

School of Science, Technology, Engineering, Arts & Mathematics





## STEAM Day 2022 Schedule

Tuesday, November 22, 2022

8:30 am	School Registration – JFK Student Center Lobby
	-

#### 9:00 am Welcome, Remarks, and Schedule for the Day - JFK Auditorium Dr. Peter Skoner, Dean of the School of STEAM

#### 9:30 am - 10:20 am Concurrent Presentations I

KEYNOTE #1 Experience A World of Arts at SFU; JFK Auditorium

Other presentations as listed on the <u>STEAM Day</u> website under Session Descriptions.

#### 10:30 am - 11:20 am Concurrent Presentations II

KEYNOTE #2 The Past, Present, and Future of Energy in the U.S.A.; JFK Auditroium

Other presentations as listed on the <u>STEAM Day</u> website under Session Descriptions. Lunch at Torvian Dining Hall or Frankies Food Court

#### 11:30 am - 12:20 am Concurrent Presentations III

**KEYNOTE #3 Mission to the Moon; JFK Auditorium** 

Other presentations as listed on the <u>STEAM Day</u> website under Session Descriptions. Lunch at Torvian Dining Hall or Frankies Food Court

#### 12:30 pm - 1:20 pm Concurrent Presentations IV

KEYNOTE #4 Fins and Gills on Patients" Career Paths in Veterinary Medicine; JFK Auditorium

Other presentations as listed on the <u>STEAM Day</u> website under Session Descriptions. Lunch at Torvian Dining Hall or Frankies Food Court

## 1:30 pm Adjournment Thank you for attending STEAM Day 2022



## Saint Francis University STEAM Day 2022 Presentations

Tuesday, November 22, 2022

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

STEAM Day Keynote Presentations – JFK Auditorium			
9:30	10:30	11:30	12:30
<b>KEYNOTE #1</b> Experience A World of Arts at SFU	KEYNOTE #2 The Past, Present, and Future of Energy in the U.S.A.	<b>KEYNOTE #3</b> Mission to the Moon	<b>KEYNOTE #4</b> Fins and Gills on Patients? Career Paths in Veterinary Medicine
Mr. Jim Donovan, Ms. Jessica Campbell, Dr. Lance Mekeel, and Mr. Jonathon Neff; Center for Fine Arts, Saint Francis University	Ms. Samantha Baldwin, Production Unit Manager; Shell Polymers; Monaca, PA; Saint Francis University Alumna (2008)	Mr. Mike Hennessy, Manager of Learning & Programs; Moonshot Museum; Pittsburgh, PA	Dr. Kathy Heym, Veterinary Medical Officer; U.S. Food and Drug Administration, Rockville, MD; Saint Francis Alumna (2000)
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, one 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 BodiesSchwab Vista Room 30211:30a & 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 InteractionScotus 10211:30a & 12:30pDr. 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 10:30a & 11:30a 10:30a & 11:30a

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	9:30a, 10:30a,
			11.20a 8.12.20n

#### Ms. Brenda Guzic 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 28 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 CrimeScience Center 22510:30a, 11:30a & 12:30pDr. Ashley Smith-Diemler, Assistant Professor of Chemistry, Saint Francis University and students Gretchen Keith,<br/>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 JohnstownSchwab 2149:30a & 10:30aDr. 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 WaveScience Center 0199:30a, 10:30a, 11:30a & 12:30pDr. 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 ChemistryScience Center 2309:30a & 10:30a**Dr. Pedro Muíño, 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 0289:30a & 10:30aDr. 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, Sair	nt 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.-Tawain 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 Guzic 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	s 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 apartJFK Lounge10:30a & 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 determines 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 ChemistryScotus 1199:30a & 10:30aDr. 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 Profess	ors of Occupational Therapy, Saint Franc	is University
This session will include a brief overview of the 8 s	sensory systems, what happens when our	r body's sensory needs
are not met, and what we can do about it. This ses	ssion is filled with hands-on learning expe	eriences with several
SENSEsational take-aways! You might consider a c	areer in occupational therapy after atten	iding.

21. MC Escher and Tilings of the Hyperbolic Plane	Library 111	11:30a
Dr. Brendon LaBuz, Associate Professor of Mathematics, Saint I	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	Stoke Auxiliary Gym or Degol Field	9:30a
Br. Marius Strom, Engineering Laboratory Ins		9.308
Explore the engineering behind trebuchets a concepts leveraged by this deceptively simpl experience, we will see the sophistication of	s we hurl payloads downrange! Join us as we inves e machine dating back to the middle ages. In this h medieval engineers and what we can learn from th r as we examine the fundamentals of engineering a	hands-on hem in the modern
23. Music and Mindfulness: Self-Care Strate	egies DiSepio 214	10:30a
The active use of music based self care is scie mental focus and to build social connections and rhythm tubes are provided for all to use how to use music making to energize your be	or Fine Arts, Saint Francis University; Rusted Root p entifically proven to improve your mood, relieve st . Musical experience is not required. Beginners are during the program. During the session participan ody, clear your mind and become deeply relaxed; p enter into a meditative mind; use rhythm and move each other through musical social games.	ress, increase warmly welcomed ts will experience practice techniques
24. NASA Community Anchor: Search for Li	fe in the Universe Science Center Atrium	9:30a & 10:30a
Solar System? Or maybe there are alien we able to answer these questions? Duri in the night sky and go on a journey thro	life is hiding somewhere on distant moons and beings that live in other star systems studying ing this planetarium session, we will look at th ough the universe in the search for life. This ses the outreach from the NASA Community Ancl	our planet? Are e current events ssion takes place
25. New York City Trip Competition: 20x14		12:30p
IF you are willing to memorize 20 lines from	As. Bonnie Resinski, Center for Fine Arts; Saint Franco one of Shakespeare's plays, and iF you are willing t a can compete to win an all-expense paid trip to NY more details at this session! CU then!!	o memorize 14 lines
26. Paint Pouring and Chemistry: ROCK On	Science Center 227	9:30a & 10:30a
•	Saint Francis University n can explore the science behind the art of paint po cience creation to take home, as part of the Rural o	-
27. Shut Up and Drive!	Raymond 215	9:30a & 10:30a
Check out the occupational therapy departm When a person wants or needs to return to o occupational therapists can help assess if the chance to experience the driving simulator w	of Occupational Therapy, Saint Francis University nent's high fidelity driving simulator. Driving is a con driving after sustaining a medical condition, such as e person has the skills necessary to drive. Participan with a variety of conditions. Caution, this can cause	s a stroke, nts will have a motion sickness.
28 So you want to be a doctor? Insights fro	m the pre-med path DiSenia 212	11.20 2. 12.20

28. So you want to be a doctor? Insights from the pre-med path.DiSepio 21311:30a & 12:30pDr. 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 ScienceLibrary 20610:30aDr. Tim Bintrim, Professor; Dr. Larissa Clachar, Assistant Professor; and Dr. Brennan Thomas, Associate Professor,<br/>Saint Francis UniversitySaint 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 ScienceLibrary 20611:30aDr. Larissa Clachar, Assistant Professor; and Dr. Brennan Thomas, Associate Professor at Saint Francis UniversityTo 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'ssentence structures, learning new vocabulary, and listening to new speech patterns all increase your awareness ofand ability to effectively use your native language. Learn about the multiple benefits that even a single languagelesson can have on your ability to communicate.

32. The Science of Exercise and Human MovementHPL (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

Every 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.

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## **BIOLOGY MAJOR CHOICES AT SAINT FRANCIS UNIVERSITY**

## WHICH PROGRAM IS RIGHT FOR YOU?

Every student pursuing biology has unique interests and goals. The Biology Department at Saint Francis University offers a diverse array of programs that provide students individualized training to match their needs. Students completing the following programs earn a bachelor's degree, and may also earn a concentration in a specific discipline.

#### GENERAL BIOLOGY PROGRAMS (B.A. Biology or B.S. Biology)

Biology Dept Website

Facebook facebook.com/sfubiology

E Twitter twitter.com/sfubiology

#### Contact Us

Learn More!

Dr. Justin Merry Biology Dept. Chair jmerry@francis.edu 814-471-1105

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#### ECOLOGY & ENVIRONMENTAL BIOLOGY CONCENTRATION (B.S. Biology)

An emphasis in ecology: how organisms interact with one another and their environment. Spend a semester at Raystown Field Station, where the outdoors is your laboratory. Do undergraduate research in ecology with our faculty during the semester or in the summer.

#### JOSEPH EREVELLES PRE-MEDICINE CONCENTRATION (B.S. Biology)

Our pre-physician, pre-dentistry, pre-optometry, and pre-veterinary medicine program. Built around personal attention and faculty advising in a rigorous curriculum that will give you the tools that you need to apply to and excel in the professional school of your choice.

## MARINE BIOLOGY CONCENTRATION (B.S. Biology)

Study the ocean and its inhabitants from the molecular level through all levels of the ecosystem. Our program has a global perspective that is not tied to one particular geography. Students earn scuba certifications, and learn research techniques at coral reefs in the Caribbean, and hone field skills at Chincoteague Bay Field Station.

#### MOLECULAR BIOLOGY CONCENTRATION (B.S. Biology)

Study the function of molecules and cells, along with the methods and technologies used to research them. Learn cell culture for work in cell biology, cancer biology, and virology. Upon graduation, students proceed to graduate programs, or lab scientist positions.

## NEUROSCIENCE CONCENTRATION (B.S. Biology & B.S. Psychological Science)

The study of the nervous system: its anatomy, its function, and its applications. Students learn an interdisciplinary approach in this double-major program to explore nervous system function and connections to neuropathologies of movement, sensation, and cognition.

## SECONDARY EDUCATION CONCENTRATION (B.S. Biology)

A complete B.S. in Biology, with all of its rigor and opportunities, along with the education training the Department of Education requires to teach in PA public or private schools.



Biology School of STEAM

## **ADDITIONAL MAJORS IN THE BIOLOGY DEPARTMENT**

#### WHICH PROGRAM IS RIGHT FOR YOU?

The following programs are also operated under the umbrella of the Biology department, and offer students new opportunities to blend disciplines or pursue a specialized career path.

#### AQUARIUM & ZOO SCIENCE MAJOR (B.A.)

#### Learn More!

Biology Dept Website francis.edu/biology

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E Twitter twitter.com/sfubiology

## Contact Us

Dr. Justin Merry Biology Dept. Chair jmerry@francis.edu 814-471-1105

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Training for students who want to work as keepers, educators, or naturalists in zoos or aquaria. Get hands-on experience operating our 1,500 gallon professional-scale aquarium, and gain real-world experience through the animal care practicum and internships.

#### **BIOCHEMISTRY MAJOR (B.S.)**

This program is offered jointly through the Biology and Chemistry departments. Biochemists study the chemical processes that occur in living cells as well as the structure and function of proteins, lipids, carbohydrates, and nucleic acids. Students learn hands-on wet lab techniques to explore biochemistry through courses and research.

#### MEDICAL LABORATORY SCIENCE MAJOR (B.S.)

Also known as Medical Technologists or Clinical Laboratory Scientists, our graduates work in clinical and hospital laboratories on the front lines of disease diagnosis, or in forensics labs. This is a 3+1 program; students spend three years at Saint Francis University before a fourth year at one of our six affiliated hospital training facilities.



## WHAT CAN YOU DO WITH A BIOLOGY DEGREE?

#### CAREER OPTIONS IN THE BIOLOGICAL SCIENCES

Biology is a diverse field. Biologists study life in disciplines ranging from molecular biology and physiology to ecology and evolution. Career options vary just as widely, with options in research, health care, government, law, education, and more. Below is a sampling of career options that our students have pursued.

#### **RESEARCH: BASIC & APPLIED**

Researchers work for universities, government agencies, and private research institutes. Entry-level positions require a bachelor's degree, while graduate school (M.S. or Ph.D.) is required for greater oversight, control, and management of research projects. Research may specialize in:

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**Biology Dept Website** 

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School of STEAM

### Anatomy & Histology **Animal Behavior** Biochemistrv **Bioinformatics Biological Engineering Biophysics Cell Biology Conservation Biology** Ecology **Evolutionary Biology** Genetics **Genomics & Proteomics** Immunology Marine Biology Microbiology & Virology Molecular Biology Neuroscience Physiology Plant Biology Systematics & Taxonomy

## **EDUCATION**

Post-Secondary Education Secondary Education Elementary Education

Environmental educators working at... Zoos, Aquaria, Museums, Aviaries Theme Parks and Resorts Ecotourism, Camps, Education Voyages

### **HEALTH CARE**

Dentist Medical Laboratory Scientist Optometrist Pharmacist Physician (Medicine) Podiatrist Veterinarian

### **ENVIRONMENTAL SCIENCE**

Dept. of Conservation & Natural Resources Environmental Assessment & Monitoring Environmental Scientist Fisheries Management Forestry Natural Resource Management Wildlife Management U.S. Park Service

## **ANIMAL CARE & TRAINING**

Animal Trainer Aquarist Zookeeper Wildlife Rehabilitation & Care

## LAW, BUSINESS, & WRITING

Environmental Law Patent Law Science Policy Advising Business Management Marketing Pharmaceutical Sales Technical Instrument Sales Science Writing Science Journalism



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Contact: Jess Campbell, jcampbell@francis.edu



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**BS** - Forensic Chemistry

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BS Chemistry – Pre-Medicine

BS Chemistry – Pre-Pharmacy

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- Opportunities to attend and present research at National Conferences
- Hands on experience with Industry quality instruments, including Nuclear Magnetic Resonance (NMR), and Gas Chromatography –Mass Spec (GC-MS), etc.
- 100% placement into Pharmacy Schools and Chemistry Graduate Schools
- 98% placement into Medical Schools

## **Recent Graduate Highlights**

Josie Carr ('22) Virginia Commonwealth Dental School Tiffany Conrad ('22) Texas A & M Chemistry Ph.D. program Chris Haser ('22) Marshall Univ. Forensic Chem Grad School Maddie Wright ('21) Notre Dame University Ph.D. program Erin Link ('21) LECOM Pharmacy school

Victoria Geiser ('20) Duquesne University Pharm.D. Program

Michelle Karpinski ('20) Florida International University Ph.D. Forensic Chemistry

Simon Pitman ('19) Medical School Campbell Univ.

Hannah Boyd ('19) Medical School Liberty University





## **Saint Francis University Chemistry Department**

## Become that **Chemist**



Research



## **Presentations**

Service Then Ice Cream





## Adventures around the area

## **Chemistry Club**



Outreach



Contact us to set up your visit to campus!

Dr. Edward P. Zovinka ezovinka@francis.edu 814-472-3373

Visit us at: www.francis.edu/chemistry



## **Fermentation Chemistry**

Bachelor's degree with a Business minor

## **Excel in the Growing Fermentation Field**

A bachelor of arts degree, with a built-in minor in Business, in fermentation chemistry from Saint Francis University equips students for a future in this growing global industry.

#### What you can expect:

- applied learning incorporated through local fermentation partners (Levity Brewing, Woody Lodge Winery, Clover Creek Creamery)
- immersion semester located in the heart of the Gaillac region of Southwest France
- access to top notch equipment and facilities
- courses taught by leading industry experts

#### **Program Contact:**

Dr. Edward P. Zovinka Professor of Chemistry, School of STEAM **Phone:** 814.472.3373 **Email:** ezovinka@francis.edu Learn more and apply today.



## SCAN ME

Francis.edu/fermchem



## Fermentation the Saint Francis University Way:

- Students will graduate with a reputable degree built on the foundation of the American Chemical Society standards.
- Graduates will have gained a global perspective of fermentation through
  the required immersion semester in France.
- Through established partnerships, fermentation science students are guaranteed internships with local leaders in a cross section of fermentation industries.
- A blend of curriculum and hands-on learning prepares graduates for the growing industry of wine, cheese, beer-making as well as the food industry.

The Saint Francis University Fermentation Chemistry program is one of only a handful of programs located in the entire East Coast.



It has become difficult to imagine the world without the influence of computer technology. The need for those who can wield it is great!

*You can make real impact.* Computer technology drives much of our lives. The medical field, education, entertainment, robotics, architecture, security, social networking; your ability to make a real impact on people and society is vast.

*The digital age needs computer scientists.* Computer programs have infiltrated every aspect of our lives. Computer scientists design, develop, and apply the software for the programs we use day in day out – pretty important stuff.

**Computer scientists are creative puzzle solvers.** Computer scientists wield their array of skills to solve all kinds of problems. Each wave of technology provides opportunities and platforms to develop and create innovative solutions to help us all.

*Computer scientists have amazing variety in their jobs.* Whether it is bringing something new to the appearance of a program, process or application, developing and improving its function, innovation drives these jobs. You will always be learning something new.

## Computer scientist careers will experience practically unlimited growth. The

exponential growth in technology has seen in the past ten years the emergence of Twitter, Facebook, smart phones, wireless communications and many other technological advances in fields such as medicine, robotics, drones and autonomous cars. At the current rate of growth, by 2020 the technological landscape and its influence on our daily lives will be nearly unimaginable.

*Earn really big bucks!* Computer scientists are in demand and their salaries reflects this. Recent graduates in professional roles earn quite a lot on average. Not only that, but salaries rise with demand, so as the demand increases so will your earning potential.



## www.francis.edu/Computer-Science

For more information, contact: Dr. Daniel Wetklow, Program Lead Computer Science 814.471.1215 DWetklow@francis.edu

become that **someone** 



## Do you like Solving Puzzles and Getting Paid for it?

*Cybersecurity professionals make real impact.* From guarding the energy grid, to the privacy of a person's data, to defending a pacemaker in an elderly patient—your work will matter. Cybersecurity extends beyond the digital world and into the physical one. What's under constant attack is more than just our networks, devices, servers, applications and data; it's also our mobile, flexible, connected way of life. Defending this is a terrifying and exciting prospect and one that is an important and noble cause.

*Cybersecurity professionals are creative puzzle solvers.* Cybersecurity professionals rely on tried-and-true principles, but the tactics change day-to-day. There's always a new puzzle or threat that needs to be solved. With each new wave of technology, new risks are created. It's the job of Cybersecurity professionals to identify, understand, and then help address these risks.

*Cybersecurity professionals have lots of variety in their jobs.* Cybersecurity professionals get the chance to work directly with teams on technologies and systems they never dreamed of. From robots to cars to websites serving millions and millions of users, the variety is near infinite. That's an exciting career prospect. Bored is not a word you'll be using often.

*Cybersecurity careers will experience practically unlimited growth.* Given omnipresent reports about cyber crime, it's hardly a surprise that experts are predicting a worldwide shortage of information security professionals looking toward the future. It's hardly a surprise that Infosecurity routinely tops lists of the best jobs out there. It was recently ranked eighth on U.S. News and World Report's rankings of top careers, due in no small part to a meteoric growth rate of 36.5 percent over the next half-decade.

*Cybersecurity professionals get great paychecks.* Cybersecurity professionals are extremely well compensated for their skills and talents. Not only that, but salaries rise with demand, so as the shortage increases so will your earning potential.



www.francis.edu/Cybersecurity-Administration

For more information, contact: John Valkovci, Program Lead Cybersecurity 814.471.1215 JValkovci@francis.edu



## **Become an Engineer at**



Are you ready to change the world? As an engineer, you will use your curiosity and creativity to solve the grand challenges facing the world today.

Teamwork and hands-on problem solving

Small class sizes

Real-world service-learning opportunities

## We want YOU to join our team!

For more information, please contact:

Dr. Rachel Wagner, P.E. rwagner@francis.edu Department Chair, Engineering 814.471.1215

## Environmental Engineering Saint Francis University

## **About Us**

Real world experience is the hallmark of a Saint Francis University environmental engineering education. Our students gain the professional skills they need by putting their education into action both in the classroom and through internships and co-curricular experiences. As one of only 66 ABET accredited environmental engineering programs in the country, we offer a rigorous curriculum; but as a small liberal-arts institution in the Franciscan tradition, we also offer the support and advising to help students succeed.

## What is Environmental Engineering?

Environmental engineering is fundamentally about human health. To lead long and productive lives, people need to have secure and sustainable access to natural resources like safe drinking water, clean air, and healthy soil. Environmental engineers design systems and infrastructure to utilize our natural resources while also preserving them for the future. Like all engineers, we use math and science to solve practical problems. But, because the environment is so broad in scope, environmental engineers rely on all the branches of math and science and on any given day, our work could involve time in the field, the lab, or the office.

## A Hands-On Curriculum

Beginning with a foundation in math and science, our ABET accredited program quickly leads students from the fundamentals to real-world applications. We incorporate ample hands-on activities in the field and in the lab into our courses and we use real-world projects throughout our program to ensure that our students are gaining practical experience and not just theoretical knowledge.

## **Experiences Beyond the Classroom**

Environmental engineering students at Saint Francis do more than just take courses. They also put their education into practice through engineering co-curricular experiences like internships, undergraduate research, international engineering service projects, and travel to professional conferences. Our small class sizes allow us to help each student develop a portfolio of experiences that will directly advance their career goals be it graduate school or work in industry.

## **Employment Outlook for Environmental Engineers**

Ninety-seven percent of our graduates are either currently employed or are in paid graduate assistantships as they continue their education. The outlook for continued employment success is quite strong for environmental engineers. The Bureau of Labor Statistics projects 12% growth in environmental engineering over the next decade and environmental engineers are needed in all regions of the U.S. The median pay for an environmental engineer is \$85k and services like clean drinking water and clean air are always in demand.



#### www.francis.edu/environmental-engineering

For more information, please contact: Dr. Travis Tasker, Assistant Professor Environmental Engineering 814.471.1215 TTasker@francis.edu





# **General Engineering** Saint Francis University

## About Us

Focused on the fundamental principles of engineering in broad application, our general engineering program provides a rigorous treatment of problem solving, experimental design, project management, programming, and applied science and math. Students in this major **become practitioners of the engineering art** with the flexibility to pursue a career either as an engineering generalist or in any of the broader engineering sub-fields like mechanical, civil, or electrical engineering.

## **Our Curriculum**



All engineers start with basic math and science and then move on to practical applications. For our general engineers the applied coursework is distributed across the engineering disciplines including topics like circuits, material science, and heat transfer. Beginning in the junior year, general engineering majors also have the opportunity to take technical electives where they can pursue one or more of the engineering sub-fields that match their interests.

Presently established pathways for advanced coursework include: mechanics, computational modeling, aeronautics, robotics, and innovation and entrepreneurship.

## Hands-On Experience

Practical experience is the hallmark of a Saint Francis University engineering education. For our general engineering majors this takes the form of ample laboratory and project work as well as internships and/or research experiences during summer months. We take advantage of our small class sizes to give individualized attention to each student as they develop hands-on engineering skills and we carry that personal touch forward into advising on career choices and strategies for success.

## **Career Paths for General Engineers**

Graduates from the program are generalists with a depth of preparation in mathematics, computer science and fundamental engineering along with excellent technical and creative problem solving skills which enables their entry into almost any engineering discipline. This preparation has enabled SFU General Engineers to secure internships and full-time employment at General Dynamics Electric Boat, NASA's Johnson Space Center, HF Lenz Co., Curry Rail Services, Brandenburg Industrial Services, and at many other companies!



## **General Engineering at SFU**

General Engineering is a growing, exciting major at Saint Francis University! The program **received its accreditation** from the Accreditation Board for Engineering and Technology, Inc. (ABET) in Fall 2021.



## www.francis.edu/general-engineering

For more information, please contact: Dr. Timothy F. Miller, P.E., Asst. Professor General Engineering 814.471.1215 TFMiller@francis.edu



# Yes, Virginia, you can get a job in history!

# Percent of SFU History Alumni\* by Field Employed

## SFU Alumni Employed by Field



# Field

- Education
- Law
- Government
- Military
- Sales/Marketing
   6%
- Finance/Business
   6%
- Management
   8%
- Other 8%

# % employed

- 48%
- 8%
- 9%
- 2%



\*based on a survey of 407 alumni from 1950-2013

# Degrees:

- History, B.A.
- History, B.A. with Pre-Law Concentration
- History, B.A. and Social Studies/ Secondary Education

+ History Club!



## SAINT FRANCIS UNIVERSITY MATHEMATICS PROGRAM

Mathematics is one of the most diverse majors that you can choose. Mathematics majors work in every imaginable industry and are prepared to step into fields that don't even exist today. Mathematics careers (including mathematicians, actuary, and statisticians) repeatedly hit the annual lists of top paying careers. A Saint Francis mathematics degree can help you open the door to an exciting career no matter which path looks most interesting to you. *Become that someone!* 

## **Program Highlights**

Highly Successful Career Paths Research & Internship Opportunities Challenging Curriculum Strong Educational Program Undergraduate Research Opportunities Small, Engaging Class Sizes





## **Special Concentrations**

Actuarial Science Applied Mathematics Secondary Education

## www.francis.edu/mathematics

Faculty Contacts: Dr. Norbert Youmbi, nyoumbi@francis.edu Dr. Brendon LaBuz, blabuz@francis.edu Dr. Ying Li, yli@francis.edu



# See Your Future in Political Science and Pre-Law

# Percent of SFU Political Science Alumni by Field Employed



# Political Science B.A. with concentrations in:

- pre-law
- international studies
- public administration/ government service
- political communications

Paralegal Minor available

Hands-on internship opportunities

## **Become That Someone**

## Gain the Education You Need to Make a Bigger Impact!

## www.francis.edu/nursing

## Saint Francis University Offers:

## **Bachelor of Science in Nursing (BSN)**

- Traditional Four-Year Program
- RN-BSN Program
- Second Degree/Accelerated Program

- Master of Science in Nursing (MSN)
- Leadership/Education Program (L/E)
- RN-BSN-MSN Program
- Family (Individual Across the Lifespan) Nurse Practitioner (FNP) Program
- Post-Master's Certificate FNP Program
- Nursing Program Mission Our programs inspire students to dedicate themselves to service, leadership, critical self-reflection, and life-long learning in the Spirit of Franciscan values.
- Accreditation The baccalaureate degree program in nursing and master's degree in nursing program is accredited by the Commission on Collegiate Nursing Education (CCNE) (http://www.ccneaccreditation.org).
- **Competitive Tuition Rates** Scholarship and Discounts may apply.
- High Nursing Program Retention Rates
- Online Programs RN-BSN, MSN L/E, MSN FNP, and Post-Master's Certificate (FNP)
- **FNP Certification** 100% pass rate.
- Simulation-Based Learning Student are engaged in simulation activities in the NEW School of Health Science & Education Experiential Learning Commons.
- Interprofessional Education Interprofessional education exposes the School of Health Sciences & Education students to the core competencies that are necessary for collaborative interprofessional practice.
- Evidence-Based Group Collaboration Students participate in research and collaborate with peers on Evidence-Based practice projects.
- Service & Leadership The Student Nurses Organization (SNO) is active in many service events. This gives our students the opportunity to foster a sense of community as they participate in events together. Students also have the opportunity to participate in International Service Mission trips.





Follow us on Facebook and Instragram





## Why Study Nursing?

### **Fast Growing Occupation in Industry:**

Employment of registered nurses is projected to grow 6 percent from 2021-2031, about as fast as the average for all occupations according to the Bureau of Labor Statistics. Registered nurses with a Bachelor of Science degree in nursing usually have better job prospects than those without. The average wage for Pennsylvania was \$76,000 in May 2021.

Nursing Industry Sector	Median Annual Earnings
Government	\$85,970
Hospitals; state, local, and private	\$78,070
Ambulatory Healthcare Services	\$76,700
Nursing and Residential Care Facilities	\$72,420
Educational Services; state, local, and private	\$61,780

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Registered Nurses, on the Internet at <u>https://www.bls.gov/ooh/healthcare/registered-nurses.htm</u> (visited *October 19, 2022*).

## **Career Opportunities for the BSN Graduate**

- Nurse Case Manager
- Home Health Nurse
- Traveling Nurse
- Public Health Nurse
- Clinical Research Nurse
- Forensic Nurse Consultant
- Telemedicine Nurse

- Informatics Nurse
- Clinical Nurse Specialist
- Nurse Manager
- Nurse Educator
- Quality Improvement Coordinator
- Legal Consultant
- Acute Care/Outpatient Nurse

## Why Study Nursing at Saint Francis University?

- High NCLEX-RN Licensure Pass Rates
- Freshman Admission into the Nursing Program with Assigned Nursing Faculty Advisor
- Student Athletes are Supported to Continue Sports Participation while in Nursing.
- Low Faculty to Student Ratio
- Individualized Support for Academic Success
- Caring and Supportive Faculty
- Study Abroad and Mission Trip Opportunities
- Engaging Campus Activities and Opportunities



White Coat Ceremony Junior Class Fall 2022



Hispanic Heritage Month - Altoona Library Youth

# OUR SPANISH PROGRAM

Spanish BA Spanish BA - Secondary Ed Spanish Minor **Spanish Minor - Medical Spanish Minor - Law Enforcement** 

# **Benefits:**

Bilingualism Travel Service Marketability

Spanish pairs well with everything, but learning a new language is not just about saying words in a different language, it's about understanding a different world view.





Mission of Mercy - Pittsburgh

**Contact Dr. Larissa Clachar** lclachar@francis.edu