

**Saint Francis University  
STEAM Day 2022 Presentations**

Tuesday, November 22, 2022

Sessions begin at 9:30am, 10:30am, 11:30am, and 12:30pm

<b>STEAM Day Keynote Presentations – JFK Auditorium</b>			
<b>9:30</b>	<b>10:30</b>	<b>11:30</b>	<b>12:30</b>
<b>KEYNOTE #1</b> <b>Experience A World of Arts at SFU</b>	<b>KEYNOTE #2</b> <b>The Past, Present, and Future of Energy in the U.S.A.</b>	<b>KEYNOTE #3</b> <b>Mission to the Moon</b>	<b>KEYNOTE #4</b> <b>Fins and Gills on Patients? Career Paths in Veterinary Medicine</b>
<i>Mr. Jim Donovan, Ms. Jessica Campbell, Dr. Lance Mekeel, and Mr. Jonathon Neff; Center for Fine Arts, Saint Francis University</i>	<i>Ms. Samantha Baldwin, Production Unit Manager; Shell Polymers; Monaca, PA; Saint Francis University Alumna (2008)</i>	<i>Mr. Mike Hennessy, Manager of Learning &amp; Programs; Moonshot Museum; Pittsburgh, PA</i>	<i>Dr. Kathy Heym, Veterinary Medical Officer; U.S. Food and Drug Administration, Rockville, MD; Saint Francis Alumna (2000)</i>
Are you looking to keep your passion for the arts alive in college? Whether you choose to study business, health, humanities, or STEM, Saint Francis is committed to providing you with enlivening opportunities in the Arts. In fact, we are currently building a state-of-the-art \$6M Fine Arts Center featuring the “Resinski Black Box Theater”. Participating in the arts helps you by developing confidence in public settings, providing stress relief, and balance during your academic pursuits, increasing self-esteem, and/or just having fun.	Hear the career story of a chemistry major in college going on to manage a nuclear-powered generating station and now a Cogen Facility as part of a Petrochemical Complex. Also hear a discussion of meeting the electrical energy needs of our society from generation to the increasing usage in homes, electronics, and electric vehicles.	Embark on a high-octane lunar science expedition complete with explosive rocket science, colorful chemistry, and audience participation. Discover how robots are mapping the Moon today and explore the challenges we'll face creating the lunar city of tomorrow. America is returning to the Moon, and the local space industry is leading the way. Join the adventure and find your place in the future of space.	Imagine being a doctor who wears a wetsuit instead of a lab coat and whose first patient of the day is a sand tiger shark rather than a golden retriever. The field of veterinary medicine is vast, and not all veterinarians work in a small or large animal hospital. Learn about possible careers in veterinary medicine including aquatic animal medicine, health and conservation, and regulatory science.

# Saint Francis University

## STEAM Day 2022 Presentations

Tuesday, November 22, 2022

Sessions begin at 9:30am, 10:30am, 11:30am, and 12:30pm

**1. Acting Out with Imaginary Bodies** Schwab Vista Room 302 **11:30a & 12:30p**

*Dr. Lance Mekeel, Assistant Professor of Theater, Saint Francis University*

In this fun and active session, participants will explore how actors can create a distinctive and truthful character by imagining the characters separately from themselves and then “stepping into” the character.

**2. An Introduction to the College Admissions Process** JFK Lounge **9:30a & 12:30p**

*Dr. Bobby Anderson, Director of Admissions, Saint Francis University*

We want you to join our Red Flash Family! Saint Francis University is a comprehensive university (professional and graduate programs, NCAA D1 athletics, and competitive national outcomes) in a small college setting (largely residential, low student-to-faculty ratio, and liberal arts core curriculum) to be a regional treasure recognized for excellence in teaching, student engagement, and post-graduation success! Hear about the University’s mission and values, educational and co-curricular opportunities, and the application and financial aid processes.

**3. Animal-Assisted Therapy, Education and Interaction** Scotus 102 **11:30a & 12:30p**

*Dr. Shlomit Flaisher-Grinberg, Associate Professor of Psychology, Saint Francis University, and students*

There are many ways for humans to support the well-being of animals, and many ways for animals to improve the lives of people. The session will discuss the different roles of animals within the human-animal bond (working animals, service/disability animals, animal-assisted therapy/education/activities, emotional support animals, and companion animals), the ways animals are integrated into various career paths and professions, and SFU’s “Canine Learning and Behavior” course dedicated to the rehabilitation of shelter dogs.

**4. Army ROTC Opportunities: Leadership, Service, and Scholarships** Scotus 210 **10:30a & 11:30a**

*Mr. Chris Chavira, Recruiting Operations Officer, U.S. Army ROTC*

Consider the Reserve Officers' Training Corps (ROTC) as you are looking for options in your college career. Full scholarships are possible for you to lead and serve your country, all without sacrificing your college experience in almost any major. And a career is waiting for you when you graduate. Attend this session to learn more about the opportunities and how to apply.

**5. Bringing Health to Life in the Virtual Reality Lab** Learning Commons G31 A **9:30a, 10:30a, 11:30a, & 12:30p**

*Ms. Brenda Guzik Director, Experiential Learning Commons, Dr. Rita Trofino, Nursing Dept. Chairperson; David Wolfe, Simulation Technician, Alexa Schmidhamer, Graduate Assistant, Saint Francis University*

Come check out the new virtual dissection Anatomage tables and mixed reality HoloAnatomy lenses in our Virtual Reality Lab. While it may look like something out of a science-fiction movie, our virtual reality lab allows you with a click of a button, a swipe of your finger, or a flip of your wrist to view a beating heart, explore the impact of various diseases or injuries, and drill down to closely study each system of the human body. Highly photorealistic images of the human body and interactive anatomical structures enabling an accurate anatomy visualization experience with 3D technology. You will be able to see human, animal, and aquatic bodies in action, and consider health careers!

**6. Criminal Investigation using Online Tools to Solve Cyber Crimes** Science Center 024 **9:30a, 10:30a & 11:30a**

*Mr. John Valkovci, Associate Professor; Mr. Michael Zambotti, Assistant Professor of Cybersecurity, SF*

Learn the process of open-source intelligence (OSINT) and the free resources that can be used to investigate crime and mine for data about people and companies. The session will cover the mindset, skills, and tools used to solve cybercrimes. Use Advanced Google Searches, Social Media Investigation, the Dark Web, and image searches to search for sample criminals.

**7. Cryptography: Making and Breaking Secret Codes**      **Science Center 028**      **11:30a & 12:30p**

*Dr. Kevin Slonka, Associate Professor of Computer Science/Cyber Security, Saint Francis University*

What if you could send a message that everybody could see but only a few could read? Find out how to encrypt and decrypt basic messages in this session. Coded messages are used by spies, diplomats, and the intelligence community, but also used on almost all Internet transactions. Make and break some simple codes in this session and learn some of the theory behind codes.

**8. CSI Loretto: Help Forensic Chemists Solve a Crime**      **Science Center 225**      **10:30a, 11:30a & 12:30p**

*Dr. Ashley Smith-Diemler, Assistant Professor of Chemistry, Saint Francis University and students Gretchen Keith, Sarah Evans, Katie Zerbee, Hannah Daugherty, Mason Hogue, Josh Koval, and Alexandra Ochs.*

Work together with the CSI Loretto team to solve a crime. You will review the evidence collected from the crime scene to identify the suspect who committed the crime. This analysis will require creativity, attention to detail, and collaboration with your peers and the CSI team. Bring your curiosity to compare fiber, hair, and blood (simulated) evidence to help us catch the perpetrator!

**9. Disastrous Floods and the Demise of Steel in Johnstown**      **Schwab 214**      **9:30a & 10:30a**

*Dr. Patrick Farabaugh, Professor of Communications, Saint Francis University*

Learn more about the history of the steel and coal industry in the Johnstown region, as well as the causes and the science behind the three major floods that have hit this city. In this session, author Pat Farabaugh will talk about his latest book - "Disastrous Floods and the Demise of Steel in Johnstown" - and the process of writing and publishing a book.

**10. Engineering the Perfect Wave**      **Science Center 019**      **9:30a, 10:30a, 11:30a & 12:30p**

*Dr. Joel Bandstra, Professor of Environmental Engineering, Saint Francis University*

The very existence of civilization depends on our ability to engineer flowing water. Being able to deliver water to people when they need it and protect people from excessive water during disasters are twin cornerstones of our quality of life. In this hands-on lesson, you will build a wave-shaping device and see how it works in SFU's own hydraulic flume. You will see how engineers manipulate flowing water, waves, and hydraulic jumps to protect infrastructure, help migrating fish, and restore riverine ecosystems. This session will help you determine if engineering is a possible career for you.

**11. Fireworks, Change, and Explosions. Better Living through Chemistry**      **Science Center 230**      **9:30a & 10:30a**

*Dr. Pedro Muñio, Professor of Chemistry and Master of Explosions, Saint Francis University*

See that chemistry is behind most technologies we currently use, from our space program to our kitchens and from construction to demolition. We will show you that a good chemist never misses an opportunity to set something on fire or to make it explode (safely, of course).

**12. Fractals and Mathematics**      **Science Center 028**      **9:30a & 10:30a**

*Dr. Ying Li, Associate Professor of Mathematics, and student Zachary Krepelka, Saint Francis University*

A fractal is a never-ending pattern that repeats itself at different scales. Fractals exist all over nature, from the tiny branching of our blood vessels and neurons to the branching of trees, lightning bolts, and river networks. In this session, we will explore beautiful fractals that can be generated by software, using simple mathematics.

**13. Future War in Asia - America's Choices**      **DiSepio 211**      **9:30a**

*Dr. Mark Gentry, Associate Professor of Political Science, Saint Francis University*

Russia's invasion of Ukraine shows that major power war is still possible. Another flashpoint could involve the U.S. directly, war with China. China claims Taiwan, despite Taiwan being a self-governing country since 1949 and a democracy since the early 1990s. Taiwan has a large economy and is important in global supply chains, particularly producing semiconductors (computer chips). Under the U.S.-Taiwan Relations Act, the U.S. is obligated to provide Taiwan with the military means to defend itself. Should the U.S. commit to the defense of Taiwan if China invades

it? Should the U.S. withdraw from the region, suspend military aid to Taiwan, and cede the region to China? Or continue with "strategic ambiguity?" Students will read a summary and debate possibilities.

**14. Green Careers** **DiSepio 213** **9:30a & 10:30a**

*Ms. Beth McGregor, Director of Career Services, Saint Francis University*

Are you passionate about the environment? Would you like to make a real difference with people and our planet? In partnership with STEAM, we bring you Green Careers. Join us to discuss career opportunities, the environment, business and much more. Start a green career today!

**15. Hike the SFU Watershed Trail** **Front of the Science Center** **11:30a & 12:30p**

*Dr. Lane Loya, Professor of Biology, Saint Francis University*

Observe local animal and plant life and learn more about watersheds and ecology during this 1.5-mile hike on the campus trail. Footwear and clothing appropriate for the outdoors are required.

**16. Interested in Aviation? Learn to be a pilot!** **Scotus 211** **10:30a & 11:30a**

*Mr. Will Guzik and Mr. Cade Young, Certified Flight Instructors for Nulton Aviation, Johnstown PA; and SFU alumni*

Dive into what a career and outlook as a pilot looks like right now and in the future. A shortage exists for commercial pilots and is expected to only grow in the coming years. With a new aviation program, you gain flight experience and a pilot license as you complete your degree in business, criminal justice, engineering, or other majors. Hear about the many opportunities available to you as a pilot and find a possible career direction.

**17. Luke Trotz Esports Arena Open Play** **Luke Trotz Esports Arena (JFK)** **11:30a & 12:30p**

*Mr. Ethan Wingard, Esports Coordinator, Saint Francis University*

Students can visit the state-of-the-art Luke Trotz Esports Arena and play a variety of games including Super Smash Bros. Ultimate, Rocket League, Valorant, and more! In addition, staff and students will be present and available to discuss the Collegiate Esports experience (including possible scholarships) and steps to join the team.

**18. Make College Count: Experiences to set you apart** **JFK Lounge** **10:30a & 11:30a**

*Dr. Bobby Anderson, Director of Admissions, Saint Francis University*

All students choose a college major to lead to their first job. What you learn will in part determine which job you get, the impact you make, and how much you can earn. Learning includes both the content in your courses and the portfolio of experiences you acquire during your four years of college. In selecting a college, look for opportunities that transform you from just another graduate to someone that employers and communities are seeking.

**19. Making Mozzarella: An Introduction to Fermentation Chemistry** **Scotus 119** **9:30a & 10:30a**

*Dr. Benjamin Smith, Assistant Professor of Chemistry, Saint Francis University*

Students will spend the session making cheese, specifically mozzarella. After mixing milk with just 3 other ingredients and doing a bit of heating and stirring, cheese will be made. During the process, we will take some time to dive into the chemistry of fermentation and possible career paths. We hope you are hungry for knowledge.

**20. Making Sense of Our Sensory Systems** **Sensory Room Library 203** **9:30a & 10:30a**

*Dr. Julie Nagle and Dr. Erin Long, Assistant Professors of Occupational Therapy, Saint Francis University*

This session will include a brief overview of the 8 sensory systems, what happens when our body's sensory needs are not met, and what we can do about it. This session is filled with hands-on learning experiences with several SENSEational take-aways! You might consider a career in occupational therapy after attending.

**21. MC Escher and Tilings of the Hyperbolic Plane** **Library 111** **11:30a**

*Dr. Brendon LaBuz, Associate Professor of Mathematics, Saint Francis University*

MC Escher is famous for his stunning works like Relativity which shows an impossible staircase and Drawing Hands which shows two hands drawing each other. Later in his career, he used a model of hyperbolic geometry to create his Circle Limit series. We will explore hyperbolic geometry through these four beautiful woodcuts and then create our own tilings of the hyperbolic plane.

**22. Medieval Engineering: Trebuchets**      **Stokes Auxiliary Gym or Degol Field pending weather**      **9:30a**

*Br. Marius Strom, Engineering Laboratory Instructor, Saint Francis University*

Explore the engineering behind trebuchets as we hurl payloads downrange! Join us as we investigate the physical concepts leveraged by this deceptively simple machine dating back to the middle ages. In this hands-on experience, we will see the sophistication of medieval engineers and what we can learn from them in the modern day. Come and set loose your inner engineer as we examine the fundamentals of engineering and physics at work!

**23. Music and Mindfulness: Self-Care Strategies**      **DiSepio 214**      **10:30a**

*Mr. James Donovan, Director of the Center for Fine Arts, Saint Francis University; Rusted Root platinum drummer*

The active use of music based self care is scientifically proven to improve your mood, relieve stress, increase mental focus and to build social connections. Musical experience is not required. Beginners are warmly welcomed and rhythm tubes are provided for all to use during the program. During the session participants will experience how to use music making to energize your body, clear your mind and become deeply relaxed; practice techniques to use rhythm to slow your brainwaves and enter into a meditative mind; use rhythm and movement to raise your energy and lift your mood; and connect with each other through musical social games.

**24. NASA Community Anchor: Search for Life in the Universe**      **Science Center Atrium**      **9:30a & 10:30a**

*Dr. Lanika Ruzhitskaya, Assistant Professor of Physics, Saint Francis University*

Is there life out there? Is it possible that life is hiding somewhere on distant moons and planets in our Solar System? Or maybe there are alien beings that live in other star systems studying our planet? Are we able to answer these questions? During this planetarium session, we will look at the current events in the night sky and go on a journey through the universe in the search for life. This session takes place in the Palumbo Planetarium, and part of the outreach from the NASA Community Anchor on campus.

**25. New York City Trip Competition: 20x14**      **Scotus 105**      **12:30p**

*Dr. John Woznak, Professor of English; and Ms. Bonnie Resinski, Center for Fine Arts; Saint Francis University*

If you are willing to memorize 20 lines from one of Shakespeare's plays, and if you are willing to memorize 14 lines of one of Shakespeare's sonnets; THEN, you can compete to win an all-expense paid trip to NYC to compete in the National Shakespeare Competition. Find out more details at this session! CU then!!

**26. Paint Pouring and Chemistry: ROCK On!**      **Science Center 227**      **9:30a & 10:30a**

*Dr. Edward Zovinka, Professor of Chemistry, Saint Francis University*

A limited audience of 12 students per session can explore the science behind the art of paint pouring. Join the creative session as you will make your own science creation to take home, as part of the Rural Outreach Chemistry for Kids (ROCK) program.

**27. Shut Up and Drive!**      **Raymond 215**      **9:30a & 10:30a**

*Dr. Amy Hudkins, Clinical Assistant Professor of Occupational Therapy, Saint Francis University*

Check out the occupational therapy department's high fidelity driving simulator. Driving is a complex occupation. When a person wants or needs to return to driving after sustaining a medical condition, such as a stroke, occupational therapists can help assess if the person has the skills necessary to drive. Participants will have a chance to experience the driving simulator with a variety of conditions. Caution, this can cause motion sickness.

**28. So you want to be a doctor? Insights from the pre-med path.**      **DiSepio 213**      **11:30a & 12:30p**

*Dr. Justin Merry, Professor of Biology, Saint Francis University*

Current pre-medicine students talk about their path to and through medical school. While not for the faint of heart, medicine provides rewarding, engaging, and lucrative careers! Attend if you are thinking about being a physician, surgeon, optometrist, podiatrist, veterinarian, or other medical professionals.

**29. Team Debate Competition** **Padua 110** **9:30a, 10:30a, & 11:30a**

*Dr. Arthur Remillard, Professor of Religious Studies, Saint Francis University*

The first eight schools to respond will be able to compete in a Team Debate competition. Each team will have 3-6 students. Individual participants can also compete by registering. The ethics cases will be distributed on the day before STEAM Day. Saint Francis University students and professors will serve as judges. Formal debate rules will be applied. Students competing will gain experience and improve in their ability to think through and navigate the many complicated ethical and political issues that we face in the 21st century. Students may also choose to attend and watch the team debate to observe and learn.

**30. The Benefits of Combining Art and Science** **Library 206** **10:30a**

*Dr. Tim Bintrim, Professor; Dr. Larissa Clachar, Assistant Professor; and Dr. Brennan Thomas, Associate Professor, Saint Francis University*

Some of the most highly-successful people, from world leaders and entrepreneurs such as Justin Trudeau (Prime Minister of Canada) and Larry Page (Google co-founder) to celebrities like Mayim Bialik, studied both humanities and scientific disciplines. Find out how these individuals' diverse educational backgrounds in the arts and sciences propelled them to new career heights--and ultimately changed the way they think and view the world.

**31. The Fusion of Language Study and Science** **Library 206** **11:30a**

*Dr. Larissa Clachar, Assistant Professor; and Dr. Brennan Thomas, Associate Professor at Saint Francis University*

To be an excellent scientist or healthcare provider, one must be a great communicator in oral and written forms. One of the best ways to enhance your communication skills is to study another language. Analyzing this language's sentence structures, learning new vocabulary, and listening to new speech patterns all increase your awareness of and ability to effectively use your native language. Learn about the multiple benefits that even a single language lesson can have on your ability to communicate.

**32. The Science of Exercise and Human Movement** **HPL (DiSepio 119)** **9:30a, 10:30, & 11:30a**

*Dr. Kristofer S. Wisniewski, Associate Professor; Dr. Patricia Fitzgerald, Professor; Mr. Tyke Steiner, Instructor, Exercise Physiology; and Dr. Mark Boland, Clinical Associate Professor of Physical Therapy; and students, SFU*

During exercise, the heart beats to move blood and oxygen so muscles can move. Blood pressure and breathing rates rise. Muscles produce acid and carbon dioxide. What does all this mean? What does it look like? How do you do it correctly to avoid injury or increase your performance? See all of this live in the Human Performance Laboratory, and know how your body is able to move. Let us show you the science of exercise and movement!

**33. Thinking Pharmacy? SFU can help get you a PharmD!** **Science Center 227** **12:30p**

*Dr. Rose Clark, Professor of Chemistry, Saint Francis University*

Ever considered Pharmacy as a career path? Come to see how SFU chemistry will help you achieve your goal of becoming a pharmacist (100% placement and graduation from pharmacy school) or a researcher in pharmacy. Meet graduates of our program and do some cool chemistry experiments.

**34. Zentangle: Drawing for Relaxation and Fun** **DiSepio 201** **12:30p**

*Ms. Jessica Campbell, Assistant Professor of Visual Arts, Saint Francis University*

There is no experience necessary to join this session for a self-soothing, simple drawing exercise. Zentangle drawing is a way to practice focused art meditation through drawing by using repetitive lines, marks, circles, and shapes. Advocates of the practice note that it has multiple benefits including calming an anxious mind, increasing self-confidence, and cultivating moment-to-moment awareness in a way similar to mindfulness meditation.