHT**

Over 200 students gathered at Ross-Ade Stadium to connect with global companies supporting the annual GEARE Networking Night last fall. While the event is centered around introducing international opportunities to students, it was also a time for GEARE ambassadors to share about their previous experiences with prospective students. With the event happening on the Monday evening prior to Industrial Roundtable, GEARE was pleased with the turnout of companies including Amazon, Daimler, Dupont, Eastman, Endress+Hauser, Evonik, Micron, RA Jones, Rheem, Rohde & Schwarz, Textron and ZF Group. Students will study and work abroad with many of these companies across the globe.

### CO-OP DAYS CAREER FAIR 2023

The Office of Professional Practice hosted the annual Co-op Days, a multi-day event encompassing a range of activities with focus on a career fair specifically tailored to co-op positions. Co-op Days was re-designed to enhance students' chances of securing valuable internships and co-op opportunities. Throughout this event, students were able to attend callouts, info sessions, resume reviews, PPA Networking Night, a career fair and subsequent interviews. Over **2,000 students** engaged in these activities, the **largest on record**. Renowned companies from diverse industries attended the career fair, including Caterpillar, Kimberly-Clark, Northrop Grumman and Toyota. An added benefit introduced during the career fair was providing students free access to high-quality headshot photography. By providing this service, students could enhance their personal brand and set them apart in a competitive job market. Overall, by offering a range of activities, fostering networking opportunities and providing essential services like resume reviews, Co-op Days played a vital role in empowering students and preparing them for successful career paths in their respective fields.

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# EMPLOYERS FROM





### **48%** OF RECRUITERS WERE PURDUE ALUMNI

### **BB**/O OF EMPLOYERS HIRING WITHIN INDIANA





### **600+** DIFFERENT OPENINGS FOR STUDENTS

# GEARE ALUMNI SPOTLIGHT

Growing up in nearby Fort Wayne, IN, GEARE alum Sam Dynako (EE '20) wanted to capitalize off of the great engineering program at Purdue. He learned about GEARE his freshman year, and was immediately interested. During his junior year at Purdue, he spent one year abroad studying at Universidad Carlos III de Madrid in Madrid, Spain and completed an international work session with HP in Barcelona, Spain.

Sam knew he always wanted to volunteer at some point in his life, and he became familiar with the Peace Corps his freshman year of college. He had befriended one of the pastors at St. Thomas Aquinas, the



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Catholic church on Purdue's campus. The pastor was from Cameroon and he had discussed with Sam the positive impact that the Peace Corps volunteers had on his community back home. Sam was immediately intrigued. After graduation, Sam planned on volunteering with the Peace Corps as a science teacher in Mozambique, but unfortunately his assignment was delayed due to the pandemic. As he awaited his next assignment, Sam secured a full-time role as a Hardware Test Engineer at an aerospace company in Los Angeles, California.

Fast forward to Summer 2022, Sam received an opportunity to serve as an English teacher in Ecuador for his first Peace Corps assignment. Sam attributes some of his success to his study abroad experience in the GEARE program, stating that "Being in Spain gave me a really good foundation for being able to speak Spanish here in Ecuador. When you live abroad, you get to speak the language every day, and that's what I think is one of the most enriching parts of it." He also discussed how traveling on his own allowed him to recognize the importance of being smart and aware of your surroundings to ensure your own safety.



Having been abroad for almost two years in different cultures, Sam shared some pieces of advice for students interested in studying abroad and GEARE. He encouraged students to acknowledge the fact that things are going to be different, and to try to embrace these differences or at least understand how to navigate inside of them. By recognizing these points of diversity, you can find a constructive way of bridging them. Another suggestion Sam offered was to do your best to think about how these experiences fit into the career trajectory that you are looking for. He advises that if you can tie it into a larger narrative, then it becomes a very valuable tool for students who can understand and articulate their global experiences to their peers and prospective employers.

# CO-OP ALUMNI SPOTLIGHT

Amanda George (CHE '22) knew that going to Purdue was a no-brainer when she decided she wanted to pursue engineering. She grew up in the STEM field, her father was a mechanical engineer and she had taken her fair share of computer science, math, chemistry, and biology courses throughout high school. As she was attending a Women in STEM event hosted by Purdue, she met a girl studying Chemical Engineering who was going to work in the cosmetics field, and Amanda immediately knew that Chemical Engineering was the discipline she wanted to go into after FYE.

Amanda had heard of the co-op program during first-year orientation and throughout the semester via emails sent by OPP. Responsible for her own tuition, she decided that co-op could allow her to make money while gaining



valuable experience in the field she was most passionate about. Through the Co-op Career Fair, Amanda found a five-term co-op with Vantage Chemicals. Although every term was spent in the same location, she was able to rotate throughout different departments, spending time in quality, research and development, technical engineering, production engineering and marketing. The combination of these sectors allowed her to understand how to work in a cross-functional way with different groups. Her experience at Vantage would also eventually benefit her transition into her current full-time R&D role at 3M.

Amanda was also involved in several organizations on campus. Knowing that leadership was an important skill to have and very attractive to potential employers, she served as Secretary of Purdue Engineering Student Council (PESC) and as an Undergraduate TA at OPP. Amanda played an integral role in the update to co-op course deliverables and was a finalist for the American Society for Engineering Education (ASEE) Co-op Student of the Year in 2022.

Amanda initially interned at 3M after finishing her fifth co-op rotation. Following her graduation in December of 2022, she was hired by 3M full-time as an R&D Product Engineer in the Industrial Adhesives and Tapes department. In regard to how she secured the position, Amanda stated, "I'm sure that the reason I was able to interview so well with 3M and get a position is because of all the previous co-op experience I had."

In her role, Amanda works in product development. She is responsible for connecting with customers to see what they are looking for, tweaking formulations, sending products to manufacturers for scale-up and much more. She has also had the opportunity to lead her own project. She says, "the reason they trust me so early on is because of my previous experience."



## STUDENT ORGANIZATIONS

#### PROFESSIONAL PRACTICE AMBASSADORS (PPA)

Professional Practice Ambassadors is a student organization with members who have a shared experience in work-integrated learning. PPA includes co-op students that seek to enhance the awareness and experience of the co-op program at Purdue. PPA act as delegates to the Office of Professional Practice in promoting OPP programs to prospective students, assisting with recruitment events and interacting with industry partners. They hold programs and events of their own such as PPA Networking Night, ENGR 103 Mentorship Programs and various social activities.



#### **GEARE AMBASSADORS**

GEARE Ambassadors serve to advance the GEARE brand to students, alumni and employers, while improving students' overall GEARE program experience. They also promote global opportunities for Purdue engineering students through internships, study abroad programs and other worldwide programs. Through the numerous social and professional events they hold throughout the academic year, including resume reviews, global research panels and giant bouncy houses, they have aided in the growth and development of the GEARE program.









## **OPP ADMINISTRATION**

#### DR. PHILLIP DUNSTON, Director

JOE TORT, Associate Director

JENNY STRICKLAND, Senior Co-op Education Programs Manager

PATRICK FRANCIS, Senior Experiential Learning Programs Manager

HEATHER FABRIÈS, GEARE Program Manager

BARB ALBRECHT, Employer Information Specialist

TINA ALSUP, Student Information Specialist

JULIE PERETIN, Professional Practice Programs Administrator

GABRIEL RIOS-ROJAS, Assistant Professor, Global Engineering

**AKASH PATIL**, Graduate Assistant, Intercultural Learning & Milestones **ALEJANDRO BENÍTEZ DE LA RIVA,** Graduate Assistant, Milestones

LUCY WAGNER, Communications Student Lead









*Scan for an Introduction to Purdue Co-op* 



**Office of Professional Practice** 



opp.purdue.edu I propractice@purdue.edu I @pupropractice

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