



Board of Advisors Meeting

November 1, 2023

FLORIDA
SOUTHWESTERN
STATE COLLEGE

SCHOOL OF PURE AND APPLIED SCIENCES

SPAS Board of Advisors Meeting Agenda



Welcome

- Overview of FSW and SPAS
- Overview of SPAS degree programs
- Q&A, Skills Discussion
- Possible future courses, certificates, and/or degree programs
- Recommendations for future meeting times



FSW Overview

- Serving Lee, Collier, Charlotte, Hendry and Glades Counties
- Open enrollment institution
- Granted Hispanic Serving Institution status in 2020
- Accredited by SACSCOC

Over 13,000 students currently enrolled

~ 70% in our gen ed program / ~ 30% in workforce programs
~ 20% dual enrolled, ~ 95% FL residents



Workforce Education

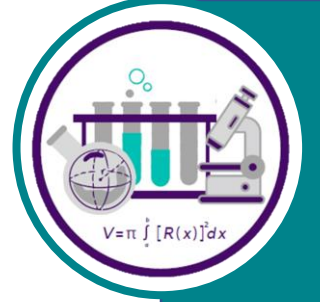
6 Bachelors Degrees 25 Associate Degrees 28 Certificate Programs

- ✓ High-Skill, High-Wage Jobs
- ✓ Aligned with Regional Demand
- ✓ Connected to Employer Needs



SPAS Overview

We offer courses in 2 of the 5 basic general education areas – mathematics and natural sciences (others are communication, humanities, and social sciences)



Faculty and Staff

- 3 Departments
 - Department of Biological Sciences
Biology, Microbiology, Anatomy & Physiology, Environmental Sci
 - Department of Physical Sciences
Physics, Chemistry, Earth Sci, Geology, Oceanography, Astronomy
 - Department of Mathematics
Developmental math through Differential Equations
Basic statistics
- Over 100 Faculty and Staff
 - ~50 full time faculty
 - ~50 adjuncts
- Over 500 course sections a semester
 - Most at the introductory level

Degree Programs

- Associates of Arts (AA)
 - 60 Credit Hours
 - Transfer Degree
- Associate of Science (AS) in Science and Engineering Technology
 - 60 Credit Hours
 - Workforce Program
 - Based on Chemical Technology AS
- College Credit Certificate (CCC) in Scientific Workplace Preparation
 - 30 Credit Hours
 - Embedded in our AS degree

**Board of
Advisors**



Board of Advisors

Originally established in 2016 with the creation of our AS degree, but hasn't met since!

- Wesley Burnside
The Mannheimer Foundation, Inc
- Tyler Fawcett
Arthrex
- Justin Gill
Arthrex
- Adrienne Martin
Six Mile Cypress Slough Preserve
- Daniel Marulanda
Hertz
- Eric Milbrandt
Sanibel Captiva Conservation Foundation
- Ben Sylvia
NeoGenomics



AA Degree & Guided Pathways

AA is only “transfer” degree in state

Can be challenging to complete all required math and science classes complete to transfer as a junior into a STEM field in 2 years

Guided Pathways and Mathematics Pathways designed to help with optimal selection of electives



Science, Engineering & Math



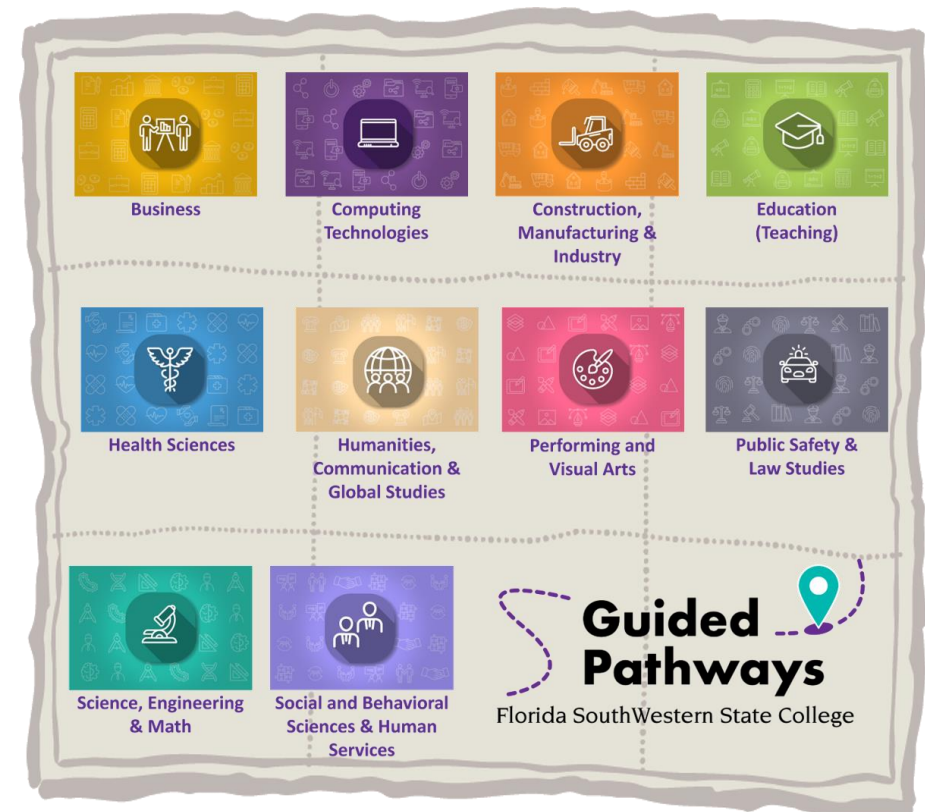
Computing Technologies



Health Sciences

- AA STEM Pathways
 - Biology
 - Environmental Science
 - Marine Science
 - Marine Biology
 - Engineering
 - Mathematics
 - Pre-Med/Vet/Dental
- Advanced Degree Pathways
 - Computing Technologies
 - Health Sciences

Fall		
Course		Credits
ENC 1102*	COMPOSITION	3
MAT 2012	INTERMEDIATE ALGEBRA	3
CHM 2002 W	INTRO TO COLLEGE CHEMISTRY	3
CHM 2002 L	INTRO TO COLLEGE CHEM LAB	1
PSY 1101	CONCEPTUAL EXPERIENCE	3
Total Semester Credits:		10
Spring		
Course		Credits
ENC 1102*	COMPOSITION II	3
STAT 1100	COMB COLL AND PRE-CALC	3
BIOL 1810	BIOLOGICAL SCIENCE	3
BIOL 1810L	BIOLOGICAL SCIENCE LAB	1
CHM 2002	GENERAL CHEMISTRY I	3
CHM 2002L	GENERAL CHEMISTRY I LAB	1
Total Semester Credits:		14
Summer		
Course		Credits
MAC 1134	TRIGONOMETRY	3
BIOL 1811	BIOLOGICAL SCIENCE II	3
BIOL 1811L	BIOLOGICAL SCIENCE II LAB	1
Total Semester Credits:		7
Total Academic Year Credits:		21
Fall		
Course		Credits
MAC 2311	CALC W/ANALYTIC GEOM/TRIG	3
CHM 2006	GENERAL CHEMISTRY II	3
CHM 2006L	GENERAL CHEMISTRY II LAB	1
CHM 2006S	CHOCOLATE LAB/PSY OR PSY 2041	1
SOC 1010	INTRO TO HUMANITIES	3
PSY 2007	INTRO TO HUMANITIES	3
Total Semester Credits:		14

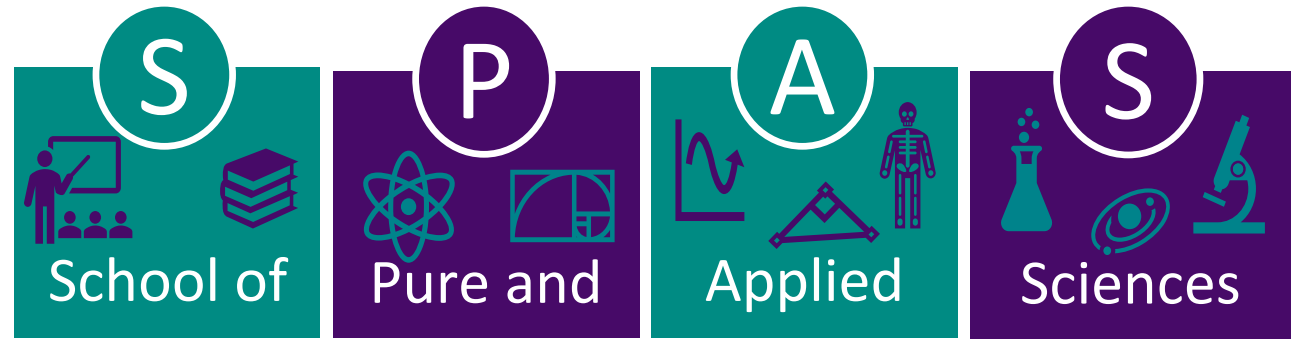




Our Workforce Programs

Need to align with regional demand

Based on State approved frameworks



AS in Science and Engineering Technology

The Associate in Science (AS) in Science and Engineering Technology program offers a sequence of courses that presents coherent and rigorous content needed to prepare for employment and/or promotion in occupations where a **general knowledge of scientific and/or engineering methodologies** is required.



Certificate in Scientific Workplace Preparation

The College Credit Certificate (CCC) in Scientific Workplace Preparation prepares students for **entry-level employment in a science or engineering laboratory**. It improves the student's communication, information technology, and math skills while developing basic scientific laboratory skills.

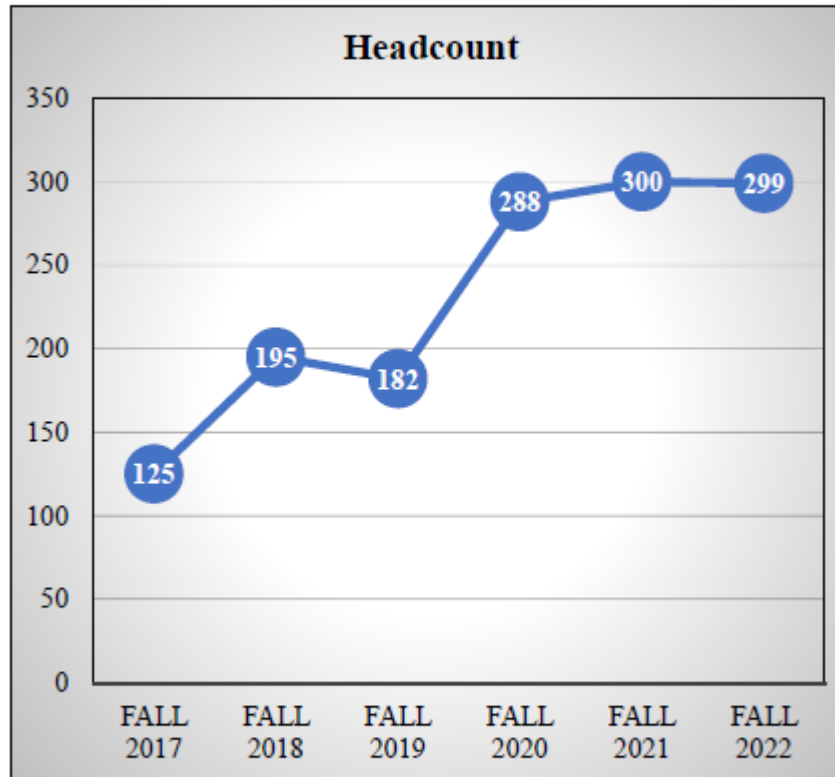


AS Assessment Report – AY 2022 - 2023

All AS degrees are designed for workforce jobs – but we think most enrolled transfer to a BS program before completing our program.

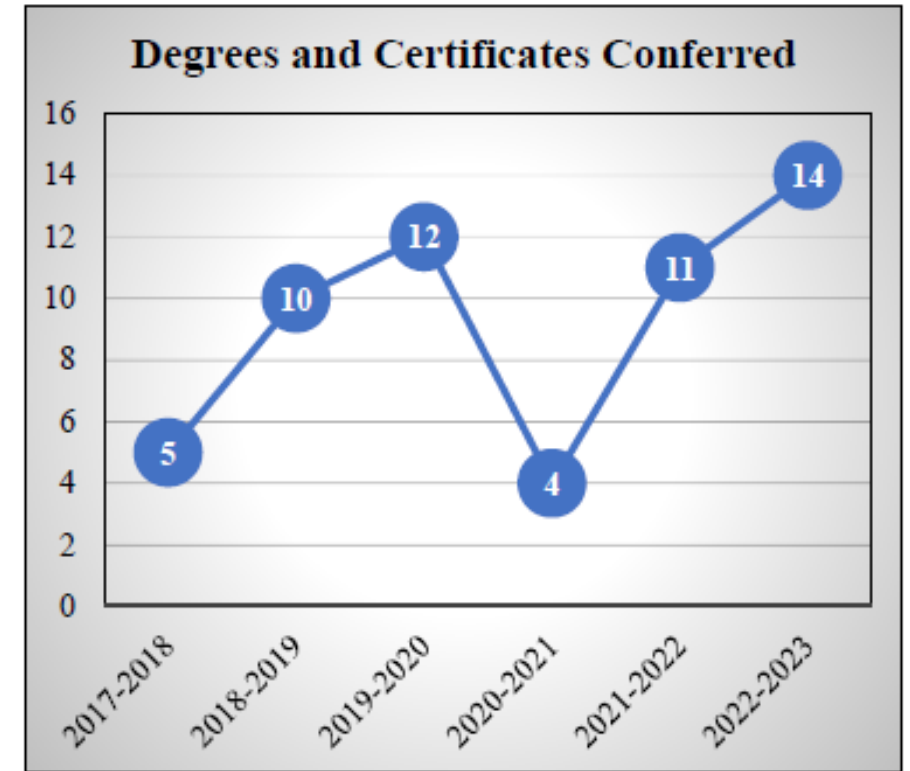
We are proposing updates to the current program to minimize required courses and maximizes electives to reduce barriers to graduation

Enrollment in Fall Term



These numbers come from Institutional Research's frozen files, which are frozen around late October each Fall term. The frozen date is the day after Term B's last withdraw date, which allows IR to capture accurately the term's enrollment.

Completion



The **Degrees and Certificates Conferred** graph shows how many students received their degree or certificate in the program in each academic year.



Framework for AS Science & Engineer Technology

- 01.0 Demonstrate appropriate communication skills.
- 02.0 Demonstrate appropriate mathematical skills to solve basic problems in the sciences.
- 03.0 Demonstrate appropriate interpersonal skills, decision-making strategies, and awareness of self-worth, ethics and values.
- 04.0 Demonstrate computer competence.
- 05.0 Demonstrate basic knowledge of scientific concepts.
- 06.0 **Demonstrate basic knowledge of chemical concepts.**
- 07.0 **Demonstrate knowledge of chemical kinetics and thermodynamics.**
- 08.0 Demonstrate skills in the safe handling of chemical materials and equipment.
- 09.0 Exercise safety in the laboratory and adhere to safety, health and environmental regulations.
- 10.0 **Demonstrate conceptual and laboratory knowledge in the area of organic chemistry and/or analytical chemistry and/or physics and/or biology and/or engineering and/or biotechnology and/or chemical instrumentation. Students will be competent in two or more of the following areas of specialization:**

Specialty I: Organic Chemistry, Specialty II: Physics, Specialty III: Biology, Specialty IV: Engineering
Specialty V: Biotechnology, Specialty VI: Chemical Instrumentation

CHM

CHM/BIO
/PHY

Recommended
Course Tracks

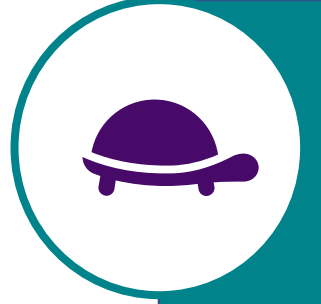
AS Science and Engineering Coursework



Credits	Program Requirements:	64 Credit Hours		
COMMON PROGRAM REQUIREMENTS - GENERAL ED REQ'TS -				23 Credits
15-16	3	Communication	ENC 1101	State requires all AS programs to take at least one core general education class in each of the five basic areas
	3	Communication	ENC 1102	
		OR	ENC 2110	
		OR	SPC 1017	
		OR	SPC 2608	
	3	Humanities	Any Core Gen Ed	
	3 or 4	Mathematics	Any Core Gen Ed or Higher	MAC1105 or STA 2023 recommended
	3	Social Sciences	Any Core Gen Ed	Students needing Civic Lit should take AHM2020 or POS 2041
Chm w\Lab 4	3+1	ANY	CHM 2032/2032L	
	3+1		CHM 2045/2045L	
One other Natural Science Class				
4-5	3+1	Biology	BSC 1005/1005L	Or Higher
	3+1		BSC 1010/1010L	
	3+1	Additional Chem	CHM Any not taken	
	4	A&P	BSC 1085C	Or Higher
	3	Physics	PHY 1007C	
	3		PHY 1020C	
	4+1		PHY 2053/5053L	
	4+1		PHY 2048/2048L	
Program Requirements:		17-41 Credit Hours		Electives: 0 - 24 Credit Hours

Current "tracks"
 Biological
 Engineering
 Health Science
 Environmental
 Geotechnology

Biological						
BSC1010	1011	CHM2210	2211	PHY2053	2054	
Engineering						
PHY2048	2049	EGS1001	MAC2311	2312	2313	MAP2302
Health Science						
BSC1085	1086	MCB2010	HUN1201	DEP2004		
Environmental						
BSC1010	1011	EVR1001	GLY1010	ECO2013		
Geotechnology						
EVR1001	GLY1010	ECO2013	OCE1013	BSC1051	GIS1040	



AS Program – other goals

- Adding an Internship Course and growing our internship program
 - ✓ Will be in our next program update to Curriculum Committee
 - ✓ FSW is establishing a centralized internship office
- Increasing our undergraduate research program
 - ✓ Currently have many professors voluntarily including students in research
 - ✓ FSW President strongly supports research and supports with funding
 - ✓ Strong Honors College with embedded research opportunities
- Continuing to support international education program
 - ✓ Currently have several professor offering science classes as part of our international education program
 - ✓ Building a partnership with Turtle Love in Costa Rica





Framework for CCC Scientific Workplace Preparation

- 01.0 Demonstrate appropriate written and oral communication skills.
- 02.0 Demonstrate appropriate mathematical skills to solve basic problems in the sciences
- 03.0 Demonstrate appropriate interpersonal skills, decision-making strategies, and awareness of self-worth, ethics and values.
- 04.0 Demonstrate computer competence.
- 05.0 Demonstrate basic knowledge of scientific concepts.
- 06.0 Demonstrate basic knowledge of chemical concepts.

CHM

Basic entry level jobs – such as lab tech for Qwest

Note – computer skills in the framework do not include programming, just the basics of using a computer and computer software



CCC Scientific Workplace Coursework

	Credits	Program Requirements: 26 Hours											
COMMON PROGRAM REQUIREMENTS													
15-16	3	Communication	ENC	1101									
	3	Communication	ENC	1102									
		OR	ENC	2110									
		OR	SPC	1017									
		OR	SPC	2608									
	3	Humanities		Any Core Gen Ed									
	3 or 4	Mathematics		Any Core Gen Ed or Higher	MAC1105 or STA 2023 recommended								
	3	Social Sciences		Any Core Gen Ed	Students needing Civic Lit should take AHM2020 or POS 2041								
One Chm with Lab	4	Chemistry ANY	CHM	1020C									
	3+1	Chmistry Lab	CHM	2025/2025L									
4	3+1		CHM	2032/2032L									
	3+1		CHM	2045/2045L									
Advanced Science - Pick 2 - minimum of 7 credit hours													
If not already taken													

Embedded in the AS Program –
many AA students also earn this degree



What skills are you looking for?

Technology?

Programs?

Lab Skills?

Lab Safety?

HR professionals reports –
Soft Skills

- Critical thinking
- Problem Solving
- Ability to deal with complexity and ambiguity
- Communication



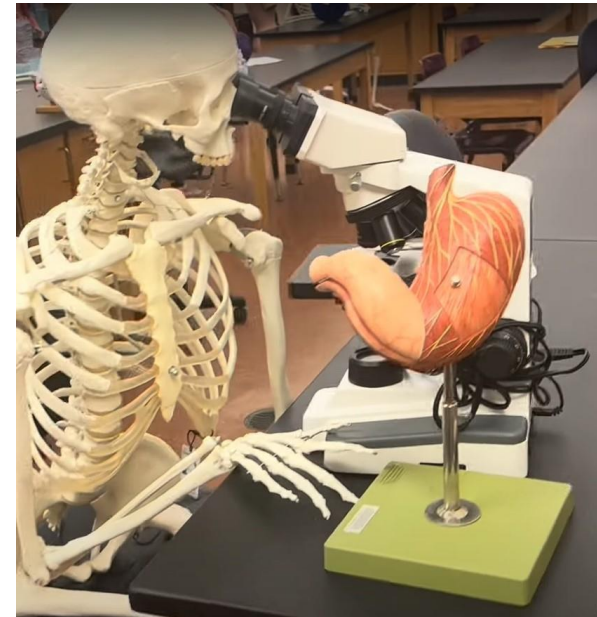
Future courses, CCCs, and/or programs

- New CCC for Foundations in Health Sciences underway
 - Proposing as a new FL state framework
- Courses?
 - AA pathways electives
 - Additional courses for AS tracks
- New AS Programs?
 - Restricted by current FL state frameworks
 - Some overlap with School of Business and Technology
 - New Logistics Proposals
 - Current Business Analytics Program
- Grant proposals
 - S-STEM grant for scholarship of STEM (non-nursing) degrees



New CCC Proposal Foundations of Health Science

- 01.0 Demonstrate the ability to communicate and use interpersonal skills effectively.
- 02.0 Demonstrate appropriate mathematical skills to solve basic problems
- 03.0 Demonstrate the ability to critically reflect on the human condition through the interpretation of human artwork and/or thought.
- 04.0 Demonstrate an understanding of basic behavioral science concepts and principles used in the analysis of behavioral, social and/or cultural issues, past and present, local and global.
- 05.0 Demonstrate an understanding of anatomy and physiology concepts in both illness and wellness state
- 06.0 Exercise safety in the laboratory and adhere to safety, health and environmental regulations





New courses and/or Programs?

Courses

- Advanced Statistics
- Data Analysis
- Biotechnology (AS track)

New CCC

- Data Science Technician?

New AS Programs

- Biotechnology Laboratory Technology AS (60) –
 - ~ 3 new courses
 - Biotechnology Specialist CCC (19)
 - Biotechnology Laboratory Specialist CCC (30)
- Environmental Science Technology AS (60)
 - ~ 5 new course
 - Environmental Science Technician CCC (19)
 - Hazardous Materials Specialist (14)
 - Water Quality Technician CCC (12)



Data Analysis vs. Business Analytics

Data Science Technology

CCC Framework:

01.0 Describe statistical concepts and apply statistical methods used in data science problems.

02.0 Describe acquisition, preprocessing, and transformation processes used with data sources.

03.0 Describe modelling, analysis, and visualization techniques applied to acquired data.

Additions for the AS Framework

04.0 Describe modelling, analysis, and visualization techniques applied to acquired data.

05.0 Describe security best practices for each phase of acquisition, analysis, and retention of data.

06.0 Describe ethical best practices related to each phase of the data life cycle.

Business Analytics, AS (SOBT)

General Education Requirements: 24 Credit Hours

- ENC 1101 - Composition I **3 credits**
- ENC 1102 - Composition II **3 credits**
- ECO 2013 - Principles of Macroeconomics **3 credits**
- ECO 2023 - Principles of Microeconomics **3 credits**
- General Education Social Sciences (Students required by F.A.C. 6A-10.02413 to demonstrate Civic Literacy should take AMH 2020 or POS 2041) **3 credits**
- STA 2023 - Statistical Methods I **3 credits**
- General Education Core Natural Sciences **3 credits**
- General Education Core Humanities **3 credits**

Program Requirements: 36 Credit Hours

- ACG 2021 - Financial Accounting **3 credits**
- ACG 2071 - Managerial Accounting **3 credits**
- CGS 1100 - Computer Applications for Business **3 credits**
- CGS 2511 - Advanced Spreadsheet Computing **3 credits**
- FIN 2001 - Business Finance **3 credits**
- MAN 2021 - Management Principles **3 credits**
- ISM 2200C - Applied Business Analytics **3 credits**
- MKA 2701 - Visual Infomatics **3 credits**
- MAR 2644 - Data Based Marketing **3 credits**
- QMB 2100 - Business Statistics **3 credits**
- MTB 1103 - Business Mathematics **3 credits**
- GEB 2430 - Ethics in Management **3 credits**

Total Degree Requirements: 60 Credit Hours



Next Meeting

- End of March or Beginning of April?
 - April 4th ?
- Best time of day?
- Food for thought – Are there any BS degrees that you would like to see in this area that FGCU is not offering?

<https://www.fsw.edu/ce/hazmat>

FSW Hazmat Partnership

Hazmat Topics & Trainings

Florida SouthWestern State College has partnered with industry experts, Hazmat Safety Consultants, LLC, and the Dangerous Goods Trainers Association to offer Train-the-Trainer course and Expert Insights Seminar Series. The trainings are funded through a U.S. Department of Transportation Grant and available free of charge to businesses and community members.

HAZMAT TRAIN-THE-TRAINER COURSE

Training of Hazardous Materials employees is critical to the success of the Hazmat system. An effective training program is crucial for Hazmat employees to ensure they are using and implementing the highest level of safety in the industry. The online Train-the-Trainer course blends industry knowledge and adult-learning philosophies to prepare the participants to become a Hazmat Trainer.

Course covers the following:

- Hazmat General Awareness & Global Systems
- How to perform a Hazmat Needs Assessment for your company
- Adults learning philosophies and training plans
- Course development and delivery

Course Offerings

Nov. 5 – Dec. 3, 2023
Dec. 17, 2023 – Jan. 7, 2024
Jan. 21 to Feb. 26, 2024
March 10 to April 8, 2024
April 21 to May 20, 2024

[Click here to Register](#)

HAZARDOUS MATERIALS EXPERT INSIGHTS SEMINAR SERIES

Introducing our Hazardous Materials Expert Insights Seminar Series, a monthly one-hour webinar delving into pertinent and timely topics within the field of hazardous materials management.

Featured Speakers



Mike Pagel

11 years of experience including at PHMSA's Hazardous Materials Information Center (HMIC) at DOT HQ in Washington, DC

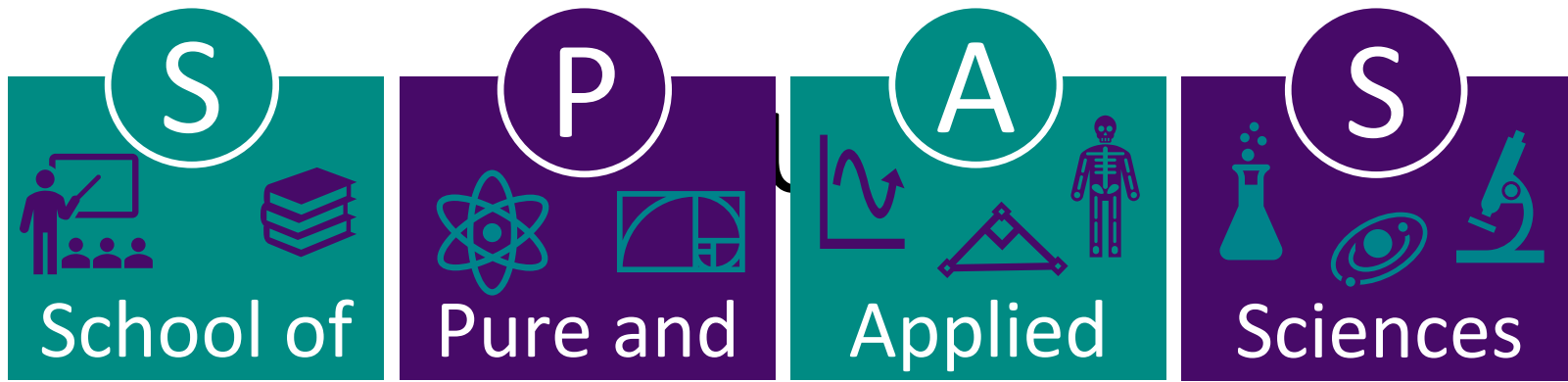


Ryan Paquet

20+ years of experience related to

Upcoming Topics Tuesday at 1:00 p.m. ET

- [Nov. 1: Navigating Vessel Transport Challenges: Insights and Current Events](#)
- [Nov. 14: Charging Ahead: The Future of Lithium Battery Transport](#)
- [Dec. 12: Cracking the Code: Unpacking Limited Quantity Exceptions](#)
- [Jan. 10: Mastering Materials of Trade Exceptions: Practical Applications](#)
- [Feb. 6: Unlocking Special Permits and Approvals: Demystifying the Differences](#)
- [March 5: Aerosols on the Move: Shipping Under Pressure](#)



Thank You!