MSBAPM Newsletter

Monthly

MAY 2014

Master of Science in Business Analytics & Project Management

tangible skills today...
innovative solutions tomorrow.

ABOUT MSBAPM CLUB

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Students Play Cricket Faculty Spotlight Student Workshop Data Live-Stream Career Event Social Media Metrics Career Links INFORMS Conf. Newsletter Team Analytics Article No SQL Student Spotlight 1 Student Spotlight 2	**5/14 Data Management Workshop: Legal & Ethical Issues for Research Data** Live streamed over Google Hangout Host: UConn Libraries **Time**: 12:00-1:00 PM, Room TBA **MSBAPM T-Shirt Contest** Design the perfect T-shirt for the MSBAPM program! Look out for an email with more details about the upcoming competition. The MSBAPM Newsletter is becoming a seasonal publication! Stay tuned for our Summer edition, slated to come out in September. *Have a great summer!*

MSBAPM Students Play Cricket

By: Thejas Hegde

A couple of weeks back, a group of MSBAPM students got together and played cricket, which is a game some of you might not be familiar with.

Cricket is very popular in India, England, Australia and the Caribbean but very few people know about it in the US This was made obvious when a passerby asked us if we were going to play baseball. She saw us with a couple of bats , and who would blame her for thinking we were going to play baseball?

It was a special weekend for another reason. The UConn men's and women's basketball teams were gearing up for their Final Four face-offs. Of course, both went on to win, and we proudly celebrated in more than one way. Some were in bars, some on the streets and others did the best they could do sitting at home - #HuskyPride, #GoHuskies, #BleedBlue, etc.

I will not digress any further from the main reason this article is being written, that is, if any of you guys want to join in to play cricket or football (soccer: sorry guys, it's football for the rest of the world) or any other sport, feel free to get in touch with one of us. So here's hoping that we get together one of these weekends and have a good game!

Faculty Spotlight: David Bergman

By: Soham Desai

Professor Bergman joined the Operations joined the OPIM Department at UConn in 2013. He earned a B.S. and M.S. in Applied Mathematics and Statistics at SUNY Stony Brook in 2008, and completed an M.S. and his Ph.D. in Algorithms, Combinatorics, and Optimization at Carnegie Mellon University in 2013. His dissertation, titled "New Techniques in Discrete Optimization", focused on the investigation of novel techniques for solving a general class of decision optimization problems that arise in a variety of fields. This summer he will be working as a Visiting Scientist at Mitsubishi Electric Research Labs in Cambridge, MA, and returning to the University of Connecticut in the fall.

This summer Dr. David Bergman will be taking on an exciting opportunity to apply his knowledge of data analytics to solve real-world problems. For two months, Bergman will be working at Mitsubishi Electric Research Labs in Cambridge, MA as a Visiting

Scientist in the Data Analytics research group. He will join the Decision Optimization area within Data Analytics, where he will implement advanced optimization techniques to better the performance of various product lines offered by Mitsubishi Electric.

Decision optimization is a growing field that applies mathematical reasoning to business decision making. In particular, decision optimization is a set of tools and methodologies which allow decision makers to optimize key performance measures when deciding among a set of alternatives. Optimizing a performance measure may refer to a variety of objectives, including minimizing cost, maximizing utilization, or minimizing pollution. Often, optimal decisions heavily rely on the data available, and must be made based on uncertainty and other confounding parameters.

Business Decision Modeling, a required course in the MSBAPM program, provides a brief introduction to the topic of decision optimization, where students are introduced to many sub-areas of decision optimization, including spreadsheet modeling, optimization, linear programming, and network modeling. Bergman's thesis focused on developing algorithms designed to solve a general class of optimization problems, including those encountered in Business Decision Making.

At Mitsubishi Electric, and in particular in the Decision Optimization research group, data analytics and optimization have been applied in a variety of settings. Some examples include Smart Grid optimization, optimal operations of heating/cooling systems in buildings, group elevator scheduling, predictive car navigation, and energy optimization in electrified railroads. Problems such as these require the joint effort of data analytics and optimization in order to effectively access and acquire data that serves as input into optimization algorithms which assist decision makers in making key decisions.

Bergman is looking forward to joining Mitsubishi Electric this summer and sharing what he hopes to be a very positive experience with the OPIM community in the fall!

Student Workshop Teaches Excel Skills

By: Soham Desai
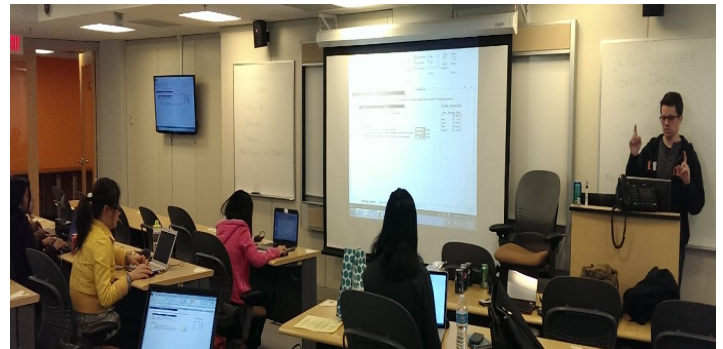
In our MSBAPM education, we are introduced to several new software programs that are cutting edge solutions in the analytics industry. In the excitement of learning all these new tools, one 'ancient' program seems to quickly become an after thought until you get your first job and you're reunited with your best friend, Microsoft Excel. In my professional experience as well as many of our academic and professional colleagues, Excel is still the main tool that is used in all levels of an organization. Several industries that are not as advanced with analytic tools yet, still use Excel as their main data warehousing, analytic and visualization tool. For this reason, fellow MSBAPM student Chele Modica and myself decided to put on a student-led workshop to refresh or introduce several excel skills to our peers.

The workshop was an interactive, hands-on experience where students were given an excel file to work with. We then went from one skill set to the other, covering basic shortcuts and navigating through excel to more advanced features such as function-use and creating meaningful pivot tables and charts. Overall the students were very engaged, sharing their own personal experience with Excel in the professional environment and asking several questions on different methods and approaches to

the excel skills being taught. A few weeks later, one student that attended the workshop shared with us that our workshop helped her prepare for an interview in which she was asked to demonstrate her excel skills. Several of the skills that were represented in the workshop were applied in the hands-on interview.

Excel is still a very vital tool in several organizations. The idea of the workshop was to share with fellow students how we observed Excel's relevance in today's world as well as refresh or introduce our peers to some helpful skills that they can use right away.

Students Watch Data Management Workshop Live-Stream

By: Tiffany Moy

On March 26, the MSBAPM Club hosted a live stream of a workshop sponsored by the UConn University Libraries titled "Clean up Messy Data with Open-Refine". This live stream was part of the UConn Libraries Data Management Workshop Series. The focus of this workshop was OpenRefine, a self-described "free, open source, powerful tool for working with messy data."

The PowerPoint presentation from this workshop is available. Feel free to contact Tiffany Moy at tiffany.moy@uconn.edu for the file.

The MSBAPM Club will also be hosting a live stream of another workshop titled "Legal & Ethical Issues for Research Data," in the GBLC on Wednesday, May 14th, from 12-1 PM.

Keep an eye out for additional details in an upcoming MSBAPM Weekly.

Spring 2014 MSBAPM Career Event

By: Mohith Paleti

The MSBAPM program hosted its first semi-annual career fair on April 8th. This event gave students the chance to network with recruiters from some of the top companies in and outside of Connecticut.

The career fair put students directly in front of potential employers. Some students did mini-interviews that lasted only 5-10 minutes. It was a good opportunity to get leads on jobs and internships.

Students also learned about each employer's interests and needs. Above all, students learned about the importance of networking. Students also had the chance to connect with each other. Many students shared tips and provided useful feedback to one another.

Spring 2014 Career Event Participating Companies:
- Aetna
- General Electric
- Henkel
- IBM
- ING
- iTech Solutions
- PepsiCo
- Travelers
- Tyco
- Walmart
- Wellpoint

Social Media Metrics That Matter

By: Hema Kamineni

How do you measure the success of your social media interactions? It's more than just the number of likes or retweets you get. According to a recent report from IBM's institute of Business Value, two-thirds of Chief Marketing Officers report they're not ready to cope with social media, and more than 82% say they're unprepared to deal with big data.

So what aren't they doing right here?

Today, many companies use metrics like the number of Facebook views, the number of website views or the number of new online purchases. Other common metrics are referral site traffic, social media mentions and product sales. Companies use a combination of these metrics to assess the success of their social media efforts.

While these metrics do represent a good portion of social media activity, they shouldn't be used to build your company's strategy. For instance, a brand might get much more revenue from a thousand highly interactive fans than from a million who rarely interact with their brands.

These metrics can be dangerous and yet companies still use them. Why? Perhaps it's simple to track followers and see which platform sends you the most traffic or maybe having over a million likes is a goal that is easily communicated to senior management. The nature of communication channels involved require a brand new approach. The future of social media needs to shift from likes to relational metrics.

Until recently social monitoring tools allowed you to listen to these conversations, but lacked the analytical capabilities required to drive business insights. But let's be real here. There are tons of metrics to

track and data to look at. Which ones make an impact on your organization?

There are a lot of tools out there to get you started. Just hashtag analytics or big data and there will be 10 guys messaging you on twitter asking you to try their products. I signed up for a free account at TrueSocialMetrics. To measure the success of your interactions, start with your marketing objective and then choose your metrics. For instance let's say the marketing objective is to increase customer engagement. Engagement is a great goal that will tell you impact on business by increasing traffic; growing brand awareness; and interactions with your brand. Engagement isn't a simple number like the number of connections or followers you have. Also every social media channel is different and engagement isn't the same for each. So how can we measure it? On TrueSocialMetrics I have the option to add all my social networks like Twitter, Facebook, Instagram, Pinterest, Google+, Blog, LinkedIn and YouTube, on one platform. I chose the following metrics to measure my customer engagement.

Conversion Rate: This is fairly straightforward in that it's based on the number of conversations per post. On Twitter, this is the replies to a tweet. Facebook and Instagram, it's a comment on the post or photo.

Amplification Rate: Any time a post is being retweeted or re-shared, it's being amplified. All networks allow you to do this. Think of it as the number of re-pins, retweets, or reshares of a particular post.

Applause Rate: Every social network has an easy touch point to show appreciation or applause, if you will. Twitter has favorites, Facebook has likes and we all know what +1 means. (No Google+, we don't). So applause rate is based on the number of "likes" each post gets.

Relative Engagement Rates: Now this is the one that gets me all giddy. So, you have all these engagement metrics, but what do the numbers mean? How can you compare the conversion rate on Facebook with

that on Instagram? This is where relative rates come in.

Using relative engagement metrics, you can start to compare followers to followers on different networks. Now, Facebook and Twitter are obviously not the same. If you can determine the engagement rate per follower, per channel, you can then work to improve those rates accordingly. Think of it as the average number of conversations happening per post, per follower.

So this is at the point of tracking data. The key is to capture these metrics on a regular basis. Having data and doing something about it are two different things. Senior management needs to know the ROI of what you do each day. So how do we take these metrics, and report them to the team in a way that is easily digestible? In a way it shows performance over time and helps everyone understand what's happening from a social perspective.

First, I create a dashboard, which is a quick and easy way to see where I'm at with reaching my goal at any given time. It includes weekly Key Performance Indicators (KPIs), baselines for each metric, the percent increase for this current period, goal by the end of the period and where I'm at with that goal.

In addition to this easy to read dashboard, we can create trend reports that show engagement rates and traffic from social channels over a period of time. For instance, I noticed a downward spiral of Facebook engagement and traffic, while Twitter continued to soar. This is a trend I noticed ever since Facebook made some changes to their feed that shows lesser updates from their brands. This is the kind of trend you would want to know about, so you can react to it.

Capturing data is just the beginning. Every business wants to harness the power of social media but they get all caught up with being present on social media, reporting its success to management in conventional ROI terms and tend to forget about engagement.

What businesses need to do when measuring ROI is to take into account the relational to reflect social media's true added value.

Check Out These Links

- "How Big Data is Changing IT Careers"

- "Experienced Project Managers Command Big Bucks"

- "Amplify your data career with analytics"

- "Big Data with a Personal Touch"

- "Where Process Improvement Projects Go Wrong"

Need a laugh?

- A Conference Call in Real Life

MSBAPM students at Color Me Rad, a 5K fun run held at Rentschler Field on April 26th.

INFORMS Conference
By: Neeraj Nagendra

The journey to the INFORMS Business Analytics and Operations Research Conference in Boston started this February when the MSBAPM faculty nominated Soham Desai and I to attend the conference. We knew this would be a great opportunity to meet new analytics professionals from both academia and industry. The conference was held at Westin Waterfront in Boston and lasted for three days.

On the first day of the conference, Soham and I were invited to attend an all day workshop called the "INFORMS Professional Colloquium" (IPC). The IPC was a round table discussion for budding professionals pursuing graduate degrees in various data science fields. The event was sponsored by many of big players in the data science industry, and included discussions with representatives from these organizations, who related their experiences with using data to add long-term value to their companies. Soham and I had the chance to speak with representatives from UPS, BNSF Railway, SAS, IBM, Lockheed Martin and many more.

Meeting students from other universities was also great, as it gave us the opportunity to exchange insights about graduate education in the analytics area and to talk about what makes UConn a truly unique program. The first day ended with a career fair, where Soham and I had the chance to connect with representatives from companies including Amazon, LinkedIn, Verizon, FedEx and many more.

Apart from the IPC, the conference included poster presentations by students and industry professionals. These presentations gave these individuals the opportunity to communicate their work in analytics and operations research, and to network with like-

minded individuals. Meeting such high-caliber people was a truly great experience.

INFORMS also invited Thomas Davenport, a highly distinguished professor of data and IT at Babson University, to deliver the keynote speech. It was amazing to listen to the guy that popularized the phrase "data scientist is the sexiest job of the 21st Century". Davenport spoke about his research in analytics and how the field has been categorized in various iterations (analytics 1.0, 2.0 and 3.0). Companies often place themselves in these brackets.

The organizers also invited Kathy Kilmer from the Walt Disney Company to deliver another speech. As Kilmer explained, Disney has invested so many resources into analytics and data science that it touches nearly everything Disney does now. Specifically, she had 4 key points points of advice for making analytics successful at a company:

(1) Focus Help Where Needed

(2) Create Healthy, Collaborative Relationships

(3) Proactively Suggest Ideas

(4) Continue to Build Credibility

Soham and I believe these are the same values taught in the UConn MSBAPM program.

The conference also included workshops and talks by industry representatives. These were open to anyone, and were quite diverse in terms of the different industries represented. Representatives from the healthcare, consulting, research, optimization and software domains were all represented. It was fascinating to learn new concepts which help us develop our critical thinking.

We also had the chance to get a sneak peek of some new tools being developed for companies to do better analysis and reporting. A very interesting talk was delivered by Jeffrey Camm, a professor of Business Analytics from the University of Cincinnati. He gave a few tips for data professionals:

(1) Question the data

(2) Question the assumptions of your model

(3) Be aware of pitfalls

(4) Build a strong team

Soham and I agreed that the main theme of the INFORMS conference was captured by Thomas Davenport: "It's not just about building the best model, it's about finding and communicating the insights". I believe this represents the underlying theme of almost every UConn MSBAPM course.

MSBAPM Newsletter Team

A very special "thank you" to the Newsletter Team who worked very hard to put this issue together!

This month's team consisted of Aswathy Mohandas, Bharath Shivaram, Elliot Hayden, Hema Kamineni, Mohith Paleti, Neeraj Nagendra, Sai Vadrevu, Soham Desai, Thejas Hegde, Tiffany Moy and Yiyao Zhang. If you're interested in working on the Summer edition of the newsletter over the summer, please email Tiffany Moy at tiffany.moy@uconn.edu.

The Analytics of Dividing and Conquering

By: Aswathy Mohandas

Big data is a catchphrase in almost every industry these days, not to mention it's a good conversation starter, when you drop the bomb that you are specializing in it. Now the mode of conversation could range from extreme paranoia regarding future privacy concerns to some enthusiasts asking us to explain in layman's term how big data can predict 'world changing events'. Now, the definition of 'world changing events' depends from person to person, no judgment!

Big data is riding the wave mainly due to hype about its predictive modeling capabilities and the fact remains that nobody publishes any jaw dropping articles regarding simple analytical capabilities like segmentation – which, as the name suggests, is a technique of simple old school people-watching.

Segmentation is a method predominately used in retail analytics to analyze the demography and to cluster them as per their common characteristics which could be geographic, behavioral or response based. There is no prediction or butterfly-effect analysis done here, this technique just involves dividing the consumers by their traits and learning more about their lifestyle and their similar response to a stimuli or event.

Consumer Packaged Goods (CPG) industry use these studies for their new product development and retail sector relay on these insights to for marketing campaigns and effective category management. Recently, I have seen a lot of interest in this kind of big data proliferation in political forefront with regards to strategizing election campaigns to gain more 'value votes' as per the demographics.

The terminology – Segmentation and Clustering is used interchangeably in many articles and training documents. What is difference? In fact, none! Segmentation is an analytic methodology and clustering is the fundamental behind the algorithms used for segmentation models. The most commonly used 'off-the-shelf' clustering algorithms are Kohonen, K-means and 2-step. For the uninitiated, 'off-the-shelf' algorithm means point and click in your SAS or SPSS workflow stream. The good news is you don't need to have much programming knowledge to develop a simple demographic segmentation model, only common sense and basic statistics is called for.

There are many market research companies who are developing their own market segmentation models. One such interesting project which is accessible online is Nielsen PRIZM developed by Claritas. This customer segmentation system uses US Census data on zip code level, to cluster the US consumers into 14 distinct groups and 66 demographically and behaviorally distinct types. It provides a seamless transition between geo-demographic to the household level information. For instance, the segment 'Young Digerati' is defined as nation's tech-savvy singles and couples who are highly educated and ethnically mixed, living in fashionable neighborhoods. Similarly, 'Shotguns & Pickups' segment consists of working class Americans who owns hunting rifles and pickup trucks. They have been very creative with naming the segments, which you can see here in the screenshot.

If people-watching in central park is one of your unlisted hobbies, you should proclaim it loud and proud as 'I'm a market segmentation connoisseur' and try your hand on one of those point-and-click cluster models in SAS or SPSS installed in our Skybox. Segmentation is so underrated that I'm sure at this point someone who is reading this article vaguely will have ideas of Hadoop clusters going on in their heads and you know how to spot a pseudo!

The Key to Unfolding Chaos – NoSQL

By: Sai Vadrevu

Relational Database Management Systems (RDBMS) are the basis of Structured Query Languages (SQL). Database systems like Oracle and MySQL work on structured data. Structured data refers to data that resides in fixed fields within a record or a file. Relational databases and spreadsheets are examples of structured data. It is easy to build data models when we are dealing with data that can be easily entered, stored, queried, processed and assessed. However, imagine the volume of data that is handled per second everywhere on social media (LinkedIn, Twitter, and Facebook), customer care call logs, blogs, forums and phone calls. Are we using this data?

Say I'd like to build a Twitter application. I come up with a relational database design first. The entities for my application would be;

1. Username/ID

2. Followers

3. Number of favorites

4. Attachments (Pictures/Audio/Video)

5. Retweets

Twitter data is highly unstructured and complex. After defining the entities, you can see how it would be very difficult to even come up with an Entity Relationship Diagram (EAD). The sheer volume of data alone is dizzying.

To query tables with such huge amounts of data with such complex relations, we need to have multiple Joins on lot of tables. If we think of it practically, it takes a lot of time to do a multi join on lot of tables and hinders the performance of the database and users have to keep on waiting for the results. Remember the more normalized the tables are, the more costly it is to run a query if it has large data sets.

As the size of data grows exponentially, it is difficult to scale the traditional RDBMS horizontally (infrastructure). The main disadvantages being;

• Storing: unstructured data can dramatically increase the size of databases.

• Backup: Restore time increases

• Performance: issues with I/O subsystems

What is the Solution?

NoSQL, sometimes referred to as "Not only SQL", is a relatively new type of database being used for big data implementations and real time web applications. This trend has a lot of advantages when it comes to handling Big Data databases.

1. Made for Big Data: It can be used to manage data collected from web forms, text messages, word processing documents, videos and other forms of unstructured data. In a NoSQL Database, there are no relationships among tables. It does not have a rigid schema that needs data integrity. Data is stored in the form of key-value pairs or in a structured format such as document stores, columnar, Graph etc.

2. Seamless Scalability: Instead of throwing money for scaling up by buying a bigger server with bigger capacity, NoSQL offers a convenient way to transition to new nodes, append data to tables on the fly

and add/delete new rows. All this while maintaining a high level of performance.

3. Cost Effective data processing: NoSQL thrives on low cost commodity hardware.

Examples of NO SQL Databases:

Key Value — Cassandra, Google Big Table, HBase

Document Oriented — Couchbase, Mongo DB

Columnar Databases — Vertica, MonetDB, Amazon RedShift

Graph Database — Neo4j

It's time to say goodbye to high-end RDBMS systems. Today, NoSQL databases have evolved to meet the scaling demands of Big Data. Application changes and database schema changes do not have to be managed as one complicated change unit and it comes at a much more affordable rate. With each of the NO SQL database, we have to have a tradeoff among one or more of the ACID Properties (Atomicity, Consistency, Isolation, and Durability). The particular use of each of the database depends on its use case and the business importance.

Student Spotlight: Dean Richards

By: Thejas Hegde

Student Profile:

Name: Dean Richards
Grad. Date: Dec. 2014
Under Grad: UConn – B.S. in Business Technology
Hometown: East Hartford, CT

Dean is currently participating in the Information Technology (IT) Leadership Program at United Technologies Corporation. During his time in this program, he has held project management and business analyst roles at Sikorsky Aircraft Company, Pratt and Whitney Corporation, and Otis Elevator Company. He also held an IT intern position at Travelers. Before

making the leap into IT, Dean served 5 years in the U.S. Navy as an engine-room supervisor.

Why did you choose the MSBAPM program?

I chose the MSBAPM program for the following three reasons:
1) To change the way I approach data in order to find value, even if value is not readily apparent.
2) To be able to add to my project management toolset so I can effectively manage projects from initiation to close.
3) I believe in the University and the professors, as my undergraduate degree has well prepared me for my current role at United Technologies.

Do you have any advice that you would like to give your fellow students, such as something you believe in or follow in your own life?

I believe that there is room for continuous improvement in all aspects of life. The world/technology is constantly changing, and we should never stop learning to be better equipped to face new challenges.

What do you like to do in your free time?

In my spare time, I participate in various volunteer events. Currently, I am raising money to donate to the American Cancer Society, and I mentor youth through the Junior Achievement program.

Student Spotlight: Amber Ye

By: Hema Kamineni

Background:

My undergraduate major was finance.

A friend of mine was a project manager. He highly recommended that I learn project management techniques. I did a Google search for graduate programs in project management, which led me to the UConn MSBAPM program, which is perfectly aligned with my career goals and personal passions.

Who is your mentor and why?

My project manager friend is my most important mentor. He is very knowledgeable in this area and has taught me a lot, and he encouraged me to learn more about this exciting and growing area.

Could you tell us about the Scholarship Award?

The MSBAPM Scholarship Award recognizes high-performing students in our program. I feel so delighted to have won. I had no idea that I would be a recipient until the announcement. It was wonderful.

What inspires or motivates you?

My goals inspire me. I want to be a successful project manager.

What are the 2 or 3 things that you are doing to prepare for your professional career?

I'm preparing for the Certified Associate in Project Management (CAPM) exam. I'm also looking for a summer internship at a great company. I want to use this opportunity as a bridge to a full-time position.

How did you celebrate the Husky Weekend?

My friends and I cooked some really great food!

Before MSBAPM...

I came to the UConn MSBAPM program right after my undergraduate graduation from Qingdao University in China. My major was finance and I had little experience in business analytics and project management. Things changed once I met Hilary, who is American and works as a program director in China.

About the MSBAPM Club

UConn MSBAPM Club - An Introduction

We live in a digital age wherein there is rapid diffusion of information across multiple channels, industries, and spheres of life. This has led to the exponential growth of information commonly referred to as Big Data. Today's critical business challenge is translating this information into long-term business value. Individuals who understand the value of analytical thinking will play a key role in influencing the direction and growth of business.

The UConn Master of Science in Business Analytics & Project Management (MSBAPM) is a top-ranked graduate degree program that aims to prepare students for the Big Data challenges of the digital age. The UConn MSBAPM Club was formed in 2011 to enhance the academic and professional environment within the program. The vision and mission statements for the club are presented below.

Vision Statement

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*T*o help UConn MSBAPM students meet the changing demands of the highly competitive global workplace by empowering them with the professional skills that will set them up for success in the business world.

Mission Statement

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*T*he mission of the UConn MSBAPM program is to help students meet their goals. This will be accomplished by:

1. Providing current students with professional development opportunities to complement their coursework in business analytics and project management.

2. Serving as an advocate for the MSBAPM student body to ensure their voices are heard by the MSBAPM Program Staff and the wider University of Connecticut School of Business.

3. Assisting the MSBAPM Program Staff with career development initiatives and special projects on an as-needed basis.

MSBAPM FACULTY:

Program Director: Dr. Jose Cruz

Department Head: Dr. Ram Gopal

Program Manager: Anna Radziwillowicz

Program Coordinator: Kathy O'Connor

MSBAPM CLUB LEADERSHIP:

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VP of Alumni: Yiyao (Yolanda) Zhang

VP of Marketing: Soham Desai

Assistant VP of Marketing: Tiffany Moy

VP of Communication: Rohit Bethmangalkar

Assistant VP of Communication: Rini Devnath