

ANALYTICS NEWSLETTER

Pontikes Center for Advanced Analytics and Artificial Intelligence

Southern Illinois University, College of Business and Analytics

Briefly Noted

Beth Mueller, Deloitte:

At Deloitte, we have our [Deloitte AI Institute](#) with lots of content that you may find of interest. In particular, check out the [AI Dossier](#), which provides stories of top uses for AI across six major industries.

Andrei Khurshudov, CAT:

My major focus with Caterpillar is on the cutting edge Internet of Things analytics. We work on various exciting projects involving machine learning, AI, and, developing physics-based models to assist with uninterrupted operations for our customers.

Industrial Internet of Things (IIoT) is the main area where new technologies will emerge. Equipment connectivity is a must for this to happen. IIoT will generate an incredible amount of new data and support analytics efforts, leading to data-driven decisions to benefit both manufacturers and their customers.

From the Director

Something for Everyone!

Welcome to the first ever edition of the Analytics Newsletter. This will be published quarterly and will be filled with news from the SIU College of Business and Analytics (CoBA), from the Pontikes Center for Advanced Analytics and Artificial Intelligence and its Advisory Board, and from students past, present, and future who are passionate about a career in analytics.

The Pontikes Center was created in 1989 as the Pontikes Center for the Management of Information. Its original mission was to educate and to promote computer information systems and services. The last thirty years has seen great advances in that area and the need for the Center declined. The Center went dormant.

During that time there was an explosion of data and little ability to control, analyze, or use it. Today there is a critical need for executives, managers, and workers at all levels to understand and apply data-based decision making. In 2017, the Pontikes Center was repurposed with a new mission:

“Educate undergraduate and graduate students, industry professionals, and managers on the effective use, control, and development of Advanced Analytics and Artificial Intelligence.”

We now have a powerful and dynamic advisory board from across the business spectrum and you'll hear from them in coming editions of this newsletter. The College has cutting-edge analytics programs and is constantly expanding into new areas and disciplines.

We hope that you'll enjoy hearing about analytics at SIU and at CoBA as much as we enjoy talking about it.



SAFE Space

Dr. Kevin Sylwester, Director: School of Analytics, Finance, and Economics (S.A.F.E.)

First, thank you, Professor Nelson, for getting SIU's first Analytics Newsletter up to print! This newsletter is just one of several exciting developments to expand the reach of our programs. We have already come a long way since 2020 with the launch of the Business Analytics major and the online Masters in Strategic Analytics. Both programs will graduate their first students this summer. The undergraduate program had ten majors in spring 2022 and 35 admits for fall 2022, up from four admits at this time last year for fall 2021. These first two years also showed great expansion in what we can offer students. New course offerings provide majors with greater versatility in scheduling and opportunities to pursue specific interests within Analytics.

Our degree programs are now officially recognized as STEM fields and so graduates leave with a STEM degree. A Business Analytics minor will commence in fall 2022 for both CoBA and non-CoBA students. The rejuvenation of the Pontikes Center provides invaluable links to how businesses use Analytics in "the real world". We look to continue this progress with further increases in enrollment as well as improvements to the curriculum. New faculty hires will also enlarge our research footprint, furthering SIU's reputation as a leader in this new field. I have been very fortunate as (interim) Director of SAFE to help grow a program at its birth, especially one with so many encouraging signs for its future. We can't wait to write the next chapters!



Student Voices

Kevin Glajchen

The SIU MBA with a specialization in business analytics is one of the best decisions I have made for my career as well as my life. The program is extremely well rounded, so you are exposed to everything from finance and data analytics to leadership development. It not only gives you a deeper understanding of each segment of a business, but it also teaches you how to lead and advance your career. I would highly recommend this program to anyone interested in higher education. The flexibility of the program allowed me to achieve my dream of getting an MBA on my time. I worked through my MBA while playing football as well as working full time.

The program has taught me so much more than I ever would have thought. It has taught me how to look at problems in a new light and how to better understand every aspect of a business from creating my own startup to helping lead in an already established company.



Pontikes Advisory Board Spotlight Tony Wells, The Wells Foundation



The Wells Foundation recently agreed to be the technology and fiscal manager for the Columbus Franklin County Small Business Recovery Grant program.

As a private family foundation and professional grant maker, the city and county asked if we would be the administrator over distributing \$8 million in funding to small businesses impacted by the pandemic. We were very interested in the data analytics and generating a Social Return on Investment (SROI) model. The funds are coming to the city and county through the federal American Rescue Plan Act (ARPA). We spent six months designing an application and scoring rubric for the program, and the overarching goal is that 70% of the grant funding support women and minority owned businesses.

We selected Zengine by WizeHive as the application portal but realized that it's reporting functionality could not support the advanced reporting nor community dash boards for the project. We created an API between Zengine to pull data hourly into our internal data warehouse and then we used Logi Analytics to track over fifty metrics on applicants and their business including race, gender, LGBTQ status, veteran, personal household income, whether the business is located in a low to moderate income area, entity types, years in business, industry, etc. We conduct data analytics daily to track results against goal, detect potential fraudulent activities such as different applicants applying for the grant using the same EIN or tax returns, and provide reports for the mayor and city council on the results of the grant

program. As part of the ARPA we are required to conduct a federal audit and maintain the data for 5 years. At the end of the program in 2022, we start the SROI model to help inform policy makers on how the funds were impactful to small businesses. This will inform any changes in the program for 2023.

I'm sure this project is not nearly as sexy as some of the other big corporations on the advisory board, but for a philanthropic organization using data analytics to drive local impact is very rewarding.

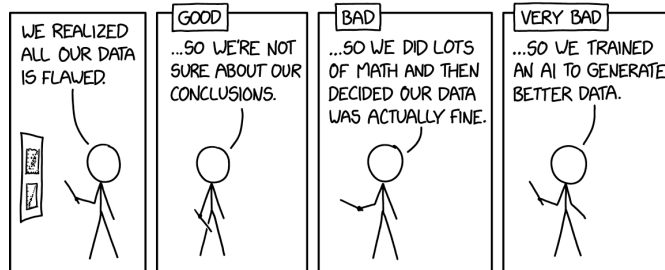
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<https://sbdccolumbus.com/columbus-franklin-county-recovery-grant/>



A Little Analytics Humor...



<https://xkcd.com/>

Jason Losser, VP Analytics Marquette Transportation



What do you do daily with analytics?

My department, the analytics department, lives and breathes analytics. So it can take many forms and many different technologies.

In the course of a day, it will span from putting together business intelligence dashboards, which support our day-to-day operations, to things like strategic costings in a very different type of environment we're dealing with now than we were a few years ago. Kind of a hyperinflation world and a world with COVID, of supply chain issues still going on. And then we may be doing pricing analytics for our pricing team. Given how fast the market's changing, how fast fuel is changing, we may be driving something which is a direct impact to our pricing. So we live and breathe analytics and the culture. The company supports a very data driven culture.

That's really good because I know a lot of companies don't rely on data. How would you respond to that?

That's a very interesting comment. And I concur with you. I actually see it a lot in a kind of a polarization in corporate cultures. There are some companies that have a great deal of embedded cultural inertia against a data driven culture and against the incorporation of analytics. And those companies do need to adapt. And while analytics doesn't have to necessarily drive the company, it needs to help support the business decision making process. I also see in some cases where analytics can perhaps be trusted too much and they can treat it as a magic box or a black box, if you will. So there's a healthy balance between the business world and business intuition and analytics, and the two can play together very well.

Why do you feel analytics is so important?

Analytics in today's environment are so important to win in today's business world. Today's economy, regardless of the industry that we're in, means balancing real time decisions based on opportunities and threats that are hitting us at that moment, along with a strategic, long-term lens of the business and with the data explosion we've had over the last decade and really two decades. We have such a greater

breadth of data available to us and the velocity with which we consume data is so much faster that data culture has become imperative in today's world. The companies that are going to win are going to be able to make smarter decisions faster. Having a data culture absolutely supports them.

Why do you think the Pontikes Center is important or special, and how does that differentiate SIU from other analytics programs?

I think that the core concept of the center and the advisory board and the integration with the business world is so important because for the students to stand out, for the students to get the exposure they need and the experience they need to succeed in the career, there is a balance between the academics and the real world experience. I believe the Pontikes Center can do a great job of bridging the gap and giving the same students a competitive advantage in the job field.

One of the real advantages that I see SIU having, particularly is being led by Dr. Nelson. He does a wonderful job of keeping real world dialog going with the advisory board. So as an advisory board member, one of the things that I will do is report back to him, really through informal dialog or our annual meeting, to let him know things that I'm seeing in the field. This indicates things in this analytics field that move very quickly and things that I think are important for students to know, technologies, curriculum, etc., so that SIU can react very quickly and stay on the leading edge of the academics.

What else do you do to help students in the analytics program at SIU?

We're very eager to get on campus and bring some SIU interns in. I'll even go one level further on the internship program. We seek to give the interns three different types of experience when they're with us. The first is one on one mentorship with each of our analytics analysts- who all have an expertise area. You can consider that very much a learning experience for the intern. And that's about a third of their time with us. Another third of the time, we let them actively lead a project with the analysts involved in that area of expertise. You can almost think of it as the intern is the driver, and we have our analyst as the navigator. The intern gets a great deal of the first level

key clicking in to do a great deal of the work, but they have that mentor with them, leading them through. And then lastly, we try to reserve about a third of an internship to be a very open-ended project that the intern owns on his or her own. And they're autonomous and they can use their creativity and really show us what they've learned. And they get an opportunity to present that upon the completion of their internship to our senior management. We view the internship as an absolutely integral part of the experience for the best and brightest students at SIU.

What do you look for in an analytics graduate?

There are core elements that we look for in an incoming analyst. Number one, the ability to understand business problems and the ability to see them for what they are beyond just the academic answer. There must be the ability to relate answers to business intuition and business intellect. The ability to understand what they're being asked, the ability to communicate back and build relationships. It is absolutely essential to be able to be a key member of the broader business team.

Then there's certainly technical acumen, which is the core of the academic load that the students get. So that's going to include a solid statistical background and understanding of machine learning and understanding of some of those topics and an aptitude to understand programming languages.

So that does not mean that we would expect an incoming analyst to know every language under the sun, but rather for what we want them to do when we get them here, that they show an aptitude and a willingness and ability to pick up the languages.

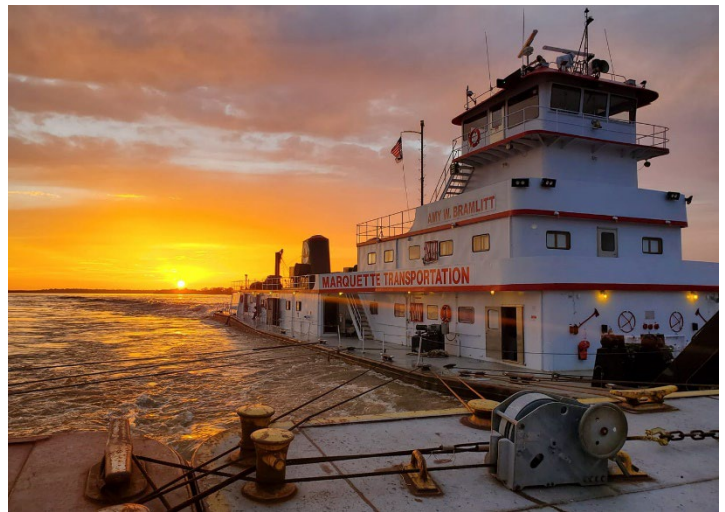
And lastly, we do need the analysts to understand it is a lifelong learning journey. And the speed with which technology is changing for us that we utilize is very quick and we will very frequently update our processes and the tools we use, so having analysts that understand to pretty much keep up with the technology you use is critical. So those are the key traits we look at for anyone.

Is there anything else that you would want to say to somebody who is considering studying analytics?

It is a great field. It is a challenging field. There are new things every single day and new challenges every day. And the people who really excel at it are the people who are incredibly creative. They seek to build solutions and not just answer questions. So that's an

important differentiation for anyone coming into this field.

For years, analytics has existed where there have been good analysts who get asked a question through business and they do their best to simply answer that and give it back. But with the tools and some of the abilities that we now have, analysts who really stand out look at a problem in a broader sense as opposed to just answering questions. They see how we can build a solution that optimizes an entire process. There's a creativity level which is inherent to this field, and I think that is something that for people that are attracted to that kind of openness, it's a wonderful field.



Coming Up in the Fall Issue

An interview with Beth Mueller, Deloitte.

An article from Tom Davenport about the future of AI and analytics.

More exciting news from the College of Business and Analytics!